

Re: [Viruses] Special Issue "MERS-CoV "-Workload

From: Allison Yang/MDPI <allison.yang@mdpi.com>
To: Du, Lanying <LDu@nybc.org>, lifang@umn.edu
Cc: viruses@mdpi.com
Sent: November 29, 2018 12:03:43 AM CST
Received: November 29, 2018 12:03:49 AM CST

Thank you very much, Lanying.

As an alternative, we can also extend the deadline by 2-3 months, so that the submissions may come in at a steady pace. What do you think?

I look forward to your reply.

Best,
Allison

On 11/29/2018 10:55 AM, Du, Lanying wrote:

OK Allison.

I will do my best to handle these manuscripts.

Best regards,
Lanying

From: Allison Yang/MDPI <allison.yang@mdpi.com>
Sent: Wednesday, November 28, 2018 12:50 AM
To: Du, Lanying; lifang@umn.edu
Cc: viruses@mdpi.com
Subject: [Viruses] Special Issue "MERS-CoV "-Workload

Dear Fang, dear Lanying,

I just heard from Esber that Fang might be busy during this period time and the current workload for this special issue might be too much for you.

As we have about 11 papers to be received, most of them may submit in December and January, I am wondering if you can handle 1-2 papers every month. Lanying, could you handle the rest (about 3-4 papers every month)? In addition, we will invite the associate editor/Editor in Chief to handle the paper from guest editor, so Lanying's paper will not be assigned to both of you.

I hope it would be fine with you and our special issue will run smoothly in the last few months.

Thanks for your understanding, please feel free to let me know if you have any questions.

Best,

Allison

[New York Blood Center]<<http://www.nybloodcenter.org>>

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Re: Fw: Nature Reviews Microbiology: Article PDF and Online Survey

From: Jie Cui <jiecui@wh.iov.cn>
To: zlshi <zlshi@wh.iov.cn>
Cc: lifang <lifang@umn.edu>
Sent: December 10, 2018 7:04:01 PM CST
Received: December 10, 2018 7:04:11 PM CST

石老师好，
Great news!!

祝好，
崔杰

--

Prof. Jie Cui
Principal Investigator
Virus Bioinformatics Group
Wuhan Institute of Virology, CAS
Tel: +86 (27)87199895

ORCID ID: <http://orcid.org/0000-0001-8176-9951>

-----原始邮件-----

发件人:zlshi <zlshi@wh.iov.cn>

发送时间:2018-12-11 08:44:04 (星期二)

收件人: lifang <lifang@umn.edu>, "崔杰" <jiecui@wh.iov.cn>

抄送:

主题: Fw: Nature Reviews Microbiology: Article PDF and Online Survey

李放、崔杰，

我们的综述文章发表了。

如果你们发现有些文献的引用有点奇怪，我在这里向你们道歉。在我最后校稿的时候我发现有些文献的引用“掉包了”，我猜想应该是我用EndNote重新组织文献的时候出现的失误。我虽然做了补救，但可能还有一些引用不是百分之百和你们最初提交的稿件相对应。

谢谢你们对这篇文章的贡献，希望有机会继续合作！

正丽

SHI Zhengli, Ph. D
Senior Scientist & Professor
Wuhan Institute of Virology, Chinese Academy of Sciences

44 Xiao Hong Shan
430071 Wuhan, Hubei
China
Tel & Fax: (0086) 27 87197240
Email: zlshi@wh.iov.cn

From: [Georgia Francis](#)
Date: 2018-12-10 23:16
To: zlshi@wh.iov.cn
Subject: Nature Reviews Microbiology: Article PDF and Online Survey

Dear Zheng-Li,

I hope you're well? I am delighted to inform you that the article you wrote for Nature Reviews Microbiology has now been published online. It can be accessed by our online subscribers.

Please find a PDF of the final paper attached. A print copy in which the article appears will be sent to you by post.

To thank you for contributing to our journal, we will be proceeding to set you up with a complimentary one year online subscription to our journal. You will receive details regarding this soon.

As we value contributions such as yours, we are always looking for ways to improve our editorial and production practice. Therefore we would be most grateful if you could do feedback on your experience from your manuscript's acceptance, right through to publication via our online survey at:

https://springernature.eu.qualtrics.com/SE/?SID=SV_3rQyjggyxE7pSrH&Source=4&MS=NRMICRO-17-293

If you missed the first survey, which addressed your experience of working with the editorial and art teams up to the point of article acceptance, please find it here:

https://springernature.eu.qualtrics.com/SE/?SID=SV_bqJMEU7RAZMQaBn&Source=4&MS=NRMICRO-17-293

If you wish to order reprints of your article, please visit our online ordering page at:

<http://www.nature.com/reprints/index.html>

Once again, thank you for all your efforts in preparing the article. I hope that you are pleased with the final version.

If you have any questions, please don't hesitate to get in touch.

Best wishes,
Georgia

Georgia Francis
Senior Editorial Assistant
Nature Reviews | BioPharma Dealmakers
Nature Research

4 Crinan Street London N1 9XW

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Re: Fw: Nature Reviews Microbiology: Article PDF and Online Survey

From: Fang Li <lifang@umn.edu>
To: Zhengli Shi <zlshi@wh.iov.cn>
Cc: jiecai <jiecai@wh.iov.cn>
Sent: December 11, 2018 9:07:38 AM CST

Thanks, Zhengli.

Cheers,
Fang

On Mon, Dec 10, 2018 at 6:44 PM zlshi <zlshi@wh.iov.cn> wrote:
李放、崔杰，

我们的综述文章发表了。

如果你发现有些文献的引用有点奇怪，我在这里向你们道歉。在我最后校稿的时候我发现有些文献的引用“掉包了”，我猜想应该是我用EndNote重新组织文献的时候出现的失误。我虽然做了补救，但可能还有一些引用不是百分之百和你们最初提交的稿件相对应。

谢谢你们对这篇文章的贡献，希望有机会继续合作！

正丽

SHI Zhengli, Ph. D
Senior Scientist & Professor
Wuhan Institute of Virology, Chinese Academy of Sciences
44 Xiao Hong Shan
430071 Wuhan, Hubei
China
Tel & Fax: (0086) 27 87197240
Email: zlshi@wh.iov.cn

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To thank you for contributing to our journal, we will be proceeding to set you up with a complimentary one year online subscription to our journal. You will receive details regarding this soon.

As we value contributions such as yours, we are always looking for ways to improve our editorial and production practice. Therefore we would be most grateful if you could do feedback on your experience from your manuscript's acceptance, right through to publication via our online survey at:
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<http://www.nature.com/reprints/index.html>

Once again, thank you for all your efforts in preparing the article. I hope that you are pleased with the final version.

If you have any questions, please don't hesitate to get in touch.

Best wishes,
Georgia

Georgia Francis
Senior Editorial Assistant
Nature Reviews | BioPharma Dealmakers
Nature Research

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--

Fang Li, Ph.D.
Associate Professor
Department of Veterinary and Biomedical Sciences
University of Minnesota Twin Cities
612-625-6149, lifang@umn.edu
<http://www.msi.umn.edu/~lifang>

RE: New York Blood Center, Inc.; Your Ref. NYBC684; Our Ref. 44682-0005P01; Request for Assignments

From: Du, Lanying <LDu@nybc.org>
To: Edelmann, Lambert <LEdelmann@nybc.org>
Cc: Fang Li <lifang@umn.edu>
Sent: December 12, 2018 2:56:43 PM CST
Received: December 12, 2018 2:56:57 PM CST
Attachments: Fang Li Assignment.pdf

Thanks Lambert. We will do soon.

I have cc'ed Fang in this email. He will sign the attached assignment and send it to you.

Best,
Lanying

From: Edelmann, Lambert
Sent: Wednesday, December 12, 2018 3:50 PM
To: Du, Lanying <LDu@nybc.org>; Tai, Wanbo <WTai@nybc.org>
Subject: FW: New York Blood Center, Inc.; Your Ref. NYBC684; Our Ref. 44682-0005P01; Request for Assignments

Lanying,

Can you please sign with Channet the attached assignment and please have Wanbo and Fang do the same. I do not see Fang Li's email, please forward it for me. Thank you.

Let me know if you have questions,

Lambert

From: Cathy O'Brien <OBrien@fr.com>
Sent: Wednesday, December 12, 2018 3:41 PM
To: Edelmann, Lambert <LEdelmann@nybc.org>
Cc: Vasily Ignatenko <ignatenko@fr.com>; Teresa Lavoie <lavoie@fr.com>; APS Outgoing <APSO@fr.com>
Subject: New York Blood Center, Inc.; Your Ref. NYBC684; Our Ref. 44682-0005P01; Request for Assignments

Re: SUBUNIT VACCINES

Applicant: New York Blood Center, Inc. et al.
Application No.: 62/751,470
Filing Date: October 26, 2018
Country: United States
Your Ref.: NYBC684
Our Ref.: 44682-0005P01

Dear Lambert:

This is a follow-up to my message of November 16, 2018.

Attached are additional copies of the Assignments regarding the above-referenced application. The Assignments should be signed and dated by each inventor in the presence of two witnesses, who should sign and date where indicated. The company official should also sign at the bottom of the form where indicated.

Kindly return the Assignments to us by email at your earliest opportunity for recordation in the U.S. Patent and Trademark Office.

If you have any questions, please do not hesitate to contact us.

Best regards,
Cathy

Cathy O'Brien :: US & Foreign Patent Paralegal/Case Manager :: Fish & Richardson P.C.
One Marina Park Drive, Boston, MA 02210-1878
Direct: 617 956 5982 :: Main: 617 542 5070 :: Fax: 617 542 8906 :: fr.com

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Re: New York Blood Center, Inc.; Your Ref. NYBC684; Our Ref. 44682-0005P01; Request for Assignments

From: Fang Li <lifang@umn.edu>
To: Du, Lanying <LDu@nybc.org>
Sent: December 14, 2018 3:48:13 PM CST

又要签什么字啊?

On Wed, Dec 12, 2018 at 2:56 PM Du, Lanying <LDu@nybc.org> wrote:

Thanks Lambert. We will do soon.

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Best,

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From: Fang Li <lifang@umn.edu>
To: Du, Lanying <LDu@nybc.org>
Sent: December 14, 2018 4:00:08 PM CST

“Signed by two witnesses and your university”什么意思？

On Fri, Dec 14, 2018 at 3:51 PM Du, Lanying <LDu@nybc.org> wrote:

Patent for ZIKV vaccines. Signed by two witnesses and your university.

From: Fang Li <lifang@umn.edu>
Sent: Friday, December 14, 2018 4:48 PM
To: Du, Lanying <LDu@nybc.org>
Subject: Re: New York Blood Center, Inc.; Your Ref. NYBC684; Our Ref. 44682-0005P01; Request for Assignments

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RE: New York Blood Center, Inc.; Your Ref. NYBC684; Our Ref. 44682-0005P01; Request for Assignments

From: Du, Lanying <LDu@nybc.org>
To: Fang Li <lifang@umn.edu>
Sent: December 14, 2018 4:02:52 PM CST
Received: December 14, 2018 4:03:03 PM CST
Attachments: Signed assignment_Du.pdf

See attached example. The bottom part needs to be signed by your university.

From: Fang Li <lifang@umn.edu>
Sent: Friday, December 14, 2018 5:00 PM
To: Du, Lanying <LDu@nybc.org>
Subject: Re: New York Blood Center, Inc.; Your Ref. NYBC684; Our Ref. 44682-0005P01; Request for Assignments

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Fang Li, Ph.D.
Associate Professor
Department of Veterinary and Biomedical Sciences
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--

Fang Li, Ph.D.
Associate Professor
Department of Veterinary and Biomedical Sciences
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<http://www.msi.umn.edu/~lifang>

**Re: New York Blood Center, Inc.; Your Ref. NYBC684; Our Ref. 44682-0005P01;
Request for Assignments**

From: Fang Li <lifang@umn.edu>
To: Du, Lanying <LDu@nybc.org>
Sent: December 14, 2018 4:03:45 PM CST

学校随便找两个人就可以？

On Fri, Dec 14, 2018 at 4:03 PM Du, Lanying <LDu@nybc.org> wrote:

See attached example. The bottom part needs to be signed by your university.

From: Fang Li <lifang@umn.edu>
Sent: Friday, December 14, 2018 5:00 PM
To: Du, Lanying <LDu@nybc.org>
Subject: Re: New York Blood Center, Inc.; Your Ref. NYBC684; Our Ref. 44682-0005P01; Request for Assignments

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Patent for ZIKV vaccines. Signed by two witnesses and your university.

From: Fang Li <lifang@umn.edu>
Sent: Friday, December 14, 2018 4:48 PM
To: Du, Lanying <LDu@nybc.org>
Subject: Re: New York Blood Center, Inc.; Your Ref. NYBC684; Our Ref. 44682-0005P01; Request for Assignments

又要签什么字啊？

On Wed, Dec 12, 2018 at 2:56 PM Du, Lanying <LDu@nybc.org> wrote:

Thanks Lambert. We will do soon.

I have cc'ed Fang in this email. He will sign the attached assignment and send it to you.

Best,

Lanying

From: Edelmann, Lambert
Sent: Wednesday, December 12, 2018 3:50 PM
To: Du, Lanying <LDu@nybc.org>; Tai, Wanbo <WTai@nybc.org>
Subject: FW: New York Blood Center, Inc.; Your Ref. NYBC684; Our Ref. 44682-0005P01; Request for Assignments

Lanying,

Can you please sign with Channet the attached assignment and please have Wanbo and Fang do the same. I do not see Fang Li's email, please forward it for me. Thank you.

Let me know if you have questions,

Lambert

From: Cathy O'Brien <OBrien@fr.com>
Sent: Wednesday, December 12, 2018 3:41 PM
To: Edelmann, Lambert <LEdelmann@nybc.org>
Cc: Vasily Ignatenko <ignatenko@fr.com>; Teresa Lavoie <lavoie@fr.com>; APS Outgoing <APSO@fr.com>
Subject: New York Blood Center, Inc.; Your Ref. NYBC684; Our Ref. 44682-0005P01; Request for Assignments

Re: SUBUNIT VACCINES

Applicant: New York Blood Center, Inc. et al.

Application No.: 62/751,470

Filing Date: October 26, 2018

Country: United States

Your Ref.: NYBC684

Our Ref.: 44682-0005P01

Dear Lambert:

This is a follow-up to my message of November 16, 2018.

Attached are additional copies of the Assignments regarding the above-referenced application. The Assignments should be signed and dated by each inventor in the presence of two witnesses, who should sign and date where indicated. The company official should also sign at the bottom of the form where indicated.

Kindly return the Assignments to us by email at your earliest opportunity for recordation in the U.S. Patent and Trademark Office.

If you have any questions, please do not hesitate to contact us.

Best regards,

Cathy

Cathy O'Brien :: US & Foreign Patent Paralegal/Case Manager :: Fish & Richardson P.C.
One Marina Park Drive, Boston, MA 02210-1878
Direct: 617 956 5982 :: Main: 617 542 5070 :: Fax: 617 542 8906 :: fr.com

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--

Fang Li, Ph.D.
Associate Professor
Department of Veterinary and Biomedical Sciences
University of Minnesota Twin Cities
612-625-6149, lifang@umn.edu
<http://www.msi.umn.edu/~lifang>

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RE: New York Blood Center, Inc.; Your Ref. NYBC684; Our Ref. 44682-0005P01; Request for Assignments

From: Du, Lanying <LDu@nybc.org>
To: Fang Li <lifang@umn.edu>
Sent: December 14, 2018 4:07:44 PM CST
Received: December 14, 2018 4:07:51 PM CST

But our forms were signed under Notarization of our center. Anyway, this form does not mention it has to be notarized.

From: Du, Lanying
Sent: Friday, December 14, 2018 5:05 PM
To: Fang Li <lifang@umn.edu>
Subject: RE: New York Blood Center, Inc.; Your Ref. NYBC684; Our Ref. 44682-0005P01; Request for Assignments

YES

From: Fang Li <lifang@umn.edu>
Sent: Friday, December 14, 2018 5:04 PM
To: Du, Lanying <LDu@nybc.org>
Subject: Re: New York Blood Center, Inc.; Your Ref. NYBC684; Our Ref. 44682-0005P01; Request for Assignments

学校随便找两个人就可以？

On Fri, Dec 14, 2018 at 4:03 PM Du, Lanying <LDu@nybc.org> wrote:

See attached example. The bottom part needs to be signed by your university.

From: Fang Li <lifang@umn.edu>
Sent: Friday, December 14, 2018 5:00 PM
To: Du, Lanying <LDu@nybc.org>
Subject: Re: New York Blood Center, Inc.; Your Ref. NYBC684; Our Ref. 44682-0005P01; Request for Assignments

“Signed by two witnesses and your university”什么意思？

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Kindly return the Assignments to us by email at your earliest opportunity for recordation in the U.S. Patent and Trademark Office.

If you have any questions, please do not hesitate to contact us.

Best regards,
Cathy

Cathy O'Brien :: US & Foreign Patent Paralegal/Case Manager :: Fish & Richardson P.C.
One Marina Park Drive, Boston, MA 02210-1878
Direct: 617 956 5982 :: Main: 617 542 5070 :: Fax: 617 542 8906 :: fr.com

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Associate Professor
Department of Veterinary and Biomedical Sciences
University of Minnesota Twin Cities
612-625-6149, lifang@umn.edu
<http://www.msi.umn.edu/~lifang>

Re: Subaward NYBC to University of Minnesota PO NYB1001719 for Dr. Li

From: Brett Carlson <carls234@umn.edu>
To: Walton, Theresa <TWalton@nybc.org>
Cc: Fang Li <lifang@umn.edu>, Du, Lanying <LDu@nybc.org>, Anne M Mockovak-1 <a-mock@umn.edu>, Mathis, Kenneth <KMathis@nybc.org>, Ross, Deborah <DRoss2@nybc.org>, Greene, Barry <BGreene@nybc.org>
Sent: December 19, 2018 11:57:38 AM CST
Received: December 19, 2018 11:57:45 AM CST
Attachments: Purchase Order -NYB1001719- University of Minnesota - Dec. 2018.pdf

Hi Theresa,

The terms of the subaward agreement were agreed to by both parties, not the terms of this PO which conflict with the agreement. ½ The PO should be referencing the terms of the agreement. ½ Please amend the PO and send it to my attention.

Thanks,

Brett

Brett Carlson
Sr. Grant & Contract Administrator
University of Minnesota
Office of Sponsored Projects Administration
450 McNamara Alumni Center
200 Oak Street SE
Minneapolis, MN 55455
Phone: 612-626-7441
Fax: 612-624-4843

On 12/19/2018 9:51 AM, Walton, Theresa wrote:

Good Morning Brett,

½

The Purchase Order for subaward from NYBC to University of Minnesota under NIH grant 1R01AI139092-01 entitled "Structure-based design of coronavirus subunit vaccines" with Dr Li ½ is attached. Please be sure to reference PO NYB1001719 on all vouchers specifically linked to project period 05/21/2018-04/30/2019 to avoid any processing delays. All vouchers are to **be submitted no later than 30 days after the last day of the month** and shall be sent to APINVOICES@nybc.org .

½

Please let us know if you have any questions at this time.

½

½

Thanks,

Theresa R. Walton, MPA
Manager, Grants & Contract Proposals

½

Office of Sponsored Programs

New York Blood Center

310 East 67th Street

New York, NY 10065

T: 212-570-3150

twalton@nybc.org

½



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1. Purchase Order -NYB1001719- University of Minnesota - Dec. 2018.pdf

Type: application/pdf
Size: 65 KB (67,539 bytes)



Purchase Order NYB1001719

Supplier Details:

Company REGENTS OF THE UNIVERSITY OF MINNESOTA
Contact
Address 450 McNAMARA ALUMNI CENTER
200 Oak St SEOffice of Sponsored
ProjectsADMINISTRATION
MINNEAPOLIS, MN
554552070

Inside Deliveries Only
9 A.M-5 P.M
MON THRU FRIDAY

Submit your response to:

Company New York Blood Center
Contact Migdali Gonzalez
Address 310 East 67 Street
New York, NY
10065
Phone 212-570-3297
Fax 212-879-0979
E-mail MGonzalez@nybc.org

Please review the Purchase Order attached and the associated Terms of Sale.

Purchase Order NYB1001719

| | |
|-------------------|----------------|
| Order | NYB1001719 |
| Order Date | 18-DEC-2018 |
| Change Order | 0 |
| Change Order Date | 18-DEC-2018 |
| Revision | 0 |
| Ordered | 184,600.00 USD |

Sold To **New York Blood Center**
310 East 67 Street
New York, NY
10065

Supplier **REGENTS OF THE UNIVERSITY OF MINNESOTA**
450 McNAMARA ALUMNI CENTER
200 Oak St SE Office of Sponsored Projects ADMINISTRATION
MINNEAPOLIS, MN
554552070

Bill To **New York Blood Center**
EMAIL: apinvoices@nybc.org

Ship To **310 EAST 67TH. STREET**
NEW YORK, NY
10065
United States

Notes USD = US Dollar

| | | | | | |
|-------------------------|---------------------|---------------|---------------|--|-----------------|
| Customer Account Number | Supplier Number | Payment Terms | Freight Terms | FOB | Shipping Method |
| | 12275 | Immediate | | | |
| Confirm To | Deliver To Contact | | | | |
| Migdali Gonzalez | Deborah Ross | | | E-mail DRoss2@nybc.org | |

| Line | Item | Price | Quantity | UOM | Ordered | Taxable |
|-------------------|---|------------|----------|-----|-------------------|---------|
| 1 | Subcontract Agreement between - University of Minnesota and NYBC. NIH grant 1R01AI139092-01. Project Period: May 21, 2018 to April 30, 2019. Amount: \$184,600. NYBC No. VIM-NIH554. | 184,600.00 | | | 184,600.00 | |
| | <p>Notes VIM-NIH554 -This Subcontract Agreement between the New York Blood Center, Inc. and University of Minnesota for work and services to be performed under NIH grant 1R01AI139092-01 entitled "Structure-based design of coronavirus subunit vaccines". Dr. Fang Li of University of Minnesota will collaborate with NYBC's Dr. Lanying Du. Performance Period: 5/21/2018 through 4/30/2019. The total cost authorized is \$184,600 which includes indirect cost. Vouchers are to be submitted monthly referencing this Purchase Order Number and shall be sent to APINVOICES@nybc.org. NYBC Number: VIM-NIH554.</p> <p>Attn: Accounts Payable, New York Blood Center, 310 E. 67th Street, New York, NY 10065</p> <p style="text-align: center;">Promised 12/24/18</p> <p style="text-align: center;">Requested 12/24/18</p> <p>Requested and Promised Dates correspond to the date of arrival at the Ship-to Location.</p> | | | | | |
| Line Total | | | | | 184,600.00 | |

Purchase Order NYB1001719

| Line Item | Price | Quantity | UOM | Ordered | Taxable |
|--------------|-------|----------|-----|-------------------|---------|
| Total | | | | 184,600.00 | |

PLEASE NOTE: The Terms of Sale set forth at the conclusion hereof apply to this Purchase Order. If, for any reason, the face of this Purchase Order has been transmitted or otherwise supplied to you without the Terms of Sale, you are nonetheless charged with notice thereof and such Terms of Sale nonetheless apply to this Purchase Order. Please contact New York Blood Center at the Telephone number indicated to obtain a copy of such Terms of Sale.



Authorized Signature

Purchase Order NYB1001719

TERMS OF SALE

NEW YORK BLOOD CENTER, INC. ("Buyer") hereby offers to purchase the goods, products, work and/or services specified on the face of this Purchase Order (such goods, products, work and/or services, collectively, the "Goods", and this Purchase Order, the "Order") from the person, firm or entity specified on the face of this Order ("Seller") on the specific terms and conditions set forth on the face hereof and the general provisions contained herein below.

1. Purchase Order. Buyer agrees to purchase the Goods only upon the terms and conditions set forth in this Order; acceptance of Buyer's offer to purchase the Goods is hereby expressly limited to the terms of this Order. Without limitation of the foregoing, Buyer hereby objects to any different and/or additional terms that Seller may heretofore have proposed and/or hereafter may propose with respect to this Order (in each case other than additional warranties of Seller) except as Buyer may expressly accept in writing. If this Order is issued pursuant to a master agreement between Seller and Buyer, the provisions of such master agreement shall apply to the Order but only to the extent so specified in such master agreement and such provisions do not contradict and are not inconsistent with this Order.
2. Acceptance Of Purchase Order. This Order is an offer to purchase, not an acceptance of any offer to sell. Such offer (and this Order) shall expire without liability unless Buyer has received written acceptance thereof by Seller within [five] ([5]) business days of the date of this Order (or within such shorter period of time as may be specified on the face of this Order). Acceptance is limited to the terms stated herein.
3. Cancellation. This Order may be cancelled at any time in part or in full prior to the acceptance by Buyer of any of the Goods, at no cost or obligation.
4. Packing And Marking. Seller shall securely and adequately pack the Goods (to the extent applicable, in conformance with Buyer's instructions and the requirements of the carrier). Seller shall separately number all packages or containers, showing the corresponding numbers on the invoices. An itemized packing slip bearing this Order number shall be placed in each package or container.
5. Risk Of Loss, Shipping. Unless otherwise specified on the face of this Order, the Goods shall be delivered to Buyer F.O.B. Buyer's facility at the address (and otherwise in accordance with the delivery instructions) specified on the face of this Order. Seller shall retain title to and risk of loss or damage to all Goods to be delivered hereunder until completion of delivery of the Goods to Buyer at such specified delivery point (at which time such title and risk of loss shall (subject to clause (4) of Section 2-401, and clauses (1) and (2) of Section 2-510, of the New York Uniform Commercial Code – Sales ("New York UCC")) pass to Buyer. Timely delivery of Goods is of the essence of this Order. If any Goods are not delivered by the delivery date specified on the face of this Order (or within a reasonable period of time if no such date is specified), Buyer may (without limiting any of its other rights or remedies) refuse to accept the Goods and cancel this Order. In the event this Order involves deliveries in installments, Seller's failure to deliver one installment at the time and place specified herein shall be deemed a breach with respect to the remaining installments. Acceptance of late deliveries shall not be deemed a waiver of Buyer's right to hold Seller liable for any loss or damage resulting therefrom, nor shall such acceptance act as a modification of Seller's obligation to make future deliveries in accordance with the delivery schedule. Buyer reserves the right to refuse acceptance of deliveries made (i) prior to the delivery date specified on the face of this Order, or (ii) other than during the regular business hours specified on the face of this Order.
6. Inspection And Acceptance Of Delivery. All Goods will be received subject to Buyer's right of inspection and testing, and acceptance or rejection, within a reasonable period of time (in any event, not less than three (3) business days) after delivery. Payment for Goods will not in any event constitute acceptance thereof. Buyer may reject any Goods which do not fully conform to this Order (including without limitation conformance to all warranties of Seller set forth in or otherwise applicable to this Order) or which are otherwise defective and may return such rejected Goods to Seller at Seller's risk and expense and, in addition to other rights, Buyer may charge Seller all expenses of unpacking, examining, repacking and reshipping such Goods. Seller shall not have the right to send any replacements for, or otherwise cure, rejected Goods unless approved in advance by Buyer in writing, but Seller shall promptly do so upon Buyer's request. No delay or failure to inspect or test or failure to discover any defect or non-conformance shall relieve Seller of any of its warranties set forth in or otherwise applicable to this Order or otherwise impair Buyer's rights (including without limitation indemnification rights) or remedies with respect to such defect or non-conformance. If this Order calls for delivery in installments, Buyer's rights of rejection set forth under this Order, or otherwise provided under the New York UCC, shall apply in relation to each installment regardless of whether or not the non-conformity substantially impairs the value of such installment and regardless of whether or not the non-conformity can be cured. Nothing in this Order limits Buyer's right under the New York UCC to revoke any acceptance of the Goods or any portion thereof.
7. Prices, Invoicing. Unless (and except only to the extent) otherwise provided on the face of this Order, the pricing for the Goods set forth on the face of this Order is a delivered, all-inclusive price and, without limitation of the foregoing, includes (i) any federal, state or local sales tax or other tax or duty which is imposed upon the sale, performance and/or delivery of the Goods to Buyer and (ii) all charges for packaging, storage, shipping and (to the extent applicable) insurance. A separate invoice shall be issued for each shipment.
8. Payment. Invoices must be emailed to apinvoices@nybc.org referencing the purchase order number. Seller will not invoice Buyer for any goods prior to delivery thereof (or, if later, the delivery date specified on the face of this order). Unless and to the extent otherwise specified on the face of this order, payment will be made in US dollars and payment will be due (subject to the other terms of this order) within 60 days (measured from the Invoice date to the date invoice is due (or Buyer otherwise makes payment)). Alternatively, seller may choose to participate in NYBC's American Express Buyer Initiated Payments ("BIP") program for expedited invoice payment in 30 Days. For information on enrolling in the BIP program. Seller should contact NYBC's Account Payable Department at 212-699-5170
9. Certain Warranties. In addition to, and without limitation of, Seller's standard warranty and/or service guarantee and all express and/or implied warranties pursuant to the New York UCC (all of which cumulatively shall apply), Seller warrants that the Goods will be of good and merchantable quality and free from defect in material or workmanship, will conform strictly to any specifications, drawings and/or samples specified and/or furnished by Buyer and (to the extent including any work and/or services other than the furnishing of goods) will be performed in a professional and workmanlike manner and in accordance with good commercial practice; that to the extent not manufactured pursuant to specific designs furnished by Buyer, the Goods will be free from all defects in design and will properly serve their ordinary, and any specified, purpose; that all materials, components, parts and other items incorporated in the Goods are new and of suitable quality for their ordinary, and any specified, purpose. All of the warranties specified or mentioned above

Purchase Order NYB1001719

in this paragraph shall survive delivery, inspection, acceptance and payment and shall inure to the benefit of Buyer and its successors and assigns.

10. **Title Warranty.** Seller warrants that it will convey to Buyer good and merchantable title to the Goods supplied hereunder, free and clear of all security interests, liens or encumbrances. Seller further warrants that the sale, use, modification and/or re-sale of the Goods furnished hereunder (other than those parts of the Goods supplied or designed by Buyer) will not infringe or contribute to infringement of any intellectual property (including without limitation patent, copyright, trademark or trade secret) or intellectual property rights of any third party.

11. **Compliance With Law.** Seller shall, in the performance of this Order, comply with, and Seller warrants and certifies that the Goods shall meet or exceed, have been or shall be manufactured and/or performed in accordance with, and otherwise comply with, all applicable federal and state statutes, rules, regulations, standards and orders, including without limitation federal and state wage and hour and employment discrimination laws, laws relating to prices and unfair competition (including without limitation the Robinson Patman Act), the Occupational Safety and Health Act of 1970, as amended ("OSHA"), Federal Child Labor Laws, 29 CFR part 470, the Equal Employment Opportunity Provisions of Executive Order 11246, as amended, Section 503 of the Rehabilitation Act of 1973, as amended, and the Vietnam Era Veterans Readjustment Assistance Act of 1974, as amended, 38 USC 4212 (formerly 2012). All electrical equipment and/or goods must have UL as well as OSHA approval. Seller will provide, when applicable, a list of product ingredients, a Hazardous Materials Data Sheet and/or drawings and specifications of the Goods. Prior to any delivery of the Goods, Seller will advise Buyer in writing (i) of any special hazards associated with handling, storage, and use of the Goods and (ii) if the Goods or any ingredient of the Goods appears on the U.S. Department of Labor's Carcinogen List or Hazardous Data Sheet. This contractor and subcontractor shall abide by the requirements of 41 CFR 60-300.5(a). This regulation prohibits discrimination against qualified protected veterans, and requires affirmative action by covered prime contractors and subcontractors to employ and advance in employment qualified protected veterans. Federal contractors are permitted to combine all of the Equal Opportunity (EO) clauses required by 41 CFR § 60-300.5(a), 41 CFR § 60-741.5(a), and 41 CFR § 60-1.4(a) into a single, consolidated "incorporation by reference" clause (must be in bold letters) as follows: This contractor and subcontractor shall abide by the requirements of 41 CFR §§ 60-1.4(a), 60-300.5(a) and 60-741.5(a). These regulations prohibit discrimination against qualified individuals based on their status as protected veterans or individuals with disabilities, and prohibit discrimination against all individuals based on their race, color, religion, sex, or national origin. Moreover, these regulations require that covered prime contractors and subcontractors take affirmative action to employ and advance in employment individuals without regard to race, color, religion, sex, national origin, protected veteran status or disability.

12. **Indemnification.** Seller shall indemnify, hold harmless and defend each of Buyer, Buyer's affiliated companies, and Buyer's and Buyer's affiliated companies' respective agents, servants, successors and assigns, against any and all claims, suits, losses, damages, liabilities, costs and expenses (including without limitation reasonable attorney's fees) incurred and/or suffered by any of them attributable (in whole or in part) to, or otherwise arising out of, (i) the purchase, and/or any use and/or consumption (by any such indemnitee and/or any third party), of the Goods (or any portion thereof) and/or the performance of any work and/or services included in the Goods and/or (ii) without limitation of clause (i), (x) any breach or violation by Seller of its representations, warranties or obligations under Paragraph 10 ("Title Warranty") or 11 ("Compliance With Law") hereof and/or (y) any Recall (as defined herein below).

13. **Recall of Goods.** "Recall" means any recall, market withdrawal, stock recovery, product correction and/or advisory safety communication, and/or any action similar to any of the foregoing, regarding any of the Goods that is announced, initiated, implemented, recommended or required by (directly or indirectly) Seller (or any of Seller's suppliers or subcontractors), any governmental agency or authority (including without limitation any court) or (acting in good faith) Buyer. Buyer will have the right to take such further action as it in good faith determines is necessary or appropriate in respect of any Recall that is announced, initiated, implemented, recommended or required by Seller or any governmental agency or authority (including without limitation any court). In the event a Recall is announced, initiated or implemented by Buyer, Seller shall fully cooperate and take all such steps as are reasonably requested by Buyer to implement the Recall in a timely and complete manner. Any and all action to be taken in connection with a Recall will be in accordance with all applicable federal and state laws and regulations. This paragraph is in addition to, and not in limitation of, Paragraph 12 ("Indemnification") hereof.

14. **Insurance.** Seller will provide at Buyer's request evidence of its liability insurance applicable to the Goods. Seller's liability insurance shall protect Buyer, to the extent permitted under applicable law, recognizing the indemnification agreement set forth in Paragraph 12 ("Indemnification") hereof.

15. **Services on Buyer's Property.** For work and/or services performed on Buyer's property pursuant to or in connection with this Order, Seller agrees to comply with Buyer's safety and insurance requirements (a copy of which will be made available on request to Seller).

16. **General Provisions.** Entire Agreement: This Order, together with all documents attached hereto or expressly incorporated herein, constitutes the final and entire agreement between the parties with respect to the subject matter hereof and may not be amended or supplemented except in a writing signed by the parties hereto, provided that this sentence does not limit or modify the provision set forth at "Remedies" below in this paragraph. Waivers: No party hereto shall be deemed to have waived any provision herein or right hereunder unless that party has executed a writing setting forth the item waived. Severability: To the fullest extent that it effectively may do so, each of Buyer and Seller hereby waives any provision of applicable law that otherwise would render any provision of this Order void, voidable or otherwise unenforceable to any extent. If (after giving effect to the preceding sentence) any provision of this Order shall be found to be unenforceable by a court or other competent body, this Order shall be interpreted as though that provision, to the extent that it is found to be unenforceable, were not contained herein. Relationship: The relationship between the parties shall be that of independent contractors, and nothing contained herein shall make either party the partner, joint venture, employee or agent of the other. Assignment; Delegation. Seller shall not (in whole or in part) assign this Order or delegate its performance hereunder without the prior written consent of Buyer, but this provision shall not restrict Seller in the procurement of component parts or materials. "Delivery" of Services: Unless the context does not permit such construction, all references herein to "delivery" of Goods means, with respect to any work and/or services (other than the furnishing of goods) comprising part of the "Goods", the completion of such work and/or services and certification of such completion to Buyer by Seller (and the words "deliver" and "delivered" shall be analogously construed). Setoffs: All claims for moneys due or to become due from Buyer shall be subject to deduction by Buyer for any setoff or counterclaim arising out of this or any other Buyer agreement with Seller, whether such setoff or counterclaim arose before or after any assignment by Seller. Venue: Any dispute arising out of or in connection with this Order will be finally resolved in (and only in) the Supreme Court of the State of New York, County of New York or County of Westchester, or the U.S. District Court for the Southern District of New York (and appellate courts from any of the foregoing). Each party (i) consents, for itself and its assets, to the jurisdiction

Purchase Order NYB1001719

of such courts for the purpose of any proceeding pursuant to the preceding sentence, (ii) agrees that service of all writs, process and summonses in any such proceeding may (without limitation) be effected in the manner specified at "Remedies" below in this paragraph, and (iii) waives any objection or claim which it may now or hereafter have to the laying of venue of any such proceeding or that such proceeding has been brought in an inconvenient forum and agrees not to plead or claim either of the foregoing. Notices: Any notices required by this Order shall be given in a writing sent by hand (including without limitation by courier) or by certified or registered mail to the address set forth on the reverse side hereof and shall be effective on the earlier of the date of receipt or the seventh (7th) day after the mailing thereof. Without limitation, notice of cancellation, rejection or revocation of acceptance may be made telephonically, by facsimile transmission and/or by electronic mail if confirmed with a notice delivered in the manner specified in the preceding sentence. Remedies: Any term of this Order to the contrary notwithstanding, the representations, warranties, rights (including without limitation indemnification rights) and remedies of or in favor of Buyer specified in this Order are not exclusive but shall be in addition to all, and do in any way limit any of, the representations, warranties, rights and remedies afforded to Buyer under the law governing this Order (including without limitation the representations, warranties, rights and remedies with respect to this Order afforded to Buyer under the New York UCC). Governing Law: This Order shall be governed by and construed in accordance with the laws of the State of New York exclusive of its choice of law provisions (other than, if applicable, Section 5-1401 of the New York General Obligations Law). The United Nations Convention on Contracts for the International Sale of Goods will not apply to this Order.

Re: Subaward NYBC to University of Minnesota PO NYB1001719 for Dr. Li

From: Brett Carlson <carls234@umn.edu>
To: Walton, Theresa <TWalton@nybc.org>
Cc: Fang Li <lifang@umn.edu>, Du, Lanying <LDu@nybc.org>, Anne M Mockovak-1 <a-mock@umn.edu>, Mathis, Kenneth <KMathis@nybc.org>, Ross, Deborah <DRoss2@nybc.org>, Greene, Barry <BGreene@nybc.org>
Sent: December 19, 2018 1:12:49 PM CST
Received: December 19, 2018 1:13:06 PM CST
Attachments: 3888_001.pdf

Hi Theresa,

I understand that the PO is the mechanism used to pay invoices but there should not be additional terms to the agreement.½ Whether or not certain terms supersede others is not the issue.½ I have modified the PO on page 3 and initialed the change.½ Please counter-initial the change if acceptable.

Thanks,

Brett

Brett Carlson
Sr. Grant & Contract Administrator
University of Minnesota
Office of Sponsored Projects Administration
450 McNamara Alumni Center
200 Oak Street SE
Minneapolis, MN 55455
Phone: 612-626-7441
Fax: 612-624-4843

On 12/19/2018 12:21 PM, Walton, Theresa wrote:

Hi Brett,

½

The language on the Purchase Order does not supersede terms/language specified in the subcontract. The Purchase order is the mechanism we used to pay invoices. Please let me know if you have any more questions.

½

½

Thanks,

Theresa R. Walton, MPA
Manager, Grants & Contract Proposals

½

Office of Sponsored Programs
New York Blood Center
310 East 67th Street
New York, NY 10065

T: 212-570-3150

twalton@nybc.org

½

½

From: Brett Carlson <carls234@umn.edu>

Sent: Wednesday, December 19, 2018 12:58 PM

To: Walton, Theresa <TWalton@nybc.org>

Cc: Fang Li <lifang@umn.edu>; Du, Lanying <LDu@nybc.org>; Anne M Mockovak-1 <a-mock@umn.edu>; Mathis, Kenneth <KMathis@nybc.org>; Ross, Deborah <DRoss2@nybc.org>; Greene, Barry <BGreene@nybc.org>

Subject: Re: Subaward NYBC to University of Minnesota PO NYB1001719 for Dr. Li

½

Hi Theresa,

The terms of the subaward agreement were agreed to by both parties, not the terms of this PO which conflict with the agreement. The PO should be referencing the terms of the agreement. Please amend the PO and send it to my attention.

Thanks,

Brett

Brett Carlson
Sr. Grant & Contract Administrator
University of Minnesota
Office of Sponsored Projects Administration
450 McNamara Alumni Center
200 Oak Street SE
Minneapolis, MN 55455
Phone: 612-626-7441
Fax: 612-624-4843

On 12/19/2018 9:51 AM, Walton, Theresa wrote:

Good Morning Brett,

The Purchase Order for subaward from NYBC to University of Minnesota under NIH grant 1R01AI139092-01 entitled "Structure-based design of coronavirus subunit vaccines" with Dr Li is attached. Please be sure to reference PO NYB1001719 on all vouchers specifically linked to project period 05/21/2018-04/30/2019 to avoid any processing delays. All vouchers are to **be submitted no later than 30 days after the last day of the month** and shall be sent to APINVOICES@nybc.org.

Please let us know if you have any questions at this time.

Thanks,

Theresa R. Walton, MPA
Manager, Grants & Contract Proposals

Office of Sponsored Programs

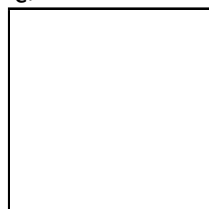
New York Blood Center

310 East 67th Street

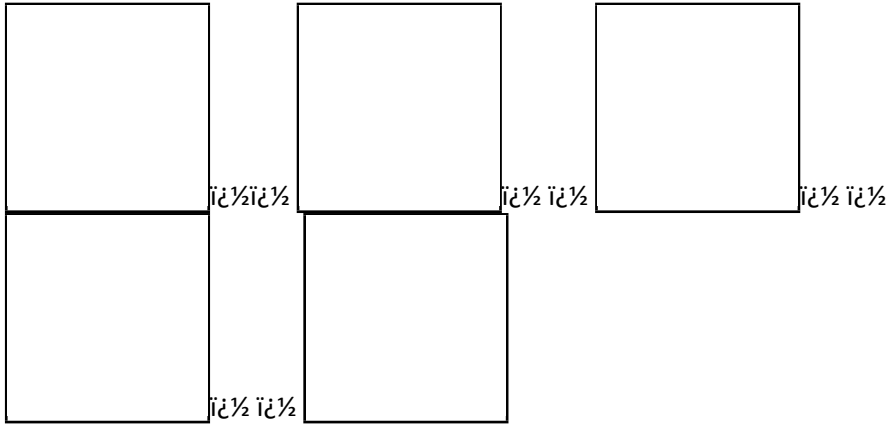
New York, NY 10065

T: 212-570-3150

twalton@nybc.org



LIFESAVING INNOVATION SINCE 1964



[Donate Blood](#) | [Volunteer](#) | [Support NYBC](#)

This email transmission and any documents, files or previous email messages attached to it may contain information that is confidential or legally privileged. If you are not the intended recipient or a person responsible for delivering this transmission to the intended recipient, you are hereby notified that you must not read this transmission and that any disclosure, copying, printing, distribution or use of this transmission is strictly prohibited. If you have received this transmission in error, please immediately notify the sender by telephone or return email and delete the original transmission and its attachments without reading or saving in any manner.

i½

1. 3888_001.pdf

Type: application/pdf
Size: 389 KB (398,806 bytes)



Purchase Order NYB1001719

Supplier Details:

Company REGENTS OF THE UNIVERSITY OF MINNESOTA
Contact
Address 450 McNAMARA ALUMNI CENTER
200 Oak St SEOffice of Sponsored
ProjectsADMINISTRATION
MINNEAPOLIS, MN
554552070

Inside Deliveries Only
9 A.M-5 P.M
MON THRU FRIDAY

Submit your response to:

Company New York Blood Center
Contact Migdali Gonzalez
Address 310 East 67 Street
New York, NY
10065
Phone 212-570-3297
Fax 212-879-0979
E-mail MGonzalez@nybc.org

Please review the Purchase Order attached and the associated Terms of Sale.

Purchase Order NYB1001719

| | |
|-------------------|----------------|
| Order | NYB1001719 |
| Order Date | 18-DEC-2018 |
| Change Order | 0 |
| Change Order Date | 18-DEC-2018 |
| Revision | 0 |
| Ordered | 184,600.00 USD |

Sold To **New York Blood Center**
310 East 67 Street
New York, NY
10065

Supplier **REGENTS OF THE UNIVERSITY OF MINNESOTA**
450 McNAMARA ALUMNI CENTER
200 Oak St SE Office of Sponsored Projects ADMINISTRATION
MINNEAPOLIS, MN
554552070

Bill To **New York Blood Center**
EMAIL: apinvoices@nybc.org

Ship To **310 EAST 67TH. STREET**
NEW YORK, NY
10065
United States

Notes USD = US Dollar

| Customer Account Number | Supplier Number | Payment Terms | Freight Terms | FOB | Shipping Method |
|-------------------------|-----------------|---------------|---------------|-----|-----------------|
| | 12275 | Immediate | | | |

| Confirm To | Deliver To Contact |
|-------------------------|--|
| Migdali Gonzalez | Deborah Ross E-mail DRoss2@nybc.org |

| Line | Item | Price | Quantity | UOM | Ordered | Taxable |
|-------------------|---|------------|----------|-----|-------------------|---------|
| 1 | Subcontract Agreement between - University of Minnesota and NYBC. NIH grant 1R01AI139092-01. Project Period: May 21, 2018 to April 30, 2019. Amount: \$184,600. NYBC No. VIM-NIH554. | 184,600.00 | | | 184,600.00 | |
| | <p>Notes VIM-NIH554 -This Subcontract Agreement between the New York Blood Center, Inc. and University of Minnesota for work and services to be performed under NIH grant 1R01AI139092-01 entitled "Structure-based design of coronavirus subunit vaccines". Dr. Fang Li of University of Minnesota will collaborate with NYBC's Dr. Lanying Du. Performance Period: 5/21/2018 through 4/30/2019. The total cost authorized is \$184,600 which includes indirect cost. Vouchers are to be submitted monthly referencing this Purchase Order Number and shall be sent to APINVOICES@nybc.org. NYBC Number: VIM-NIH554.</p> <p>Attn: Accounts Payable, New York Blood Center, 310 E. 67th Street, New York, NY 10065</p> <p style="text-align: center;">Promised 12/24/18</p> <p style="text-align: center;">Requested 12/24/18</p> <p>Requested and Promised Dates correspond to the date of arrival at the Ship-to Location.</p> | | | | | |
| Line Total | | | | | 184,600.00 | |

Purchase Order NYB1001719

| Line | Item | Price | Quantity | UOM | Ordered | Taxable |
|------|------|-------|----------|-----|--------------|-------------------|
| | | | | | Total | 184,600.00 |

FB DO NOT APPLY

~~PLEASE NOTE: The Terms of Sale set forth at the conclusion hereof apply to this Purchase Order. If, for any reason, the face of this Purchase Order has been transmitted or otherwise supplied to you without the Terms of Sale, you are nonetheless charged with notice thereof, and such Terms of Sale nonetheless apply to this Purchase Order. Please contact New York Blood Center at the Telephone number indicated to obtain a copy of such Terms of Sale.~~

E.L. Lewis

Authorized Signature

Purchase Order NYB1001719

TERMS OF SALE

NEW YORK BLOOD CENTER, INC. ("Buyer") hereby offers to purchase the goods, products, work and/or services specified on the face of this Purchase Order (such goods, products, work and/or services, collectively, the "Goods", and this Purchase Order, the "Order") from the person, firm or entity specified on the face of this Order ("Seller") on the specific terms and conditions set forth on the face hereof and the general provisions contained herein below.

1. **Purchase Order.** Buyer agrees to purchase the Goods only upon the terms and conditions set forth in this Order; acceptance of Buyer's offer to purchase the Goods is hereby expressly limited to the terms of this Order. Without limitation of the foregoing, Buyer hereby objects to any different and/or additional terms that Seller may heretofore have proposed and/or hereafter may propose with respect to this Order (in each case other than additional warranties of Seller) except as Buyer may expressly accept in writing. If this Order is issued pursuant to a master agreement between Seller and Buyer, the provisions of such master agreement shall apply to the Order but only to the extent so specified in such master agreement and such provisions do not contradict and are not inconsistent with this Order.
2. **Acceptance Of Purchase Order.** This Order is an offer to purchase, not an acceptance of any offer to sell. Such offer (and this Order) shall expire without liability unless Buyer has received written acceptance thereof by Seller within [five] ([5]) business days of the date of this Order (or within such shorter period of time as may be specified on the face of this Order). Acceptance is limited to the terms stated herein.
3. **Cancellation.** This Order may be cancelled at any time in part or in full prior to the acceptance by Buyer of any of the Goods, at no cost or obligation.
4. **Packing And Marking.** Seller shall securely and adequately pack the Goods (to the extent applicable, in conformance with Buyer's instructions and the requirements of the carrier). Seller shall separately number all packages or containers, showing the corresponding numbers on the invoices. An itemized packing slip bearing this Order number shall be placed in each package or container.
5. **Risk Of Loss, Shipping.** Unless otherwise specified on the face of this Order, the Goods shall be delivered to Buyer F.O.B. Buyer's facility at the address (and otherwise in accordance with the delivery instructions) specified on the face of this Order. Seller shall retain title to and risk of loss or damage to all Goods to be delivered hereunder until completion of delivery of the Goods to Buyer at such specified delivery point (at which time such title and risk of loss shall (subject to clause (4) of Section 2-401, and clauses (1) and (2) of Section 2-510, of the New York Uniform Commercial Code – Sales ("New York UCC")) pass to Buyer. Timely delivery of Goods is of the essence of this Order. If any Goods are not delivered by the delivery date specified on the face of this Order (or within a reasonable period of time if no such date is specified), Buyer may (without limiting any of its other rights or remedies) refuse to accept the Goods and cancel this Order. In the event this Order involves deliveries in installments, Seller's failure to deliver one installment at the time and place specified herein shall be deemed a breach with respect to the remaining installments. Acceptance of late deliveries shall not be deemed a waiver of Buyer's right to hold Seller liable for any loss or damage resulting therefrom, nor shall such acceptance act as a modification of Seller's obligation to make future deliveries in accordance with the delivery schedule. Buyer reserves the right to refuse acceptance of deliveries made (i) prior to the delivery date specified on the face of this Order, or (ii) other than during the regular business hours specified on the face of this Order.
6. **Inspection And Acceptance Of Delivery.** All Goods will be received subject to Buyer's right of inspection and testing, and acceptance or rejection, within a reasonable period of time (in any event, not less than three (3) business days) after delivery. Payment for Goods will not in any event constitute acceptance thereof. Buyer may reject any Goods which do not fully conform to this Order (including without limitation conformance to all warranties of Seller set forth in or otherwise applicable to this Order) or which are otherwise defective and may return such rejected Goods to Seller at Seller's risk and expense and, in addition to other rights, Buyer may charge Seller all expenses of unpacking, examining, repacking and reshipping such Goods. Seller shall not have the right to send any replacements for, or otherwise cure, rejected Goods unless approved in advance by Buyer in writing, but Seller shall promptly do so upon Buyer's request. No delay or failure to inspect or test or failure to discover any defect or non-conformance shall relieve Seller of any of its warranties set forth in or otherwise applicable to this Order or otherwise impair Buyer's rights (including without limitation indemnification rights) or remedies with respect to such defect or non-conformance. If this Order calls for delivery in installments, Buyer's rights of rejection set forth under this Order, or otherwise provided under the New York UCC, shall apply in relation to each installment regardless of whether or not the non-conformity substantially impairs the value of such installment and regardless of whether or not the non-conformity can be cured. Nothing in this Order limits Buyer's right under the New York UCC to revoke any acceptance of the Goods or any portion thereof.
7. **Prices, Invoicing.** Unless (and except only to the extent) otherwise provided on the face of this Order, the pricing for the Goods set forth on the face of this Order is a delivered, all-inclusive price and, without limitation of the foregoing, includes (i) any federal, state or local sales tax or other tax or duty which is imposed upon the sale, performance and/or delivery of the Goods to Buyer and (ii) all charges for packaging, storage, shipping and (to the extent applicable) insurance. A separate invoice shall be issued for each shipment.
8. **Payment.** Invoices must be emailed to apinvoices@nybc.org referencing the purchase order number. Seller will not invoice Buyer for any goods prior to delivery thereof (or, if later, the delivery date specified on the face of this order). Unless and to the extent otherwise specified on the face of this order, payment will be made in US dollars and payment will be due (subject to the other terms of this order) within 60 days (measured from the Invoice date to the date invoice is due (or Buyer otherwise makes payment). Alternatively, seller may choose to participate in NYBC's American Express Buyer Initiated Payments ("BIP") program for expedited invoice payment in 30 Days. For information on enrolling in the BIP program. Seller should contact NYBC's Account Payable Department at 212-699-5170
9. **Certain Warranties.** In addition to, and without limitation of, Seller's standard warranty and/or service guarantee and all express and/or implied warranties pursuant to the New York UCC (all of which cumulatively shall apply), Seller warrants that the Goods will be of good and merchantable quality and free from defect in material or workmanship, will conform strictly to any specifications, drawings and/or samples specified and/or furnished by Buyer and (to the extent including any work and/or services other than the furnishing of goods) will be performed in a professional and workmanlike manner and in accordance with good commercial practice; that to the extent not manufactured pursuant to specific designs furnished by Buyer, the Goods will be free from all defects in design and will properly serve their ordinary, and any specified, purpose; that all materials, components, parts and other items incorporated in the Goods are new and of suitable quality for their ordinary, and any specified, purpose. All of the warranties specified or mentioned above

Purchase Order NYB1001719

in this paragraph shall survive delivery, inspection, acceptance and payment and shall inure to the benefit of Buyer and its successors and assigns.

10. **Title Warranty.** Seller warrants that it will convey to Buyer good and merchantable title to the Goods supplied hereunder, free and clear of all security interests, liens or encumbrances. Seller further warrants that the sale, use, modification and/or re-sale of the Goods furnished hereunder (other than those parts of the Goods supplied or designed by Buyer) will not infringe or contribute to infringement of any intellectual property (including without limitation patent, copyright, trademark or trade secret) or intellectual property rights of any third party.

11. **Compliance With Law.** Seller shall, in the performance of this Order, comply with, and Seller warrants and certifies that the Goods shall meet or exceed, have been or shall be manufactured and/or performed in accordance with, and otherwise comply with, all applicable federal and state statutes, rules, regulations, standards and orders, including without limitation federal and state wage and hour and employment discrimination laws, laws relating to prices and unfair competition (including without limitation the Robinson Patman Act), the Occupational Safety and Health Act of 1970, as amended ("OSHA"), Federal Child Labor Laws, 29 CFR part 470, the Equal Employment Opportunity Provisions of Executive Order 11246, as amended, Section 503 of the Rehabilitation Act of 1973, as amended, and the Vietnam Era Veterans Readjustment Assistance Act of 1974, as amended, 38 USC 4212 (formerly 2012). All electrical equipment and/or goods must have UL as well as OSHA approval. Seller will provide, when applicable, a list of product ingredients, a Hazardous Materials Data Sheet and/or drawings and specifications of the Goods. Prior to any delivery of the Goods, Seller will advise Buyer in writing (i) of any special hazards associated with handling, storage, and use of the Goods and (ii) if the Goods or any ingredient of the Goods appears on the U.S. Department of Labor's Carcinogen List or Hazardous Data Sheet. This contractor and subcontractor shall abide by the requirements of 41 CFR 60-300.5(a). This regulation prohibits discrimination against qualified protected veterans, and requires affirmative action by covered prime contractors and subcontractors to employ and advance in employment qualified protected veterans. Federal contractors are permitted to combine all of the Equal Opportunity (EO) clauses required by 41 CFR § 60-300.5(a), 41 CFR § 60-741.5(a), and 41 CFR § 60-1.4(a) into a single, consolidated "incorporation by reference" clause (must be in bold letters) as follows: This contractor and subcontractor shall abide by the requirements of 41 CFR §§ 60-1.4(a), 60-300.5(a) and 60-741.5(a). These regulations prohibit discrimination against qualified individuals based on their status as protected veterans or individuals with disabilities, and prohibit discrimination against all individuals based on their race, color, religion, sex, or national origin. Moreover, these regulations require that covered prime contractors and subcontractors take affirmative action to employ and advance in employment individuals without regard to race, color, religion, sex, national origin, protected veteran status or disability.

12. **Indemnification.** Seller shall indemnify, hold harmless and defend each of Buyer, Buyer's affiliated companies, and Buyer's and Buyer's affiliated companies' respective agents, servants, successors and assigns, against any and all claims, suits, losses, damages, liabilities, costs and expenses (including without limitation reasonable attorney's fees) incurred and/or suffered by any of them attributable (in whole or in part) to, or otherwise arising out of, (i) the purchase, and/or any use and/or consumption (by any such indemnitee and/or any third party), of the Goods (or any portion thereof) and/or the performance of any work and/or services included in the Goods and/or (ii) without limitation of clause (i), (x) any breach or violation by Seller of its representations, warranties or obligations under Paragraph 10 ("Title Warranty") or 11 ("Compliance With Law") hereof and/or (y) any Recall (as defined herein below).

13. **Recall of Goods.** "Recall" means any recall, market withdrawal, stock recovery, product correction and/or advisory safety communication, and/or any action similar to any of the foregoing, regarding any of the Goods that is announced, initiated, implemented, recommended or required by (directly or indirectly) Seller (or any of Seller's suppliers or subcontractors), any governmental agency or authority (including without limitation any court) or (acting in good faith) Buyer. Buyer will have the right to take such further action as it in good faith determines is necessary or appropriate in respect of any Recall that is announced, initiated, implemented, recommended or required by Seller or any governmental agency or authority (including without limitation any court). In the event a Recall is announced, initiated or implemented by Buyer, Seller shall fully cooperate and take all such steps as are reasonably requested by Buyer to implement the Recall in a timely and complete manner. Any and all action to be taken in connection with a Recall will be in accordance with all applicable federal and state laws and regulations. This paragraph is in addition to, and not in limitation of, Paragraph 12 ("Indemnification") hereof.

14. **Insurance.** Seller will provide at Buyer's request evidence of its liability insurance applicable to the Goods. Seller's liability insurance shall protect Buyer, to the extent permitted under applicable law, recognizing the indemnification agreement set forth in Paragraph 12 ("Indemnification") hereof.

15. **Services on Buyer's Property.** For work and/or services performed on Buyer's property pursuant to or in connection with this Order, Seller agrees to comply with Buyer's safety and insurance requirements (a copy of which will be made available on request to Seller).

16. **General Provisions.** Entire Agreement: This Order, together with all documents attached hereto or expressly incorporated herein, constitutes the final and entire agreement between the parties with respect to the subject matter hereof and may not be amended or supplemented except in a writing signed by the parties hereto, provided that this sentence does not limit or modify the provision set forth at "Remedies" below in this paragraph. Waivers: No party hereto shall be deemed to have waived any provision herein or right hereunder unless that party has executed a writing setting forth the item waived. Severability: To the fullest extent that it effectively may do so, each of Buyer and Seller hereby waives any provision of applicable law that otherwise would render any provision of this Order void, voidable or otherwise unenforceable to any extent. If (after giving effect to the preceding sentence) any provision of this Order shall be found to be unenforceable by a court or other competent body, this Order shall be interpreted as though that provision, to the extent that it is found to be unenforceable, were not contained herein. Relationship: The relationship between the parties shall be that of independent contractors, and nothing contained herein shall make either party the partner, joint venture, employee or agent of the other. Assignment; Delegation. Seller shall not (in whole or in part) assign this Order or delegate its performance hereunder without the prior written consent of Buyer, but this provision shall not restrict Seller in the procurement of component parts or materials. "Delivery" of Services: Unless the context does not permit such construction, all references herein to "delivery" of Goods means, with respect to any work and/or services (other than the furnishing of goods) comprising part of the "Goods", the completion of such work and/or services and certification of such completion to Buyer by Seller (and the words "deliver" and "delivered" shall be analogously construed). Setoffs: All claims for moneys due or to become due from Buyer shall be subject to deduction by Buyer for any setoff or counterclaim arising out of this or any other Buyer agreement with Seller, whether such setoff or counterclaim arose before or after any assignment by Seller. Venue: Any dispute arising out of or in connection with this Order will be finally resolved in (and only in) the Supreme Court of the State of New York, County of New York or County of Westchester, or the U.S. District Court for the Southern District of New York (and appellate courts from any of the foregoing). Each party (i) consents, for itself and its assets, to the jurisdiction

Purchase Order NYB1001719

of such courts for the purpose of any proceeding pursuant to the preceding sentence, (ii) agrees that service of all writs, process and summonses in any such proceeding may (without limitation) be effected in the manner specified at "Remedies" below in this paragraph, and (iii) waives any objection or claim which it may now or hereafter have to the laying of venue of any such proceeding or that such proceeding has been brought in an inconvenient forum and agrees not to plead or claim either of the foregoing. Notices: Any notices required by this Order shall be given in a writing sent by hand (including without limitation by courier) or by certified or registered mail to the address set forth on the reverse side hereof and shall be effective on the earlier of the date of receipt or the seventh (7th) day after the mailing thereof. Without limitation, notice of cancellation, rejection or revocation of acceptance may be made telephonically, by facsimile transmission and/or by electronic mail if confirmed with a notice delivered in the manner specified in the preceding sentence. Remedies: Any term of this Order to the contrary notwithstanding, the representations, warranties, rights (including without limitation indemnification rights) and remedies of or in favor of Buyer specified in this Order are not exclusive but shall be in addition to all, and do in any way limit any of, the representations, warranties, rights and remedies afforded to Buyer under the law governing this Order (including without limitation the representations, warranties, rights and remedies with respect to this Order afforded to Buyer under the New York UCC). Governing Law: This Order shall be governed by and construed in accordance with the laws of the State of New York exclusive of its choice of law provisions (other than, if applicable, Section 5-1401 of the New York General Obligations Law). The United Nations Convention on Contracts for the International Sale of Goods will not apply to this Order.

Re: [Viruses] Special Issue "MERS-CoV "- Status Report

From: Allison Yang/MDPI <allison.yang@mdpi.com>
To: Liu, Shan-Lu <liu.6244@osu.edu>, LDu@nybc.org, lifang@umn.edu
Cc: viruses@mdpi.com, Eric Freed <efreed@mail.nih.gov>
Sent: December 20, 2018 7:36:28 PM CST
Received: December 20, 2018 7:36:37 PM CST

Dear Shan-Lu,

Thanks for your email. Yes, actually most of invitations are sent by our guest editors themselves. It usually works well and I really appreciate their help in inviting papers from the major players in the field. Of course, I will help to follow up with the invitees on behalf of GEs or send the invitations on behalf of GEs if they are busy.

Happy Holidays!

Allison

On 12/20/2018 11:09 PM, Liu, Shan-Lu wrote:

Allison,

Thanks for the update.

When you send invites, did you send the invitation on the GE's behalf? I think it would be more effective in this way.

Thanks for Lanying and Fang for the great job.

Shan-Lu



Shan-Lu Liu, M.D., Ph.D.
Professor
Director, Viruses and Emerging Pathogens Program
Infectious Diseases Institute
Center for Retrovirus Research
Department of Veterinary Biosciences, Microbial Infection and Immunity, and Microbiology
The Ohio State University
1900 Coffey Rd, Room 480 VMAB
Columbus, Ohio 43210
Phone: (614) 292-8690
Fax: (614) 292-6473
Email: liu.6244@osu.edu; shan-lu.liu@osumc.edu

From: Allison Yang/MDPI <allison.yang@mdpi.com>
Organization: MDPI
Date: Thursday, December 20, 2018 at 3:33 AM
To: "LDu@nybc.org" <LDu@nybc.org>, "lifang@umn.edu" <lifang@umn.edu>
Cc: "viruses@mdpi.com" <viruses@mdpi.com>, Shan-Lu Liu <liu.6244@osu.edu>
Subject: [Viruses] Special Issue "MERS-CoV "- Status Report

Dear Lanying, dear Fang,

I am sending you the December update on your Special Issue "MERS-CoV".

Please find below the current status of the SI and attached the "planned papers" file.

Submission deadline: 30 November 2018 (closed)

Published papers: 4

Processing papers: 10

Planned papers: 4

Most of our planned papers were submitted this month, I understand you might be busy during this period of time and would like to relieve some workload for you during the coming holiday season.

Please see below the status of the 10 processing papers:

1 (pending final decision, it might be accepted after your final approval);

4 (pending major revisions, it still requires some time before we getting back to you for further decisions);

5 (under review, would you mind we send the review reports to authors for revision first if there is no divergent report? We will also inform you by email once we collect enough review reports).

P.S. Two papers are handled by our associate editor.

I really appreciate your time and effort in this busy period. Feel free to let me know if you have any questions.

Happy Holidays and New Year!

Best,
Allison

Re: Holiday greetings

From: Wenjun Ma <wma@vet.k-state.edu>
To: Rong, Lijun <lijun@uic.edu>
Cc: Liu, Shan-Lu <liu.6244@osu.edu>, zhengzhiming4@gmail.com, haitguo@iupui.edu, tzhou@mail.nih.gov, GCheng@mednet.ucla.edu, liangy@umn.edu, rli@vcu.edu, wjma@ksu.edu, xjmeng@vt.edu, Zhijian.Chen@UTSouthwestern.edu <Zhijian.Chen@utsouthwestern.edu>, mluo@gsu.edu, zhangyj@umd.edu, xzhu1@umd.edu, jqiu@kumc.edu, fengwei.bai@usm.edu, andyu@iupui.edu, reachxw@vt.edu, gluo@uab.edu, ldu@nybc.org, hxu@tulane.edu, liu_fy@berkeley.edu, shitao.li@okstate.edu, Shan.lu@umassmed.edu, haihu@UTMB.edu <haihu@utmb.edu>, wenzheho@temple.edu, Qfeng4@central.uh.edu, tang@bio.fsu.edu, feng.li@sdstate.edu, ruilu@lsu.edu, sxiang2@unl.edu, qiyi.tang@howard.edu, dingsw@ucr.edu, guohua@missouri.edu, bling@tulane.edu, junwang@pharmacy.arizona.edu, lifang@umn.edu, wang518@umd.edu, gaos8@upmc.edu, pewang@uchc.edu, xiangy@uthscsa.edu, fzhu@bio.fsu.edu, chen.liang@mcgill.ca, lyuan@vt.edu, fgao@duke.edu, wangjw28@163.com, xfyu1@zju.edu.cn, bzhao@partners.org, jianw@musc.edu, zyang@ksu.edu, yu.cong@nih.gov, weiming.yuan@usc.edu, Zongdi.feng@nationwidechildrens.org, juh13@psu.edu, hengx@missouri.edu, lsu@med.unc.edu, ywu8@gmu.edu, jwu@whu.edu.cn, He, Bin <tshuo@uic.edu>, Shibojiang@fudan.edu.cn, sjiang@nybc.org, pinwang@usc.edu, rzhao@som.umaryland.edu, shuylong@mail.sysu.edu.cn, xuefeng.liu@georgetown.edu, yuxingli@som.umaryland.edu, shixia.wang@umassmed.edu, yhe@ipbcams.ac.cn, Pinghui.feng@usc.edu, ju-tao.guo@bblumberg.org, lin.liu@okstate.edu, hua.zhu@rutgers.edu, Jinhong.chang@bblumberg.org, jianzhu1012@gmail.com, ronghai@ucr.edu, jun.zhu@nih.gov, jliu4@uams.edu, xiangpeng.kong@med.nyu.edu, haoquanwu@outlook.com, Wenjun.liu@defence.gov.au, Liang.shan@wustl.edu, hliao@duke.edu, yuan2@upenn.edu, zxing@umn.edu, hongmin.li@health.ny.gov, pzheng@ihv.umaryland.edu, yaliu@ihv.umaryland.edu, jxw103@case.edu, xiangguo.qiu@canada.ca, Feng Shao <shaofeng@nibs.ac.cn>, zlshi@wh.iov.cn, klan@whu.edu.cn, zengmsh@mail.sysu.edu.cn, Nan Yan <Nan.Yan@utsouthwestern.edu>, Zhang, Rong <rongzhang@wustl.edu>, liliwang@upenn.edu, Linheng Li <LIL@stowers.org>, Tsan Xiao <xiaot@niaid.nih.gov>, kli1@uthsc.edu, Bing Chen <bchen@crystal.harvard.edu>, Paul Liu <paul06liu@yahoo.com>, Xi He <xi.he@childrens.harvard.edu>, Jianming Xu <jxu@bcm.edu>, Pan Zheng <zhengp01@gmail.com>, Chris Lau <chris.lau@ucsf.edu>

Sent: December 24, 2018 9:41:14 AM CST
Received: December 24, 2018 9:41:26 AM CST

Dear All,
Happy holidays to you and your family, wish you all have a prosperous 2019.
Best Regards,
Wenjun

Sent from my iPhone

On Dec 24, 2018, at 9:27 AM, Rong, Lijun <lijun@uic.edu> wrote:

Merry Christmas and Happy New Year to you all! Wish you all a great 2019!
Best regards,
Lijun

Sent from my iPhone

On Dec 24, 2018, at 7:18 AM, Liu, Shan-Lu <liu.6244@osu.edu> wrote:

Dear colleagues and friends,

During this holiday season, a time when we pause, reflect and give thanks, I want to thank each one of you for your contributions to our virology group – a family currently with more than 145 members. I wish to thank you for your care, your participation, your ideas, your cooperation, as well as your tolerance to hear different opinions. I feel honored and privileged to serve and I will continue to do my best.

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Warmly regards.

Shan-Lu 善虑

<image001.png>

Shan-Lu Liu, M.D., Ph.D.

Professor

Director, Viruses and Emerging Pathogens Program

Infectious Diseases Institute

Center for Retrovirus Research

Department of Veterinary Biosciences, Microbial Infection and Immunity, and Microbiology

The Ohio State University

1900 Coffey Rd, Room 480 VMAB

Columbus, Ohio 43210

Phone: (614) 292-8690

Fax: (614) 292-6473

Email: liu.6244@osu.edu; shan-lu.liu@osumc.edu

Re: Holiday greetings

From: Wang, Penghua <pewang@uchc.edu>
To: Liu, Shan-Lu <liu.6244@osu.edu>, zhengzhiming4@gmail.com, haitguo@iupui.edu, tzhou@mail.nih.gov, GCheng@mednet.ucla.edu, liangy@umn.edu, rli@vcu.edu, wjma@ksu.edu, xjmeng@vt.edu, Zhijian.Chen@UTSouthwestern.edu, mluo@gsu.edu, zhangyj@umd.edu, xzhu1@umd.edu, jqiu@kumc.edu, lijun@uic.edu, fengwei.bai@usm.edu, andyu@iupui.edu, reachxw@vt.edu, gluo@uab.edu, ldu@nybc.org, hxu@tulane.edu, liu_fy@berkeley.edu, shitao.li@okstate.edu, Shan.lu@umassmed.edu, haihu@UTMB.edu, wenzheho@temple.edu, Qfeng4@central.uh.edu, tang@bio.fsu.edu, feng.li@sdstate.edu, ruilu@lsu.edu, sxiang2@unl.edu, qiyi.tang@howard.edu, dingsw@ucr.edu, guohua@missouri.edu, bling@tulane.edu, junwang@pharmacy.arizona.edu, lifang@umn.edu, wang518@umd.edu, gaos8@upmc.edu, xiangy@uthscsa.edu, fzhu@bio.fsu.edu, chen.liang@mcgill.ca, lyuan@vt.edu, fgao@duke.edu, wangjw28@163.com, xfyu1@zju.edu.cn, bzhao@partners.org, jianw@musc.edu, zyang@ksu.edu, yu.cong@nih.gov, weiming.yuan@usc.edu, Zongdi.feng@nationwidechildrens.org, juh13@psu.edu, hengx@missouri.edu, lsu@med.unc.edu, ywu8@gmu.edu, jwu@whu.edu.cn, tshuo@uic.edu, Shibojiang@fudan.edu.cn, sjiang@nybc.org, pinwang@usc.edu, rzhao@som.umaryland.edu, shuylong@mail.sysu.edu.cn, xuefeng.liu@georgetown.edu, yuxingli@som.umaryland.edu, shixia.wang@umassmed.edu, yhe@ipbcams.ac.cn, Pinghui.feng@usc.edu, ju-tao.guo@bblumberg.org, lin.liu@okstate.edu, hua.zhu@rutgers.edu, Jinhong.chang@bblumberg.org, jianzhu1012@gmail.com, ronghai@ucr.edu, jun.zhu@nih.gov, jliu4@uams.edu, xiangpeng.kong@med.nyu.edu, haoquanwu@outlook.com, Wenjun.liu@defence.gov.au, Liang.shan@wustl.edu, hliao@duke.edu, yuan2@upenn.edu, zxing@umn.edu, hongmin.li@health.ny.gov, pzheng@ihv.umaryland.edu, yaliu@ihv.umaryland.edu, jxw103@case.edu, xiangguo.qiu@canada.ca, Feng Shao <shaofeng@nibs.ac.cn>, zishi@wh.iov.cn, klan@whu.edu.cn, zengmsh@mail.sysu.edu.cn, Nan Yan <Nan.Yan@UTSouthwestern.edu>, Zhang, Rong <rongzhang@wustl.edu>, liliwang@upenn.edu, Linheng Li <LIL@stowers.org>, Tsan Xiao <xiaot@niaid.nih.gov>, kli1@uthsc.edu, Bing Chen <bchen@crystal.harvard.edu>
Cc: Paul Liu <paul06liu@yahoo.com>, Xi He <xi.he@childrens.harvard.edu>, Jianming Xu <jxu@bcm.edu>, Pan Zheng <zhengp01@gmail.com>, Chris Lau <chris.lau@ucsf.edu>
Sent: December 24, 2018 9:59:42 AM CST
Received: December 24, 2018 10:00:53 AM CST

Thank you, Shan-Lu, for strong leadership and service for the society in 2018. Wish our community grow stronger in 2019!

Happy Holidays!

Penghua WANG, PhD

Department of Immunology

School of Medicine, U Conn Health

Farmington CT 06030

Tel: 860-679-6393

Fax: 860-679-1868

From: Liu, Shan-Lu <liu.6244@osu.edu>

Sent: Monday, December 24, 2018 5:18 AM

To: Liu, Shan-Lu; zhengzhiming4@gmail.com; haitguo@iupui.edu; tzhou@mail.nih.gov; GCheng@mednet.ucla.edu; liangy@umn.edu; rli@vcu.edu; wjma@ksu.edu; xjmeng@vt.edu; Zhijian.Chen@UTSouthwestern.edu; mluo@gsu.edu; zhangyj@umd.edu; xzhu1@umd.edu; jqiu@kumc.edu; lijun@uic.edu; fengwei.bai@usm.edu; andyu@iupui.edu; reachxw@vt.edu; gluo@uab.edu; ldu@nybc.org; hxu@tulane.edu; liu_fy@berkeley.edu; shitao.li@okstate.edu; Shan.lu@umassmed.edu; haihu@UTMB.edu; wenzheho@temple.edu; Qfeng4@central.uh.edu; tang@bio.fsu.edu; feng.li@sdstate.edu; ruilu@lsu.edu; sxiang2@unl.edu; qiyi.tang@howard.edu; dingsw@ucr.edu; guohua@missouri.edu; bling@tulane.edu; junwang@pharmacy.arizona.edu; lifang@umn.edu; wang518@umd.edu; gaos8@upmc.edu; Wang, Penghua;

xiangy@uthscsa.edu; fzhu@bio.fsu.edu; chen.liang@mcgill.ca; lyuan@vt.edu; fgao@duke.edu; wangjw28@163.com; xfyu1@zju.edu.cn; bzhao@partners.org; jianw@musc.edu; zyang@ksu.edu; yu.cong@nih.gov; weiming.yuan@usc.edu; Zongdi.feng@nationwidechildrens.org; juh13@psu.edu; hengx@missouri.edu; lsu@med.unc.edu; ywu8@gmu.edu; jwu@whu.edu.cn; tshuo@uic.edu; Shibojiang@fudan.edu.cn; sjiang@nybc.org; pinwang@usc.edu; rzhao@som.umaryland.edu; shuylong@mail.sysu.edu.cn; xuefeng.liu@georgetown.edu; yuxingli@som.umaryland.edu; shixia.wang@umassmed.edu; yhe@ipbcams.ac.cn; Pinghui.feng@usc.edu; ju-tao.guo@bblumberg.org; lin.liu@okstate.edu; hua.zhu@rutgers.edu; Jinhong.chang@bblumberg.org; jianzhu1012@gmail.com; ronghai@ucr.edu; jun.zhu@nih.gov; jliu4@uams.edu; xiangpeng.kong@med.nyu.edu; haoquanwu@outlook.com; Wenjun.liu@defence.gov.au; Liang.shan@wustl.edu; hliao@duke.edu; yuan2@upenn.edu; zxing@umn.edu; hongmin.li@health.ny.gov; pzheng@ihv.umaryland.edu; yaliu@ihv.umaryland.edu; jxw103@case.edu; xiangguo.qiu@canada.ca; Feng Shao; zlshi@wh.iov.cn; klan@whu.edu.cn; zengmsh@mail.sysu.edu.cn; Nan Yan; Zhang, Rong; liliwang@upenn.edu; Linheng Li; Tsan Xiao; kli1@uthsc.edu; Bing Chen

Cc: Paul Liu; Xi He; Jianming Xu; Pan Zheng; Chris Lau

Subject: Holiday greetings

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Warmly regards.

Shan-Lu 善虑



Shan-Lu Liu, M.D., Ph.D.

Professor

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Department of Veterinary Biosciences, Microbial Infection and Immunity, and Microbiology

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Columbus, Ohio 43210

Phone: (614) 292-8690

Fax: (614) 292-6473

Email: liu.6244@osu.edu; shan-lu.liu@osumc.edu

RE: Holiday greetings

From: ronghai@ucr.edu
To: Liu, Shan-Lu <liu.6244@osu.edu>, zhengzhiming4@gmail.com, haitguo@iupui.edu, tzhou@mail.nih.gov, GCheng@mednet.ucla.edu, liangy@umn.edu, rli@vcu.edu, wjma@ksu.edu, xjmeng@vt.edu, Zhijian.Chen@UTSouthwestern.edu, mluo@gsu.edu, zhangyj@umd.edu, xzhu1@umd.edu, jqiu@kumc.edu, lijun@uic.edu, fengwei.bai@usm.edu, andyu@iupui.edu, reachxw@vt.edu, gluo@uab.edu, ldu@nybc.org, hxu@tulane.edu, liu_fy@berkeley.edu, shitao.li@okstate.edu, Shan.lu@umassmed.edu, haihu@UTMB.edu, wenzheho@temple.edu, Qfeng4@central.uh.edu, tang@bio.fsu.edu, feng.li@sdstate.edu, ruilu@lsu.edu, sxiang2@unl.edu, qiyi.tang@howard.edu, dingsw@ucr.edu, guohua@missouri.edu, bling@tulane.edu, junwang@pharmacy.arizona.edu, lifang@umn.edu, wang518@umd.edu, gaos8@upmc.edu, pewang@uchc.edu, xiangy@uthscsa.edu, fzhu@bio.fsu.edu, chen.liang@mcgill.ca, lyuan@vt.edu, fgao@duke.edu, wangjw28@163.com, xfyu1@zju.edu.cn, bzhao@partners.org, jianw@musc.edu, zyang@ksu.edu, yu.cong@nih.gov, weiming.yuan@usc.edu, Zongdi.feng@nationwidechildrens.org, juh13@psu.edu, hengx@missouri.edu, lsu@med.unc.edu, ywu8@gmu.edu, jwu@whu.edu.cn, tshuo@uic.edu, Shibojiang@fudan.edu.cn, sjiang@nybc.org, pinwang@usc.edu, rzhao@som.umaryland.edu, shuylong@mail.sysu.edu.cn, xuefeng.liu@georgetown.edu, yuxingli@som.umaryland.edu, shixia.wang@umassmed.edu, yhe@ipbcams.ac.cn, Pinghui.feng@usc.edu, ju-tao.guo@bblumberg.org, lin.liu@okstate.edu, hua.zhu@rutgers.edu, Jinhong.chang@bblumberg.org, jianzhu1012@gmail.com, jun.zhu@nih.gov, jliu4@uams.edu, xiangpeng.kong@med.nyu.edu, haoquanwu@outlook.com, Wenjun.liu@defence.gov.au, Liang.shan@wustl.edu, hliao@duke.edu, yuan2@upenn.edu, zxing@umn.edu, hongmin.li@health.ny.gov, pzheng@ihv.umaryland.edu, yaliu@ihv.umaryland.edu, jxw103@case.edu, xiangguo.qiu@canada.ca, Feng Shao <shaofeng@nibs.ac.cn>, zlshi@wh.iov.cn, klan@whu.edu.cn, zengmsh@mail.sysu.edu.cn, Nan Yan <Nan.Yan@UTSouthwestern.edu>, Zhang, Rong <rongzhang@wustl.edu>, liliwang@upenn.edu, Linheng Li <LIL@stowers.org>, Tsan Xiao <xiaot@niaid.nih.gov>, kli1@uthsc.edu, Bing Chen <bchen@crystal.harvard.edu>, Paul Liu <paul06liu@yahoo.com>, Xi He <xi.he@childrens.harvard.edu>, Jianming Xu <jxu@bcm.edu>, Pan Zheng <zhengp01@gmail.com>, Chris Lau <chris.lau@ucsf.edu>
Cc: Rong Hai <rong.hai@ucr.edu>
Sent: December 24, 2018 12:16:59 PM CST
Received: December 24, 2018 12:17:21 PM CST

Dear friends,

May the Christmas Season bring only happiness and joy to you and your family!!! Wishing you all the best for this New Year!!!

祝各位老师，朋友们，

新年快乐，吉祥如意！！

Sincerely,
Rong (海戎)

From: Liu, Shan-Lu <liu.6244@osu.edu>

Sent: Monday, December 24, 2018 5:18 AM

To: Liu, Shan-Lu <liu.6244@osu.edu>; zhengzhiming4@gmail.com; haitguo@iupui.edu; tzhou@mail.nih.gov; GCheng@mednet.ucla.edu; liangy@umn.edu; rli@vcu.edu; wjma@ksu.edu; xjmeng@vt.edu; Zhijian.Chen@UTSouthwestern.edu; mluo@gsu.edu; zhangyj@umd.edu; xzhu1@umd.edu; jqiu@kumc.edu;

lijun@uic.edu; fengwei.bai@usm.edu; andyu@iupui.edu; reachxw@vt.edu; gluo@uab.edu; ldu@nybc.org; hxu@tulane.edu; liu_fy@berkeley.edu; shitao.li@okstate.edu; Shan.lu@umassmed.edu; haihu@UTMB.edu; wenzheho@temple.edu; Qfeng4@central.uh.edu; tang@bio.fsu.edu; feng.li@sdstate.edu; ruilu@lsu.edu; sxiang2@unl.edu; qiyi.tang@howard.edu; dingsw@ucr.edu; guohua@missouri.edu; bling@tulane.edu; junwang@pharmacy.arizona.edu; lifang@umn.edu; wang518@umd.edu; gaos8@upmc.edu; pewang@uchc.edu; xiangy@uthscsa.edu; fzhu@bio.fsu.edu; chen.liang@mcgill.ca; lyuan@vt.edu; fgao@duke.edu; wangjw28@163.com; xfyu1@zju.edu.cn; bzhao@partners.org; jianw@musc.edu; zyang@ksu.edu; yu.cong@nih.gov; weiming.yuan@usc.edu; Zongdi.feng@nationwidechildrens.org; juh13@psu.edu; hengx@missouri.edu; lsu@med.unc.edu; ywu8@gmu.edu; jwu@whu.edu.cn; tshuo@uic.edu; Shibojiang@fudan.edu.cn; sjiang@nybc.org; pinwang@usc.edu; rzhao@som.umaryland.edu; shuylong@mail.sysu.edu.cn; xuefeng.liu@georgetown.edu; yuxingli@som.umaryland.edu; shixia.wang@umassmed.edu; yhe@ipbcams.ac.cn; Pinghui.feng@usc.edu; juitao.guo@bblumberg.org; lin.liu@okstate.edu; hua.zhu@rutgers.edu; Jinhong.chang@bblumberg.org; jianzhu1012@gmail.com; ronghai@ucr.edu; jun.zhu@nih.gov; jliu4@uams.edu; xiangpeng.kong@med.nyu.edu; haoquanwu@outlook.com; Wenjun.liu@defence.gov.au; Liang.shan@wustl.edu; hliao@duke.edu; yuan2@upenn.edu; zxing@umn.edu; hongmin.li@health.ny.gov; pzheng@ihv.umaryland.edu; yaliu@ihv.umaryland.edu; jxw103@case.edu; xiangguo.qiu@canada.ca; Feng Shao <shaofeng@nibs.ac.cn>; zshi@wh.iov.cn; klan@whu.edu.cn; zengmsh@mail.sysu.edu.cn; Nan Yan <Nan.Yan@UTSouthwestern.edu>; Zhang, Rong <rongzhang@wustl.edu>; liliwang@upenn.edu; Linheng Li <LIL@stowers.org>; Tsan Xiao <xiaot@niaid.nih.gov>; kli1@uthsc.edu; Bing Chen <bchen@crystal.harvard.edu>

Cc: Paul Liu <paul06liu@yahoo.com>; Xi He <xi.he@childrens.harvard.edu>; Jianming Xu <jxu@bcm.edu>; Pan Zheng <zhengp01@gmail.com>; Chris Lau <chris.lau@ucsf.edu>

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Shan-Lu Liu, M.D., Ph.D.

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Columbus, Ohio 43210

Phone: (614) 292-8690

Fax: (614) 292-6473

Email: liu.6244@osu.edu; shan-lu.liu@osumc.edu

2019 Progress report for R01 AI110700

From: Sims, Amy C <sims0018@email.unc.edu>
To: Caldwell, Chandra <ccaldwel@email.unc.edu>, Fang Li <lifang@umn.edu>, amock@umn.edu, fosterd@umn.edu
Cc: Baric, Ralph S <rbaric@email.unc.edu>
Sent: January 7, 2019 4:01:08 PM CST
Received: January 7, 2019 4:01:21 PM CST
Attachments: 2590-fp7_all personnel report.docx, 04_SubBudget_v4.pdf, Subcontractor LOI template per UNC.doc

All,

UNC will need the following information for the R01 AI110700 Progress Report by **February 1, 2019**.

Please send the required documents to both myself and Chandra Caldwell cc'd above.

Thank you in advance! Please let me know if you have any questions. Thank you!

Documents needed from the University of Minnesota

- current NIH other support for Fang Li
- complete the **attached personnel report (**please include eRA username for key personnel, GRAs and postdocs)**
- a budget for the total costs of \$372,400 (amount includes direct and indirect costs) using the PDF budget file attached
- budget justification
- a signed LOI for the budget year of April 1, 2019 – March 31, 2020 using the attached template.

Amy Sims, Ph.D.
Associate Professor
UNC Chapel Hill
Office phone: 919-966-7991
Email: sims0018@ad.unc.edu

1. 2590-fp7_all personnel report.docx

Type: application/vnd.openxmlformats-officedocument.wordprocessingml.document
Size: 40 KB (41,474 bytes)

2. 04_SubBudget_v4.pdf

Type: application/pdf
Size: 1005 KB (1,029,538 bytes)

3. Subcontractor LOI template per UNC.doc

Type: application/vnd.ms-word
Size: 26 KB (26,624 bytes)

Program Director/Principal Investigator (Last, First, Middle):

ALL PERSONNEL REPORT

GRANT NUMBER

Place this form at the end of the signed original copy of the application. Do not duplicate.

Always list the PD/PI(s). In addition, list all other personnel who participated in the project during the current budget period for at least one person month or more, regardless of the source of compensation (a person month equals approximately 160 hours or 8.3% of annualized effort). Use the following abbreviated categories for describing Role on Project:

- PD/PI*
- Co-Investigator
- Faculty
- Postdoctoral (scholar, fellow, or other postdoctoral position)*
- Technician
- Staff Scientist (doctoral level)
- Statistician
- Graduate Student (research assistant)
- Non-student Research Assistant
- Undergraduate Student
- High School Student
- Consultant
- Other (please specify)

If personnel are supported by a Reentry or Diversity Supplement please indicate such after the Role on Project, using the following abbreviations: RS - Reentry Supplement; DS - Diversity Supplement.

*Commons ID required for any personnel holding this Role on Project and for all individuals supported by a Reentry or Diversity Supplement. The Commons ID will be required in the future for all individuals with a graduate student, or undergraduate role. The Commons ID is strongly encouraged, but not required, for all other Project Personnel.

Use Cal (calendar), Acad, or Summer to enter months devoted to project.

| Commons ID* | Name | Degree(s) | SSN (last 4 digits) | Role on Project | DoB (MM /YY) | Cal | Acad | Summer |
|-------------|------|-----------|---------------------|-----------------|--------------|-----|------|--------|
| | | | | | | | | |

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Sample Outgoing Subcontractor Commitment Letter

Instructions: Please provide this letter as a template/guideline to other entities participating as subcontracts under UNC-CH's prime award. Have the subcontractor/organization fill in the blank areas and those areas marked in ***BOLD ITALICS***.

Organization Letterhead
Organization Name
Organization Address

Date

Terry Magnuson
Vice Chancellor for Research
UNC Office of Sponsored Research (OSR)
104 Airport Drive, Suite 2200, CB 1350
Chapel Hill, NC 27599-1350

Reference: ***Response to solicitation/RFP/RFA number _____, entitled _____, dated _____***

Dear _____,

This letter confirms that the appropriate program and administrative personnel at ***Organization*** have reviewed the above referenced Solicitation/RFP/RFA and are committed to enter into a subcontract with The University of North Carolina at Chapel Hill (UNC-CH) for the performance period of _____ to _____. The work to be performed by ***Organization*** _____ does _____ does not include _____ animal and/or _____ human research subjects. The UNC-CH Principal Investigator on this proposal is _____. ***Organization*** _____ does _____ does not maintain an active and enforced conflict of interest policy meeting the requirements of 42 CFR Part 50, Subpart F and 45 CFR Part 94. The organization's DUNS number is _____.

The ***Organization's*** budget, budget justification and scope of work are provided as separate enclosures to this letter. The estimated cost of the proposed subcontract will not exceed \$ _____ and includes appropriate direct and indirect costs.

Furthermore, by submission of this commitment letter ***Organization*** and its Principal Investigator (PI) certify (1) that the information submitted within the application is true, complete and accurate to the best of the ***Organization's*** and PI's knowledge; (2) that any false, fictitious, or fraudulent statements or claims may subject the ***Organization*** and PI to criminal, civil, or administrative penalties; and (3) that the PI agrees to accept responsibility for the scientific conduct of the project and to provide the required progress reports if an award is made as a result of UNC-CH's application.

If you have any questions, please contact the undersigned at _____.

Sincerely,

Signature of Authorized Organization Official

Signature of Principal Investigator

Enclosed:
Budget, Budget Justification, Scope of Work

Re: 2019 Progress report for R01 AI110700

From: Sims, Amy C <sims0018@email.unc.edu>
To: Anne Mockovak <a-mock@umn.edu>, Melissa Dargay <mdargay@umn.edu>
Cc: Caldwell, Chandra <ccaldwel@email.unc.edu>, Fang Li <lifang@umn.edu>, Baric, Ralph S <rbaric@email.unc.edu>
Sent: January 7, 2019 4:15:15 PM CST
Received: January 7, 2019 4:15:17 PM CST

Thank you very much! The emails for Dawn kept bouncing back.

From: Anne Mockovak <a-mock@umn.edu>
Date: Monday, January 7, 2019 at 5:13 PM
To: "Sims, Amy C" <sims0018@email.unc.edu>, Melissa Dargay <mdargay@umn.edu>
Cc: "Caldwell, Chandra" <ccaldwel@email.unc.edu>, Fang Li <lifang@umn.edu>, "Baric, Ralph S" <rbaric@email.unc.edu>
Subject: Re: 2019 Progress report for R01 AI110700

Amy,
Melissa Dargay is the new grants contact for our department. I've copied her on this email.
Anne

On Mon, Jan 7, 2019 at 4:01 PM Sims, Amy C <sims0018@email.unc.edu> wrote:

All,

UNC will need the following information for the R01 AI110700 Progress Report by **February 1, 2019**.

Please send the required documents to both myself and Chandra Caldwell cc'd above.

Thank you in advance! Please let me know if you have any questions. Thank you!

Documents needed from the University of Minnesota

--current NIH other support for Fang Li

--complete the **attached personnel report** (**please include eRA username for key personnel, GRAs and postdocs)

-- a budget for the total costs of \$372,400 (amount includes direct and indirect costs) using the PDF budget file attached

--budget justification

-- a signed LOI for the budget year of April 1, 2019 – March 31, 2020 using the attached template.

Amy Sims, Ph.D.
Associate Professor
UNC Chapel Hill
Office phone: 919-966-7991
Email: sims0018@ad.unc.edu

--

Anne Mockovak
Accountant
Department of Veterinary and
Biomedical Sciences
612.301.2143

RE: New York Blood Center, Inc.; NYBC Ref. NYBC684; Our Ref. 44682-0005P01; Request for Assignments

From: Du, Lanying <LDu@nybc.org>
To: Edelmann, Lambert <LEdelmann@nybc.org>
Cc: Fang Li <lifang@umn.edu>
Sent: January 8, 2019 11:24:52 AM CST
Received: January 8, 2019 11:25:02 AM CST

Hi Lambert,

The patent office of Fang's university would like you to send files to them directly before they can sign the assignment.

Fang,

Can you give Lambert the contact information of your patent office?

Thanks,
Lanying

From: Edelmann, Lambert
Sent: Tuesday, January 08, 2019 12:11 PM
To: Du, Lanying <LDu@nybc.org>
Subject: FW: New York Blood Center, Inc.; NYBC Ref. NYBC684; Our Ref. 44682-0005P01; Request for Assignments

Lanying, can you please remind me if Fang Li signed the assignment document? Thank you.

From: Cathy O'Brien <OBrien@fr.com>
Sent: Wednesday, January 02, 2019 2:08 PM
To: Edelmann, Lambert <LEdelmann@nybc.org>
Cc: Leah Randles <randles@fr.com>; Teresa Lavoie <lavoie@fr.com>; otcpatent@umn.edu; APS Outgoing <APSO@fr.com>
Subject: New York Blood Center, Inc.; NYBC Ref. NYBC684; Our Ref. 44682-0005P01; Request for Assignments

Re: SUBUNIT VACCINES

Applicant: New York Blood Center, Inc. et al.
Application No.: 62/751,470
Filing Date: October 26, 2018
Country: United States
Your Ref.: NYBC684
Our Ref.: 44682-0005P01

Dear Lambert:

Please accept my apologies for the confusion with regards to the Assignment documents for the above-referenced matter. Attached are updated copies of the Assignments. The Assignments for Wanbo Tai and Lanying Du should be signed in the presence of two witnesses, and the Assignment for Fang Li should be signed and notarized. The company/university officials should also sign at the bottom of the forms where indicated.

Kindly return the Assignments to us by email at your earliest opportunity for recordation in the U.S. Patent and Trademark Office.

If you have any questions, do not hesitate to contact us.

Best regards,
Cathy

Cathy O'Brien :: US & Foreign Patent Paralegal/Case Manager :: Fish & Richardson P.C.
One Marina Park Drive, Boston, MA 02210-1878
Direct: 617 956 5982 :: Main: 617 542 5070 :: Fax: 617 542 8906 :: fr.com

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RE: New York Blood Center, Inc.; NYBC Ref. NYBC684; Our Ref. 44682-0005P01; Request for Assignments

From: Edelmann, Lambert <LEdelmann@nybc.org>
To: otcpatent@umn.edu, Fang Li <lifang@umn.edu>
Cc: Du, Lanying <LDu@nybc.org>
Sent: January 8, 2019 11:39:15 AM CST
Received: January 8, 2019 11:39:24 AM CST
Attachments: Updated Fang Li Assignment.pdf

Hi Fang,

Can you please sign the attached patent document in front of a notary who also signs and notarizes and then have your patent office execute the document.

Thank you,
Lambert

Lambert Edelmann PhD
Director
Scientific Business Development

Comprehensive Cell Solutions
New York Blood Center

310 East 67th Street
New York, NY 10065
Phone (office) 212-570-3215

Comprehensive Cell Solutions
www.comprehensivecellsolutions.com

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To: Edelmann, Lambert <LEdelmann@nybc.org>
Cc: 'Fang Li' <lifang@umn.edu>
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Re: New York Blood Center, Inc.; NYBC Ref. NYBC684; Our Ref. 44682-0005P01; Request for Assignments

From: Fang Li <lifang@umn.edu>
To: Du, Lanying <LDu@nybc.org>
Cc: Edelmann, Lambert <LEdelmann@nybc.org>
Sent: January 9, 2019 1:09:17 PM CST

Paul Savereide <save0003@umn.edu>

is the person who is charge of patents here.

thanks

On Tue, Jan 8, 2019 at 11:25 AM Du, Lanying <LDu@nybc.org> wrote:

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Cc: Leah Randles <randles@fr.com>; Teresa Lavoie <lavoie@fr.com>; otcpatent@umn.edu; APS Outgoing <APSO@fr.com>

Subject: New York Blood Center, Inc.; NYBC Ref. NYBC684; Our Ref. 44682-0005P01; Request for Assignments

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Application No.: 62/751,470

Filing Date: October 26, 2018

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Your Ref.: NYBC684

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--

Fang Li, Ph.D.
Associate Professor
Department of Veterinary and Biomedical Sciences
University of Minnesota Twin Cities
612-625-6149, lifang@umn.edu
<http://www.msi.umn.edu/~lifang>

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Lambert

Lambert Edelmann PhD

Director

Scientific Business Development

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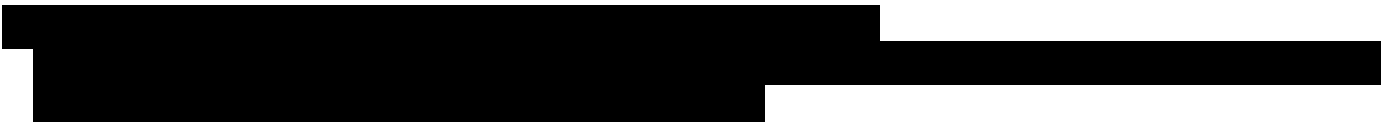
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Fang Li, Ph.D.
Associate Professor
Department of Veterinary and Biomedical Sciences
University of Minnesota Twin Cities
612-625-6149, lifang@umn.edu
<http://www.msi.umn.edu/~lifang>

--

Fang Li, Ph.D.
Associate Professor
Department of Veterinary and Biomedical Sciences
University of Minnesota Twin Cities
612-625-6149, lifang@umn.edu
<http://www.msi.umn.edu/~lifang>



Invitation letter for the 8th International Symposium on Emerging Viral Diseases

From: 胡犇 <huben@wh.iov.cn>
To: lifang@umn.edu
Cc: 石正丽 <zlishi@wh.iov.cn>
Sent: August 27, 2018 8:50:44 AM CDT
Received: August 27, 2018 8:50:58 AM CDT
Attachments: Invitation letter Fang Li.pdf

Dear Prof. Li:

Please find the invitation letter for the international symposium held by Wuhan Institute of Virology in October.

We are very glad that you can attend the meeting and give a talk about your recent research work.

I don't know whether you need a letter with the official seal of WIV for China visa application. If so, please let me know and I will prepare it immediately.

Thanks.

Best regards

Ben Hu Ph.D

Research assistant

Wuhan Institute of Virology, CAS

1. Invitation letter Fang Li.pdf

Type: application/pdf
Size: 143 KB (146,628 bytes)

ISEVD 第八届新生病毒性疾病控制学术研讨会

The 8th International Symposium on Emerging Viral Diseases

August 27, 2018
Fang Li, Ph.D.
Associate Professor
Department of Veterinary and Biomedical Sciences
University of Minnesota Twin Cities

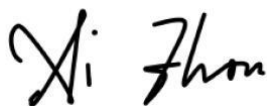
Dear Dr. Fang Li:

The 8th International Symposium on Emerging Viral Diseases will be held in October 20-22, 2018 in Wuhan, China. The symposium is organized by Wuhan Institute of Virology, Chinese Academy of Sciences, and will cover a variety of topics including pathogen biology of emerging viruses, virus-host interaction, antiviral immunity, etc. This biennial symposium has become an important event for leading Chinese and international virologists to discuss cutting-edge science on emerging viruses, as well as to foster global collaborations.

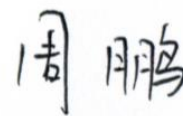
It is our great pleasure to invite you to attend this symposium and give an oral presentation. As an invited speaker, your accommodation in Wuhan will be covered by the conference and your registration fee will be waived. Due to budget constraint, we are regrettably unable to cover your travel expenses.

If you accept this invitation, please submit the abstract of your presentation to the meeting secretary Dr. Ben Hu (huben@wh.iov.cn) by September 20th. We look forward to seeing you again in Wuhan.

Sincerely Yours,



Xi Zhou, Ph.D
Senior Scientist & Professor
Wuhan Institute of Virology, CAS
E-mail: zhouxi@wh.iov.cn
Tel: 86-27-87197727



Peng Zhou, Ph.D
Senior Scientist & Professor
Wuhan Institute of Virology, CAS
E-mail: peng.zhou@wh.iov.cn
Tel: 86-27-87197311



Re: Invitation letter for the 8th International Symposium on Emerging Viral Diseases

From: Fang Li <lifang@umn.edu>
To: 胡犇 <huben@wh.iov.cn>
Cc: 石正丽 <zlishi@wh.iov.cn>
Sent: August 27, 2018 1:11:57 PM CDT
Received: August 27, 2018 1:11:57 PM CDT

Thanks, Ben.

Do you have a copy of the meeting agenda? I will need that to plan my trip.

Best,
Fang

On Mon, Aug 27, 2018 at 8:50 AM, 胡犇 <huben@wh.iov.cn> wrote:

Dear Prof. Li:

Please find the invitation letter for the international symposium held by Wuhan Institute of Virology in October.

We are very glad that you can attend the meeting and give a talk about your recent research work.

I don't know whether you need a letter with the official seal of WIV for China visa application. If so, please let me know and I will prepare it immediately.

Thanks.

Best regards

Ben Hu Ph.D

Research assistant

Wuhan Institute of Virology, CAS

--

Fang Li, Ph.D.
Associate Professor
Department of Veterinary and Biomedical Sciences
University of Minnesota Twin Cities
612-625-6149, lifang@umn.edu
<http://www.msi.umn.edu/~lifang>

Re: Re: Invitation letter for the 8th International Symposium on Emerging Viral Diseases

From: 胡犇 <huben@wh.iov.cn>
To: Fang Li <lifang@umn.edu>
Cc: 石正丽 <zlishi@wh.iov.cn>
Sent: August 27, 2018 11:29:10 PM CDT
Received: August 27, 2018 11:29:24 PM CDT

Dear Prof Li:

The final program of the meeting has not been decided yet, as we are still collecting abstracts from our speakers.

Generally, 20th October will be date of registration, and the meeting will be on 21st and 22nd. Your session will be likely scheduled on 21st afternoon or 22nd morning.

I will update you once the agenda is ready.

Best

Ben

-----原始邮件-----

发件人:"Fang Li" <lifang@umn.edu>
发送时间:2018-08-28 02:11:57 (星期二)
收件人:"胡犇" <huben@wh.iov.cn>
抄送:"石正丽" <zlishi@wh.iov.cn>
主题: Re: Invitation letter for the 8th International Symposium on Emerging Viral Diseases

Thanks, Ben.

Do you have a copy of the meeting agenda? I will need that to plan my trip.

Best,
Fang

On Mon, Aug 27, 2018 at 8:50 AM, 胡犇 <huben@wh.iov.cn> wrote:

Dear Prof. Li:

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Fang Li, Ph.D.
Associate Professor
Department of Veterinary and Biomedical Sciences
University of Minnesota Twin Cities
612-625-6149, lifang@umn.edu
<http://www.msi.umn.edu/~lifang>

grant opportunity

From: Fang Li <lifang@umn.edu>
To: Ralph Baric <rbaric@email.unc.edu>
Sent: August 31, 2018 9:50:51 AM CDT
Received: August 31, 2018 9:50:51 AM CDT
Attachments: nsf18581.pdf

Hi Ralph,

Please see attached file. Should we submit a proposal on bat CoVs?

Best,
Fang

--

Fang Li, Ph.D.
Associate Professor
Department of Veterinary and Biomedical Sciences
University of Minnesota Twin Cities
612-625-6149, lifang@umn.edu
<http://www.msi.umn.edu/~lifang>

1. nsf18581.pdf

Type: application/pdf
Size: 681 KB (697,833 bytes)

Ecology and Evolution of Infectious Diseases (EEID)

PROGRAM SOLICITATION

NSF 18-581

REPLACES DOCUMENT(S):

NSF 16-592



National Science Foundation

Directorate for Biological Sciences

Directorate for Social, Behavioral & Economic Sciences



National Institutes of Health

John E. Fogarty International Center

National Institute of General Medical Sciences

National Institute of Allergy and Infectious Diseases



National Institute of Food and Agriculture



U.K. Biotechnology and Biological Sciences Research Council



United States-Israel Binational Science Foundation



National Natural Science Foundation of China

Full Proposal Deadline(s) (due by 5 p.m. submitter's local time):

November 21, 2018

Third Wednesday in November, Annually Thereafter

IMPORTANT INFORMATION AND REVISION NOTES

This revision adds a new international collaborative partner, the National Natural Science Foundation of China.

Any proposal submitted in response to this solicitation should be submitted in accordance with the revised *NSF Proposal & Award Policies & Procedures Guide* (PAPPG) (NSF 18-1), which is effective for proposals submitted, or due, on or after January 29, 2018.

SUMMARY OF PROGRAM REQUIREMENTS

General Information

Program Title:

Ecology and Evolution of Infectious Diseases (EEID)

Synopsis of Program:

The multi-agency Ecology and Evolution of Infectious Diseases program supports research on the ecological, evolutionary, and social principles and processes that influence the transmission dynamics of infectious diseases. The central theme of submitted projects must be quantitative or computational understanding of pathogen transmission dynamics. The intent is discovery of principles of infectious disease transmission and testing mathematical or computational models that elucidate infectious disease systems. Projects should be broad, interdisciplinary efforts that go beyond the scope of typical studies. They should focus on the determinants and interactions of transmission among humans, non-human animals, and/or plants. This includes, for example, the spread of pathogens; the influence of environmental factors such as climate; the population dynamics and genetics of reservoir species or hosts; the feedback between ecological transmission and evolutionary dynamics; and the cultural, social, behavioral, and economic dimensions of pathogen transmission. Research may be on zoonotic, environmentally-borne, vector-borne, or enteric pathogens of either terrestrial or freshwater systems and organisms, including diseases of animals and plants, at any scale from specific pathogens to inclusive environmental systems. Proposals for research on disease systems of public health concern to developing countries are strongly encouraged, as are disease systems of concern in agricultural systems. Investigators are encouraged to develop the appropriate multidisciplinary team, including for example, modelers, ecologists, bioinformaticians, genomics researchers, social scientists, economists, epidemiologists, evolutionary biologists, entomologists, parasitologists, microbiologists, bacteriologists, virologists, pathologists or veterinarians, with the goal of integrating knowledge across disciplines to enhance our ability to predict and control infectious diseases.

Cognizant Program Officer(s):

Please note that the following information is current at the time of publishing. See program website for any updates to the points of contact.

- Katharina Dittmar, Program Director, DEB/NSF, telephone: (703) 292-7799, email: kdittmar@nsf.gov
- Christine Jessup, Program Director, NIH/FIC, telephone: (301) 496-1653, fax: (301) 402-0779, email: christine.jessup@nih.gov
- Peter Johnson, National Program Leader, USDA/NIFA, telephone: (202) 401-1896, email: pjohnson@nifa.usda.gov
- Sadhana Sharma, Strategy and Policy Manager, UKRI-BBSRC, telephone: 44 1793-413099, email: sadhana.sharma@bbsrc.ac.uk
- Rachel (Heni) Haring, Deputy Executive Director, BSF, telephone: 972 2 5828239, email: heni@bsf.org.il
- Xiuping Liu, Division Director, NSFC, telephone: 86 10-62325377, email: liuxp@nsfc.gov.cn
- Jie Shen, Program Manager, NSFC, telephone: 86 10-62327017, email: shenjie@nsfc.gov.cn
- Daniel Janes, Program Director, NIH/NIGMS, telephone: (301) 594-0943, email: daniel.janes@nih.gov
- Stephanie Coomes, Health Scientist Administrator, NIH/NIAID, telephone: (301) 761-6855, email: stephanie.coomes@nih.gov
- Deborah Winslow, Program Director, SBE/NSF, telephone: (703) 292-7315, email: dwinslow@nsf.gov
- Susanna Remold, Program Director, DEB/NSF, telephone: (703) 292-7836, email: sremold@nsf.gov
- Samuel M. Scheiner, Program Director, DEB/NSF, telephone: (703) 292-7175, email: sscheine@nsf.gov
- Colette St. Mary, Program Director, DEB/NSF, telephone: (703) 292-4659, email: cstmary@nsf.gov

Applicable Catalog of Federal Domestic Assistance (CFDA) Number(s):

- 10.310 --- USDA-NIFA Agriculture and Food Research Initiative
- 47.074 --- Biological Sciences
- 47.075 --- Social Behavioral and Economic Sciences
- 93.856 --- Microbiology and Infectious Diseases Research
- 93.859 --- National Institute of General Medical Sciences
- 93.989 --- John E. Fogarty International Center

Award Information

Anticipated Type of Award: Standard Grant or Continuing Grant

Estimated Number of Awards: 8

Anticipated Funding Amount: \$20,000,000

in FY 2019, pending the availability of funds. That amount includes approximately \$7.5M from NSF for new standard or continuing awards, approximately \$7.5M from NIH for new or continuing awards, and \$5M from USDA for new awards. The expected funding from the UKRI-BBSRC for the UK component of the US-UK Collaborative Projects will be a maximum of £2M. The expected funding from the BSF for the Israeli component of the US-Israel Collaborative Projects will be a maximum of \$70,000/year. The expected funding from the NSFC for the Chinese component of the US-China Collaborative Projects will be a maximum of ¥9M.

Eligibility Information

Who May Submit Proposals:

The categories of proposers eligible to submit proposals to the National Science Foundation are identified in the *NSF Proposal & Award Policies & Procedures Guide (PAPPG)*, Chapter I.E.

Who May Serve as PI:

There are no restrictions or limits.

Limit on Number of Proposals per Organization:

There are no restrictions or limits.

Limit on Number of Proposals per PI or Co-PI: 2

In a given year, an individual may participate as a PI, co-PI, or sub-award lead on no more than **two** proposals submitted in response to this solicitation. **This limit does not include RCN proposals.** In addition, an individual from Israel may participate in no more than **one** US-BSF proposal and an individual from China may participate in no more than **one** US-China proposal. Proposals in excess of the limit for any person will be returned without review in the reverse order received. Participating in a proposal as other senior personnel does not count in this limit. Changes in investigator roles post-submission to meet the eligibility limits will not be allowed. **It is the responsibility of the submitters to confirm that the entire team is within the eligibility guidelines.**

Proposal Preparation and Submission Instructions

A. Proposal Preparation Instructions

- **Letters of Intent:** Not required
- **Preliminary Proposal Submission:** Not required
- **Full Proposals:**
 - Full Proposals submitted via FastLane: *NSF Proposal and Award Policies and Procedures Guide (PAPPG)* guidelines apply. The complete text of the PAPPG is available electronically on the NSF website at: https://www.nsf.gov/publications/pub_summ.jsp?ods_key=pappg.
 - Full Proposals submitted via Grants.gov: *NSF Grants.gov Application Guide: A Guide for the Preparation and Submission of NSF Applications via Grants.gov* guidelines apply (Note: The *NSF Grants.gov Application Guide* is available on the Grants.gov website and on the NSF website at: https://www.nsf.gov/publications/pub_summ.jsp?ods_key=grantsgovguide).

B. Budgetary Information

- **Cost Sharing Requirements:**

Inclusion of voluntary committed cost sharing is prohibited.
- **Indirect Cost (F&A) Limitations:**

Not Applicable
- **Other Budgetary Limitations:**

Other budgetary limitations apply. Please see the full text of this solicitation for further information.

C. Due Dates

- **Full Proposal Deadline(s)** (due by 5 p.m. submitter's local time):
 - November 21, 2018
 - Third Wednesday in November, Annually Thereafter

Proposal Review Information Criteria

Merit Review Criteria:

National Science Board approved criteria. Additional merit review considerations apply. Please see the full text of this solicitation for further information.

Award Administration Information

Award Conditions:

Additional award conditions apply. Please see the full text of this solicitation for further information.

Reporting Requirements:

Additional reporting requirements apply. Please see the full text of this solicitation for further information.

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I. INTRODUCTION

The past twenty years have seen a dramatic increase in our awareness of the need to understand the ecological and evolutionary drivers of disease emergence and transmission dynamics. While our knowledge has increased about specific systems and the basic principles of simple systems, understanding of complex systems and translation of those principles into ecosystem, public health, and agricultural health management tools remains challenging. System complexity includes such factors as multiple interacting species of hosts, pathogens and/or vectors; interactions among pathogenic and non-pathogenic microbes; interactions between biological, cultural and social factors; effects of spatial and temporal structure; and evolutionary dynamics.

The emergence and the re-emergence of numerous infectious diseases around the world have coincided with unprecedented rates of change in the structure and diversity of the environment and human social and economic systems. Nearly all of the world's terrestrial and aquatic ecosystems have undergone dramatic changes due to a variety of human activities such as habitat transformation, human displacement and relocation, urbanization, rapid long-distance transport and increased international trade, species invasions, deliberate introduction of infectious diseases for biological control, wildlife trafficking, chemical waste contamination, use of antimicrobial agents in agriculture and medicine, and climate change. The coincidence of broad scale environmental changes, the expansion of human social and economic networks, and the emergence of infectious diseases may point to underlying predictable ecological and eco-evolutionary relationships.

We have improved our ability to define the molecular identity and dynamics of pathogens, and have greatly increased our understanding of host defense systems. We are able to apply genetic knowledge to understand the evolutionary dynamics of infectious diseases. These improvements have contributed significantly to our knowledge of the epidemiology and transmission patterns of diseases. However, the relationship of these factors to the biotic and structural complexity of ecological, agricultural, and social systems in which transmission occurs remains poorly understood. For example, little is known about the transmission dynamics of interacting pathogens and non-pathogens within a common host. In addition, although these dynamics take place over evolutionary time for pathogens and in the context of social systems, insufficient attention has been given to integrating ecological, epidemiological, evolutionary, and socio-economic dynamics.

At present, basic and applied research in infectious disease ecology and evolution are not well integrated. The potential benefits of an interdisciplinary research program in this area include:

- development of disease transmission theory,

- improved understanding of how diseases (re)emerge,
- improved understanding of host population and ecosystem effects on disease transmission,
- increased capacity to forecast and respond to outbreaks,
- improved understanding of unintended health effects of development projects affecting terrestrial and freshwater systems,
- enhanced safety of food supplies, and
- improved strategies to control or prevent infectious diseases and enhance biosecurity.

An understudied aspect of disease transmission is the importance of socio-ecological factors and processes. Important new insights into the drivers and control of infectious diseases in humans and other species can only be achieved by integrated approaches that take into account the ways in which the natural and social environments affect the emergence and spread of infectious disease. This concept, often called "one health," links medical, veterinary, social and environmental sciences by drawing on a common pool of knowledge between the three sectors in order to exploit the potential of animal disease research to provide insights into ecosystem, agricultural, and human health.

This activity is a continuation of the previous joint National Science Foundation/National Institutes of Health/United States Department of Agriculture (NSF/NIH/USDA) Ecology of Infectious Disease competition. Information on past awards can be found at [EEID Awards](#). Additional information for NIH can be found at <http://www.fic.nih.gov/Programs/Pages/ecology-infectious-diseases.aspx> and for USDA at <https://nifa.usda.gov/funding-opportunity/ecology-and-evolution-infectious-diseases>.

II. PROGRAM DESCRIPTION

The goal of the Ecology and Evolution of Infectious Diseases (EEID) program is to support important and innovative research on the ecological, evolutionary, and socio-ecological principles that influence the transmission dynamics of infectious diseases. The program's focus is on the discovery of general principles and processes and on building and testing models that elucidate these principles.

Projects must address the quantitative or computational understanding of pathogen transmission dynamics. Research in EEID is expected to be an interdisciplinary effort that goes beyond the scope of typical studies funded by the standing programs of the partner agencies. Projects should bring together such areas as anthropology, bioinformatics, computational science, ecology, economics, epidemiology, evolution, food science, genomics, geography, global health, mathematics, medicine, microbiology, plant science, population biology, sociology, physical environmental sciences, systems science, and veterinary medicine. Research within EEID is expected to generate rigorously characterized and tested models that are of value to the scientific community, but also may be useful in decision making. **The history of the EEID program has shown that the most competitive proposals are those that advance broad, conceptual knowledge that reaches beyond the specific system under study and that may be useful for understanding public, agricultural or ecosystem health, natural resource use and wildlife management, and/or economic development. Such proposals are typically interdisciplinary in their approach and/or the nature of the question(s) being addressed.**

Infectious disease transmission reflects complex, dynamic relationships that occur on varying spatial and temporal landscapes, are created by both ecological and evolutionary processes, and are revealed in genome architecture, physiological systems, population dynamics, and community structure, as well as behavioral and social dynamics. The interactions between disease-causing organisms, their vectors, and their host(s) are embedded within much larger networks of interacting systems, including other microorganisms that may or may not cause disease, one or more vector species, and multiple host species. Analysis of environmental influences (biological, geophysical, economic, and social) on individual and population susceptibility is fundamental to understanding these complex systems of infectious diseases. Research into the ecology (population, community, evolutionary, and social) of infectious diseases will contribute to a deeper understanding of these complex infectious disease systems, to the development of well characterized and tested models, and to the elucidation of general ecological and evolutionary principles.

Insights into the dynamics of infectious disease systems may require integration across several temporal, spatial, and functional scales including molecular, individual, population, societal, and ecosystem levels. Similarly, they may require integration across biological, socio-economic, and geophysical domains. The field of evolutionary ecology, which focuses on both the importance of ecological context in studies of evolution and the importance of evolutionary change for ecological systems, may also provide important insights into infectious disease systems. The interplay of evolution and ecology has implications for understanding how infectious agents emerge as pathogens, adapt to one or more hosts, interact with other microbial communities (e.g., microbiome), and are transmitted among hosts.

A critical goal of research supported by this program is the generation of principles and conceptual frameworks that organize and inform the research and that lead to mathematical, computational, and statistical models of infectious disease dynamics. Diverse modeling approaches are appropriate, including, but not limited to, mathematical equations, computational simulations, geospatial algorithms, and statistical models. **For the EEID program, the most competitive proposals are organized around an overarching conceptual framework that leads to such a model.** Models should aim to be explanatory beyond the specific system under study and must be well-characterized and rigorously tested. Proposals must describe how models will be developed, evaluated, and disseminated. Proposals must identify which individual(s) will oversee the quantitative approaches and provide evidence of demonstrated expertise in mathematical, computational, or statistical modeling and/or data analysis. Likewise, strategies for data collection must be well designed to contribute to and test model design. Proposals must include plans for dissemination of data, models, and tools developed by this program.

A variety of *topics, questions, systems and approaches* are appropriate. Among the areas of particular interest are: the role of social influences on the susceptibility of individuals or populations; multiway interactions between pathogenic and non-pathogenic organisms and their mutual hosts; the role of medical, agricultural or environmental practices on pathogen emergence and transmission; emergence of pathogens from non-pathogenic populations; host switching; evolutionary dynamics in an ecological context such as disease control interventions and drug resistance. These topics have significant ecological and evolutionary components that should be studied as a system, not in isolation. Depending on the hypotheses or research questions being addressed, investigations might entail some combination of laboratory experiments, field observations or manipulations, public health interventions (although clinical trials are beyond the scope of the EEID program), analysis of social and cultural processes, or ethnographic studies. Research may also focus on novel analyses of existing data and/or theoretical investigations of ecological and evolutionary dynamics. Investigations may focus on model infectious disease systems in natural (terrestrial or freshwater) or laboratory settings where those systems elucidate general

principles.

Research may use a variety of study systems. The organism(s) or system(s) selected for study should be justified with respect to its suitability to study questions of ecology and/or evolutionary ecology. Research may involve a variety of infectious agents, individual diseases, or groups of diseases, and might involve one or more social systems, regions, habitats, or groups of organisms. Proposals may focus on terrestrial or freshwater systems and organisms and may include infectious diseases of humans, non-human animals, or plants. **Regardless of the system or approach taken, a proposal must have a significant focus on the ecology of pathogen transmission to be eligible for funding.**

Because of the complexity of studies on the ecology and evolutionary ecology of infectious diseases, multidisciplinary teams of domestic and international collaborators with expertise from diverse disciplines are likely to be most effective. Investigators are encouraged to develop collaborations with public health research communities where that is appropriate. Collaborative teams could include, for example: ecologists, epidemiologists, medical scientists, veterinary scientists, evolutionary biologists, social and behavioral scientists, entomologists, food scientists, microbiologists, pathologists, and parasitologists, geologists, hydrologists, geospatial analysts, and mathematicians. The research plan should indicate how multiple disciplines will be integrated and how new investigators in U.S. and collaborating foreign institutions will be prepared to further this research.

The EEID program is not intended to be the only avenue of support by the participating agencies for supporting research on infectious diseases. Specifically, proposals submitted in response to this announcement must address ecological dynamics and among-host transmission, even when evolutionary studies are a substantive part of the proposal. Investigations that are outside the scope of this EEID announcement include:

- those limited solely to genetic patterns of evolutionary change (e.g., comparative genomics),
- those that focus solely on human diseases without considering the broader ecological context,
- those that focus solely on pathogen discovery,
- those that focus solely on within-host biological processes,
- those that focus solely on vector species ecology, and
- those that have not pre-identified at least one pathogenic organism that will be the focus of the study.

Projects focusing on **marine systems are not accepted**, except for those dealing with aquacultural systems within the purview of the USDA-National Institute of Food and Agriculture. Projects focused on disease ecology in marine systems, *might* be appropriate for the [Biological Oceanography](#) program in the Division of Ocean Sciences. However, projects that primarily investigate the fundamental microbiology, physiology, or molecular biology (i.e., not ecology) of specific marine syndromes/diseases are not appropriate for the Biological Oceanography program. You may contact program officers in the Biological Oceanography program to clarify the suitability of your project before submission.

The EEID competition broadly welcomes, but does not require, that projects include international collaborators. Three specific forms of collaboration (US-UK Collaborative Projects, US-Israel Collaborative Projects, and US-China Collaborative Projects) are described below. These specific activities do not preclude other international collaborations.

EEID Partner Interests

Fogarty International Center

The Fogarty International Center (FIC) is dedicated to advancing the mission of the National Institutes of Health (NIH) by supporting and facilitating global health research conducted by U.S. and international investigators, building partnerships between health research institutions in the U.S. and abroad, and training the next generation of scientists to address global health needs. The FIC is interested in EEID applications that include explicit plans for capacity building in [Low- or Middle-Income Countries \(LMICs\)](#), as defined by the [World Bank](#) and encourages applications that are focused on significant and/or emerging infectious disease threats, including zoonotic disease threats, to human health in LMICs. The FIC will consider supporting meritorious EEID research applications that address the above priorities and/or meritorious EEID Research Coordination Network (RCN) applications aimed at capacity building in LMICs.

National Institute of General Medical Sciences

The National Institute of General Medical Sciences (NIGMS) supports basic research that improves understanding of biological processes and lays the foundation for advances in disease diagnoses, prevention, and treatment. NIGMS also has a strong interest in training and support of the nation's scientific workforce. NIGMS is interested in EEID applications that address the evolution of hosts, pathogens and their interactions as well as basic biology and population genetics of hosts and pathogens as they relate to disease transmission and prevention. NIGMS will consider supporting meritorious EEID research applications as single-PI or multi-PI research program grants.

National Institute of Allergy and Infectious Diseases

The National Institute of Allergy and Infectious Diseases (NIAID) conducts and supports basic and applied research to better understand, treat, and ultimately prevent infectious, immunologic, and allergic diseases. For more than 60 years, NIAID research has led to new therapies, vaccines, diagnostic tests, and other technologies that have improved the health of millions of people in the United States and around the world. NIAID supports research on nearly 300 infectious agents and investigates the biological properties of these pathogens and the immune system's responses to them. Findings from this research are vital to NIAID efforts to create vaccines, drugs, and diagnostic tools to better diagnose, prevent, and treat infectious diseases.

USDA/NIFA

The National Institute of Food and Agriculture (NIFA) supports research, education, and extension work that addresses key problems of national, regional, and multi-state importance in sustaining all components of food and agriculture, including farm efficiency and profitability, ranching, bioenergy, forestry (both urban and agroforestry), aquaculture, rural communities and entrepreneurship, human nutrition, food safety, physical and social sciences, home economics and rural human ecology, biotechnology, and conventional breeding, and including both conventional and organic food production systems.

Applicants may submit proposals that support one or more of the seven USDA's strategic goals for FY2018-2022 (<https://www.usda.gov/our-agency/about-usda/strategic-goals>). Any such activity proposed (e.g., partnerships, exchanges, training,

and/or travel), must first and foremost support NIFA's domestic program goals. Applicants must clearly describe and demonstrate how international activities proposed in applications will contribute to and support advances in U.S. agriculture.

US-UK Collaborative Projects

Recognizing the potential for international collaboration to advance EEID research and education objectives, NSF has partnered for this solicitation with the UK Research and Innovation - Biotechnology and Biological Sciences Research Council (UKRI-BBSRC) of the U.K. This partnership will facilitate coordinated funding of U.S. and U.K. research collaboration.

The focus of US-UK Collaborative Projects should be on understanding the ecology, evolution and transmission dynamics of pathogens of farmed animals (including aquaculture), crops, and/or trees in managed forests or the wider environment. The scope also includes broader related issues, e.g., transmission dynamics of antimicrobial and anti-parasitic resistance, animal pathogens with zoonotic potential, and the interactions of pathogens with animal or plant-associated microbiomes. The Collaborative proposals can include both research projects and Research Coordination Networks. The UK component of the Collaborative proposal must fit within UKRI-BBSRC's remit. For further information, please see www.bbsrc.ac.uk/eeid.

UK researchers applying under this heading must meet UKRI-BBSRC eligibility requirements for managed mode calls and must apply through an institution eligible to receive UKRI-BBSRC's funding. Please see UKRI-BBSRC funding rules: <https://bbsrc.ukri.org/funding/apply/>.

Project are **strongly encouraged** to contact the relevant Cognizant Program Officer to confirm that the UK component fits UKRI-BBSRC's requirements. Applications with non-eligible UK partners will not be considered for funding as a US-UK Collaborative Projects.

US-Israel Collaborative Proposals

Recognizing the potential for international collaboration to advance EEID research and education objectives, NSF has partnered for this solicitation with the U.S.-Israel Binational Science Foundation (BSF), which is an organization owned by the two governments with the aim of facilitating scientific relations between them. The Israeli component of the US-Israel Collaborative Projects will be funded by the BSF using special funds provided by the Israeli government.

Israeli researchers applying under this heading must meet BSF eligibility requirements, and must apply through an institution eligible to receive BSF funding. Please see BSF eligibility rules: <http://www.bsf.org.il/ElectronicSubmission/GatewayFormsAndGuidelines.aspx?PagelD=7&innerTextID=0>.

US-UK-Israel Collaborative proposals

Multinational collaborative research projects that involve researchers from the US, UK and Israel are also welcome. Any such projects must meet the requirements of each of the NSF, the UKRI-BBSRC and the BSF.

US-China Collaborative Proposals

Recognizing the potential for international collaboration to advance EEID research and education objectives, NSF has partnered for this solicitation with the National Natural Science Foundation of China (NSFC). The Chinese component of the US-China Collaborative Projects will be funded by the NSFC using funds provided by the Chinese government.

Chinese researchers applying under this heading must meet NSFC eligibility requirements, and must apply through an institution eligible to receive NSFC funding. Please see NSFC eligibility rules: <http://www.nsf.gov.cn/nsfc/cen/xmzn/2017xmzn/sqzx.html>
Applications with non-eligible China partners will not be considered for funding as a US-China Collaborative Projects.

Research Coordination Network Projects (RCN)

The EEID program will accept proposals to establish Research Coordination Networks that focus on issues involving infectious disease ecology, socio-ecology, and evolution. RCN projects are also eligible to be submitted as US-UK Collaborative Projects. Information on the scope of RCN projects and the format of those proposals can be found at (https://www.nsf.gov/funding/pgm_summ.jsp?pims_id=11691&org=BIO&from=home). Such RCN proposals should be submitted under the EEID solicitation and deadline.

III. AWARD INFORMATION

Award size: Under this solicitation, the maximum total (for all years) award size is \$2.5 million, including indirect costs. US-UK Collaborative Projects can request additional funding for the UK component of the project. The minimum award size is \$1.5 million total project costs for all years, or \$1.0 million for the US component of US-UK, US-Israel and US-China Collaborative Projects. For US-Israel Collaborative Projects, the maximum award size for the Israeli portion is \$70,000/year. For US-China Collaborative Projects, the maximum award size for the Chinese portion is ¥4.5M total project costs for all years.

Award duration: The maximum award duration is five years.

RCN proposals: The maximum award size for RCN proposals is \$500,000 as per the RCN solicitation. For US-UK Collaborative RCN proposals, the maximum award size for the US component is \$500,000.

Award number: Approximately 8 new awards are anticipated in FY 2019, depending on the quality of submissions and the availability of funds; the expected funding will be \$19 million. That amount includes approximately \$7.5M from the NSF for new standard or continuing awards, approximately \$7.5M from the NIH for new or continuing awards, and \$5M from the USDA for new awards. Of those 8 awards, 2-4 are anticipated to be US-UK Collaborative Projects, depending on the quality of submissions and the availability of funds; the expected funding from the UKRI-BBSRC for this call is up to £2M. This amount reflects 80% of the full economic costs in the U.K. Of those 8 awards, up to 1 is anticipated to be a US-Israel Collaborative Project, depending on the quality of submissions and the availability of funds; the expected funding from the BSF for the Israeli component of the US-Israel Collaborative Projects will be a

maximum of \$70,000/year. Of those 8 awards, up to 2 are anticipated to be US-China Collaborative Projects for a total of ¥9M, depending on the quality of the submissions and the availability of funds.

Upon conclusion of the review process, meritorious proposals may be recommended for funding by either NSF, NIH, or USDA, at the option of the agencies, not the proposing organizations. Proposals selected for funding by NIH or USDA will need to be reformatted and resubmitted to that agency. Subsequent submission and grant administration procedures will be in accordance with the individual policies of the awarding agency. Further information will be provided to these applicants after selection.

Proposals selected for funding consideration by the NIH will be invited to resubmit to the Division of Receipt and Referral (DRR) in NIH's Center for Scientific Review (CSR) (see Section VI.B). PIs submitting to the NIH must be registered in eRA Commons and the applicant's organization must be registered with SAM, Grants.gov and eRA Commons. PIs should therefore ensure that all registrations required for NIH submission are in place before the NIH receipt deadline.

USDA/NIFA Legislative Authority: The USDA authority for this RFA is contained in Section 7406 of the Food, Conservation, and Energy Act of 2008 (FCEA) (Pub. L. 110-246) which amends section 2(b) of the Competitive, Special, and Facilities Research Grant Act (7 U.S.C. 450i(b)) to authorize the Secretary of Agriculture to establish the Agriculture and Food Research Initiative (AFRI); a new competitive grant program to provide funding for fundamental and applied research, extension, and education to address food and agricultural sciences. AFRI is subject to the provision found at 7 CFR Part 3430.

For US-UK Collaborative Projects, the UK component of the collaboration will be awarded through the UKRI-BBSRC in accordance with its policies. If the UKRI-BBSRC selects an application for funding, the applicant will be required to submit the costs for the UK element of the proposal via the Je-S application submission system before final sign-off. UK collaborators should therefore ensure they are registered Je-S users before the proposal is submitted.

For US-Israel Collaborative Projects, the Israeli component of the collaboration will be awarded through the BSF in accordance with its policies and regulations. The collaborative proposal must be submitted to the BSF by the Israeli scientist by the BSF-established deadline.

For US-China Collaborative Projects, the Chinese component of the collaboration will be awarded through the NSFC in accordance with its policies and regulations. The collaborative proposal must be submitted to the NSFC application submission system by the Chinese scientists by the NSFC-established deadline.

IV. ELIGIBILITY INFORMATION

Who May Submit Proposals:

The categories of proposers eligible to submit proposals to the National Science Foundation are identified in the *NSF Proposal & Award Policies & Procedures Guide* (PAPPG), Chapter I.E.

Who May Serve as PI:

There are no restrictions or limits.

Limit on Number of Proposals per Organization:

There are no restrictions or limits.

Limit on Number of Proposals per PI or Co-PI: 2

In a given year, an individual may participate as a PI, co-PI, or sub-award lead on no more than **two** proposals submitted in response to this solicitation. **This limit does not include RCN proposals.** In addition, an individual from Israel may participate in no more than **one** US-BSF proposal and an individual from China may participate in no more than **one** US-China proposal. Proposals in excess of the limit for any person will be returned without review in the reverse order received. Participating in a proposal as other senior personnel does not count in this limit. Changes in investigator roles post-submission to meet the eligibility limits will not be allowed. **It is the responsibility of the submitters to confirm that the entire team is within the eligibility guidelines.**

Additional Eligibility Info:

NIH Eligibility: Clinical trials are not allowed. The NIH will only consider applications that do not propose clinical trials. Individuals who are considering submitting a proposal in response to this solicitation should review <https://grants.nih.gov/ct-decision/> in determining whether the project meets the NIH definition of a Clinical Trial. Institutions eligible for awards by the NIH's Fogarty International Center (FIC) include foreign institutions in **low- and middle-income countries (LMICs), as defined by the World Bank** (foreign institutions in high-income countries are not eligible for FIC awards).

USDA/NIFA Eligibility: Eligible entities for award include, (1) State agricultural experiment stations; (2) colleges and universities (including junior colleges offering associate degrees or higher); (3) university research foundations; (4) other research institutions and organizations; (5) Federal agencies, (6) national laboratories; (7) private organizations or corporations; (8) individuals who are U.S. citizens, nations, or permanent residents; and (9) any group consisting of 2 or more entities identified in (1) through (8). Eligible institutions do not include foreign and international organizations.

V. PROPOSAL PREPARATION AND SUBMISSION INSTRUCTIONS

A. Proposal Preparation Instructions

Full Proposal Preparation Instructions: Proposers may opt to submit proposals in response to this Program Solicitation via Grants.gov or via the NSF FastLane system.

- Full proposals submitted via FastLane: Proposals submitted in response to this program solicitation should be prepared and submitted in accordance with the general guidelines contained in the *NSF Proposal & Award Policies & Procedures Guide* (PAPPG). The complete text of the PAPPG is available electronically on the NSF website at: https://www.nsf.gov/publications/pub_summ.jsp?ods_key=pappg. Paper copies of the PAPPG may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-7827 or by e-mail from nsfpubs@nsf.gov. Proposers are reminded to identify this program solicitation number in the program solicitation block on the NSF Cover Sheet For Proposal to the National Science Foundation. Compliance with this requirement is critical to determining the relevant proposal processing guidelines. Failure to submit this information may delay processing.
- Full proposals submitted via Grants.gov: Proposals submitted in response to this program solicitation via Grants.gov should be prepared and submitted in accordance with the NSF Grants.gov Application Guide: A Guide for the Preparation and Submission of NSF Applications via Grants.gov. The complete text of the NSF Grants.gov Application Guide is available on the Grants.gov website and on the NSF website at: (https://www.nsf.gov/publications/pub_summ.jsp?ods_key=grantsgovguide). To obtain copies of the Application Guide and Application Forms Package, click on the Apply tab on the Grants.gov site, then click on the Apply Step 1: Download a Grant Application Package and Application Instructions link and enter the funding opportunity number, (the program solicitation number without the NSF prefix) and press the Download Package button. Paper copies of the Grants.gov Application Guide also may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-7827 or by e-mail from nsfpubs@nsf.gov.

See PAPPG Chapter II.C.2 for guidance on the required sections of a full research proposal submitted to NSF. Please note that the proposal preparation instructions provided in this program solicitation may deviate from the PAPPG instructions.

Special Information and Supplementary Documentation:

- **Proposals Involving Multiple Institutions.** Of the two types of collaborative proposal formats described in the Proposal & Award Policies & Procedures Guide, this solicitation allows only a single proposal submission with subawards administered by that lead organization. In the case of proposals involving multiple organizations, a single organization **must** be identified as the lead, and a **single proposal** describing the entire project must be submitted by that organization. Funds may be distributed among partner organizations via subawards from the lead organization. A budget on the standard NSF budget form should be submitted for each subawardee. The requirement for a single organization to submit the sole proposal for a project is designed to facilitate effective coordination among participating organizations and to avoid difficulties that ensue in funded projects when individuals change organizations and/or cease to fulfill project responsibilities.
- **Research Experiences for Undergraduates.** Funds to support Research Experiences for Undergraduates (REUs) should be included in the original proposal. A limited number of post-award supplements may be available if such activities were unforeseen at the time of submission and the request broadens participation in STEM fields. Eligibility for post-award educational supplements for REU, RET, RAHSS, and ROA projects is described on the DEB supplement request website: <https://www.nsf.gov/bio/deb/suppopp.jsp>. **Submission Guidance:** The descriptions of proposed REU activities should be included in the Supplementary Documents. For REUs, follow the guidelines for "REU supplement requests as part of a proposal" in the REU solicitation. REU projects must involve students in meaningful ways in ongoing research programs or in research projects specifically designed for the REU student. If the intent is to engage students as technicians, then an REU is not the appropriate support mechanism; instead, salary support should be entered on the Undergraduate Students line of the proposal budget. The description of these activities is limited to 3 pages. If multiple institutions on a collaborative proposal are requesting funds for REUs, all REU activities should be included in one supplementary document, limited to 3 pages. All person related costs, including stipends and/or travel should be placed in Participant Support Costs on the budget. Materials and supplies costs should be included under section G1 of the budget. A detailed breakdown of the budget must be included in the budget justification. Budgets for REUs are generally \$6,000-8,000 per student.
- **Senior Personnel List Spreadsheet.** An additional spreadsheet listing all senior personnel involved in the project **must** be submitted. The spreadsheet template can be found at <https://www.nsf.gov/bio/deb/debpersonnellist.xlsx>. Please read the instructions carefully. Using the template, compile an Excel file that provides information for all persons identified in the proposal as: "PI or co-PI" (i.e., those listed on the cover page); "Other Senior Personnel/Subawardee"; or "Other Personnel" who have a biosketch included in the proposal, including all international collaborators. Only one spreadsheet should be submitted per project. The file **must** include the FastLane proposal ID assigned after submission of your proposal (i.e., not the Temporary ID # or Grants.gov ID #). Once completed, the file should be submitted by email to debtemplate@nsf.gov within one business day of proposal submission.
- **Letters of Collaboration.** Supplementary Documents may include letters of collaboration from individuals or organizations that are integral parts of the proposed project but are not listed as PI, co-PI, or other senior personnel on the main proposal or any subaward. Such involvement may include subsidiary involvement in some aspect of the project, cooperation on outreach efforts, or documentation of permission to access materials or data. Letters of collaboration should focus solely on affirming that the individual or organization is willing to collaborate on the project as specified in the project description. No additional text, especially elaboration of the nature of activities to be undertaken by the collaborator and endorsements of the potential value or significance of the project for the collaborator, may be included. The template that **must** be used for the preparation of letters of collaboration is provided below.

Letters of collaboration should not be provided from any individual designated as a principal investigator, or a senior personnel, nor are letters of collaboration required from any organization that will be a subawardee in the proposal budget.

Each letter of collaboration **must** be signed by the designated collaborator. Requests to collaborators for letters of collaboration should be made by the PI well in advance of the proposal submission deadline, because they **must** be included at the time of proposal submission. **Letters deviating from this template will not be accepted and may be grounds for returning the proposal without review.**

Template to be used for letters of collaboration

To: NSF _____(Program Title)_____ Program

From: _____

(Printed name of the individual collaborator or name of the organization and name and position of the official submitting this memo)

By signing below (or transmitting electronically), I acknowledge that I am listed as a collaborator on this proposal, entitled "_____(proposal title)_____" with _____(PI name)_____ as the Principal Investigator. I agree to undertake the tasks assigned to me or my organization, as described in the project description of the proposal, and I commit to provide or make available the resources specified therein.

Signed: _____

Organization: _____

Date: _____

Research Coordination Network proposals

These proposals should begin the title with "RCN:" and follow the proposal preparation instructions in the RCN solicitation (https://www.nsf.gov/funding/pgm_summ.jsp?pims_id=11691&org=BIO&from=home).

US-UK Collaborative proposals

For full application: These proposals should begin the title with "US-UK Collab:". Collaborative RCN proposals should begin the title with "US-UK Collab: RCN:"

Information for the UK portion of US-UK Collaborative Proposals should be included as Supplementary Documents. That information should include the following, and only the following:

1. **Biographical sketches of UK senior personnel:** Those biographical sketches must conform to NSF format and limitations.
2. **UK budget:** Costs for the UK component of the project should be entered onto the Je-S system but the completed form **SHOULD NOT** be submitted electronically to the UKRI-BBSRC at this stage. Instead, a PDF version of the form should be saved and sent to the US lead PI for inclusion as a supplementary document in the proposal. Also, an electronic copy of this document should be sent to UKRI-BBSRC Cognizant Programme Officer no later than the NSF submission deadline. Full details on what is required can be obtained at (<http://www.bbsrc.ac.uk/eeid>). Applicants should ensure that they contact the main UK Cognizant Programme Officer at UKRI-BBSRC to discuss the remit of their proposal and to confirm whether they should complete a Je-S form. The researchers will be asked to attend a meeting to be held at either the National Science Foundation or an alternate location. Include the necessary travel costs for attendance at the meeting in the proposed budget.
3. **Letters of collaboration:** Letters of collaboration from UK scientists are required. These letters must be restricted to a statement of intent to collaborate only as described above. Additional information on the nature of the collaboration and the roles of the investigators should be included in the Project Description.
4. **Institutional endorsement:** An institutional certification of the submission must be a signed letter from an authorized U.K. institutional representative with the following text:

"I confirm on behalf of [insert name of institution] that the U.S.-U.K. Collaborative proposal between [insert name of US PI and institution] and [insert name of UK PI] is endorsed and has been submitted by [name of Research Office]."

5. **Sharing of unattributed reviews:** Unattributed reviews will be shared with UKRI-BBSRC. The following text must be included in a **Single Copy Document** and signed by the lead investigator, confirming that the investigators involved in the proposal acknowledge and confirm this fact.

On behalf of the proposal investigators, I, _____(insert Lead PI Name), consent that the proposal as well as its unattributed reviews will be shared with the EEID partner-funding agencies.

Signed: _____

Organization: _____

Date: _____

US-Israel Collaborative proposals

These proposals should begin the title with "US-Israel Collab:". Information for the Israel portion of the US-Israel Collaborative Proposals should be included as Supplementary Documents. That information should include the following, and only the following:

1. **Biographical sketches of Israeli PIs:** Those biographical sketches must conform to NSF format and limitations.
2. **Israeli budget:** Costs for the Israeli component should be copied from the BSF submission of the proposal using the BSF format: <http://www.bsf.org.il/ElectronicSubmission/GatewayFormsAndGuidelines.aspx?PageId=7&innerTextID=0>
3. **Letters of collaboration:** Letters of collaboration from scientists on the Israeli component are required. These letters must be restricted to a statement of intent to collaborate only as described above. Additional information on the nature of the collaboration and the roles of the investigators should be included in the Project Description.
4. **Institutional endorsement:** An institutional certification of the submission must be a signed letter from an authorized Israeli

institutional representative with the following text:

"I confirm on behalf of [insert name of institution] that the U.S.-Israel Collaborative proposal between [insert name of US PI and institution] and [insert name of Israeli PI] is endorsed and has been submitted by [name of Research Office]."

5. **Sharing of unattributed reviews:** Unattributed reviews will be shared with the BSF. The following text must be included in a **Single Copy Document** and signed by the lead investigator, confirming that the investigators involved in the proposal acknowledge and confirm this fact.

On behalf of the proposal investigators, I, _____ (insert Lead PI Name), consent that the proposal as well as its unattributed reviews will be shared with the EEID partner-funding agencies.

Signed: _____

Organization: _____

Date: _____

Full proposals that include an Israeli collaboration must be also submitted to the BSF by the Israeli partner, using the BSF submission system: <http://www.bsf.org.il/ElectronicSubmission/GatewayFormsAndGuidelines.aspx?PageId=7&innerTextID=0>. Additional information can be found at: [NSF-BSF Ecology and Evolution of Infectious Diseases \(EEID\) - Call for Proposal](#).

US-UK-Israel Collaborative proposals

These proposals should begin the title with "**US-UK-Israel Collab:**". Information for the UK and Israel portion should be included as Supplementary Documents as described above.

US-China Collaborative proposals

These proposals should begin the title with "**US-China Collab:**". Information for the China portion of the US-China Collaborative Proposals should be included as Supplementary Documents. That information should include the following, and only the following:

1. Biographical sketches of Chinese PIs: Those biographical sketches must conform to NSF format and limitations.
2. **Chinese budget:** Costs for the Chinese component should be copied from the Chinese submission of the proposal using the NSFC format.
3. **Letters of collaboration:** Letters of collaboration from Chinese scientists are required. These letters must be restricted to a statement of intent to collaborate only as described above. Additional information on the nature of the collaboration and the roles of the investigators should be included in the Project Description.
4. **Sharing of unattributed reviews:** Unattributed reviews will be shared with the NSFC. The following text must be included in a **Single Copy Document** and signed by the lead investigator, confirming that the investigators involved in the proposal acknowledge and confirm this fact.

On behalf of the proposal investigators, I, (insert Lead PI Name), consent that the proposal as well as its unattributed reviews will be shared with the EEID partner-funding agencies.

Signed: _____

Organization: _____

Date: _____

Full proposals that include an Chinese collaboration must be also submitted to the NSFC by the Chinese partner as supplementary documents, including the Letters of Collaboration, to their online applications, using the NSFC application submission system: <http://isisn.nsf.gov.cn/egrantweb/>.

B. Budgetary Information

Cost Sharing:

Inclusion of voluntary committed cost sharing is prohibited.

Other Budgetary Limitations:

EEID projects must have a minimum budget of \$1,500,000 in total project costs for all years; US-UK Collaborative, US-Israel, and US-China Collaborative projects must have a minimum budget of \$1,000,000 in total project costs for all years. Research that falls within the scope of the EEID initiative but with project aims that do not require budgets of this magnitude should be directed to the appropriate core program.

Budget Preparation Instructions:

Subawards

In accordance with the applicable award terms and conditions, proposers are reminded of their responsibilities with regard to subawardees. Should an award be made, the primary awardee is responsible for ensuring compliance with the appropriate terms and conditions to, as well as the management and oversight of, any subawardees on the project, including any foreign subawardees.

C. Due Dates

- **Full Proposal Deadline(s)** (due by 5 p.m. submitter's local time):

November 21, 2018

Third Wednesday in November, Annually Thereafter

D. FastLane/Grants.gov Requirements

For Proposals Submitted Via FastLane:

To prepare and submit a proposal via FastLane, see detailed technical instructions available at: <https://www.fastlane.nsf.gov/a1/newstan.htm>. For FastLane user support, call the FastLane Help Desk at 1-800-673-6188 or e-mail fastlane@nsf.gov. The FastLane Help Desk answers general technical questions related to the use of the FastLane system. Specific questions related to this program solicitation should be referred to the NSF program staff contact(s) listed in Section VIII of this funding opportunity.

For Proposals Submitted Via Grants.gov:

Before using Grants.gov for the first time, each organization must register to create an institutional profile. Once registered, the applicant's organization can then apply for any federal grant on the Grants.gov website. Comprehensive information about using Grants.gov is available on the Grants.gov Applicant Resources webpage: <http://www.grants.gov/web/grants/applicants.html>. In addition, the NSF Grants.gov Application Guide (see link in Section V.A) provides instructions regarding the technical preparation of proposals via Grants.gov. For Grants.gov user support, contact the Grants.gov Contact Center at 1-800-518-4726 or by email: support@grants.gov. The Grants.gov Contact Center answers general technical questions related to the use of Grants.gov. Specific questions related to this program solicitation should be referred to the NSF program staff contact(s) listed in Section VIII of this solicitation.

Submitting the Proposal: Once all documents have been completed, the Authorized Organizational Representative (AOR) must submit the application to Grants.gov and verify the desired funding opportunity and agency to which the application is submitted. The AOR must then sign and submit the application to Grants.gov. The completed application will be transferred to the NSF FastLane system for further processing.

Proposers that submitted via FastLane are strongly encouraged to use FastLane to verify the status of their submission to NSF. For proposers that submitted via Grants.gov, until an application has been received and validated by NSF, the Authorized Organizational Representative may check the status of an application on Grants.gov. After proposers have received an e-mail notification from NSF, Research.gov should be used to check the status of an application.

VI. NSF PROPOSAL PROCESSING AND REVIEW PROCEDURES

Proposals received by NSF are assigned to the appropriate NSF program for acknowledgement and, if they meet NSF requirements, for review. All proposals are carefully reviewed by a scientist, engineer, or educator serving as an NSF Program Officer, and usually by three to ten other persons outside NSF either as *ad hoc* reviewers, panelists, or both, who are experts in the particular fields represented by the proposal. These reviewers are selected by Program Officers charged with oversight of the review process. Proposers are invited to suggest names of persons they believe are especially well qualified to review the proposal and/or persons they would prefer not review the proposal. These suggestions may serve as one source in the reviewer selection process at the Program Officer's discretion. Submission of such names, however, is optional. Care is taken to ensure that reviewers have no conflicts of interest with the proposal. In addition, Program Officers may obtain comments from site visits before recommending final action on proposals. Senior NSF staff further review recommendations for awards. A flowchart that depicts the entire NSF proposal and award process (and associated timeline) is included in PAPPG Exhibit III-1.

A comprehensive description of the Foundation's merit review process is available on the NSF website at: https://www.nsf.gov/bfa/dias/policy/merit_review/.

Proposers should also be aware of core strategies that are essential to the fulfillment of NSF's mission, as articulated in *Building the Future: Investing in Discovery and Innovation - NSF Strategic Plan for Fiscal Years (FY) 2018 – 2022*. These strategies are integrated in the program planning and implementation process, of which proposal review is one part. NSF's mission is particularly well-implemented through the integration of research and education and broadening participation in NSF programs, projects, and activities.

One of the strategic objectives in support of NSF's mission is to foster integration of research and education through the programs, projects, and activities it supports at academic and research institutions. These institutions must recruit, train, and prepare a diverse STEM workforce to advance the frontiers of science and participate in the U.S. technology-based economy. NSF's contribution to the national innovation ecosystem is to provide cutting-edge research under the guidance of the Nation's most creative scientists and engineers. NSF also supports development of a strong science, technology, engineering, and mathematics (STEM) workforce by investing in building the knowledge that informs improvements in STEM teaching and learning.

NSF's mission calls for the broadening of opportunities and expanding participation of groups, institutions, and geographic regions that are underrepresented in STEM disciplines, which is essential to the health and vitality of science and engineering. NSF is committed to this principle of diversity and deems it central to the programs, projects, and activities it considers and supports.

A. Merit Review Principles and Criteria

The National Science Foundation strives to invest in a robust and diverse portfolio of projects that creates new knowledge and enables breakthroughs in understanding across all areas of science and engineering research and education. To identify which projects to support, NSF relies on a merit review process that incorporates consideration of both the technical aspects of a proposed project and its potential to contribute more broadly to advancing NSF's mission "to promote the progress of science; to advance the national health, prosperity, and welfare; to secure the national defense; and for other purposes." NSF makes every effort to conduct a fair, competitive, transparent merit review process for the selection of projects.

1. Merit Review Principles

These principles are to be given due diligence by PIs and organizations when preparing proposals and managing projects, by reviewers when reading and evaluating proposals, and by NSF program staff when determining whether or not to recommend proposals for funding and while overseeing awards. Given that NSF is the primary federal agency charged with nurturing and supporting excellence in basic research and education, the following three principles apply:

- All NSF projects should be of the highest quality and have the potential to advance, if not transform, the frontiers of knowledge.
- NSF projects, in the aggregate, should contribute more broadly to achieving societal goals. These "Broader Impacts" may be accomplished through the research itself, through activities that are directly related to specific research projects, or through activities that are supported by, but are complementary to, the project. The project activities may be based on previously established and/or innovative methods and approaches, but in either case must be well justified.
- Meaningful assessment and evaluation of NSF funded projects should be based on appropriate metrics, keeping in mind the likely correlation between the effect of broader impacts and the resources provided to implement projects. If the size of the activity is limited, evaluation of that activity in isolation is not likely to be meaningful. Thus, assessing the effectiveness of these activities may best be done at a higher, more aggregated, level than the individual project.

With respect to the third principle, even if assessment of Broader Impacts outcomes for particular projects is done at an aggregated level, PIs are expected to be accountable for carrying out the activities described in the funded project. Thus, individual projects should include clearly stated goals, specific descriptions of the activities that the PI intends to do, and a plan in place to document the outputs of those activities.

These three merit review principles provide the basis for the merit review criteria, as well as a context within which the users of the criteria can better understand their intent.

2. Merit Review Criteria

All NSF proposals are evaluated through use of the two National Science Board approved merit review criteria. In some instances, however, NSF will employ additional criteria as required to highlight the specific objectives of certain programs and activities.

The two merit review criteria are listed below. **Both** criteria are to be given **full consideration** during the review and decision-making processes; each criterion is necessary but neither, by itself, is sufficient. Therefore, proposers must fully address both criteria. (PAPPG Chapter II.C.2.d(i). contains additional information for use by proposers in development of the Project Description section of the proposal). Reviewers are strongly encouraged to review the criteria, including PAPPG Chapter II.C.2.d(i), prior to the review of a proposal.

When evaluating NSF proposals, reviewers will be asked to consider what the proposers want to do, why they want to do it, how they plan to do it, how they will know if they succeed, and what benefits could accrue if the project is successful. These issues apply both to the technical aspects of the proposal and the way in which the project may make broader contributions. To that end, reviewers will be asked to evaluate all proposals against two criteria:

- **Intellectual Merit:** The Intellectual Merit criterion encompasses the potential to advance knowledge; and
- **Broader Impacts:** The Broader Impacts criterion encompasses the potential to benefit society and contribute to the achievement of specific, desired societal outcomes.

The following elements should be considered in the review for both criteria:

1. What is the potential for the proposed activity to
 - a. Advance knowledge and understanding within its own field or across different fields (Intellectual Merit); and
 - b. Benefit society or advance desired societal outcomes (Broader Impacts)?
2. To what extent do the proposed activities suggest and explore creative, original, or potentially transformative concepts?
3. Is the plan for carrying out the proposed activities well-reasoned, well-organized, and based on a sound rationale? Does the plan incorporate a mechanism to assess success?
4. How well qualified is the individual, team, or organization to conduct the proposed activities?
5. Are there adequate resources available to the PI (either at the home organization or through collaborations) to carry out the proposed activities?

Broader impacts may be accomplished through the research itself, through the activities that are directly related to specific research projects, or through activities that are supported by, but are complementary to, the project. NSF values the advancement of scientific knowledge and activities that contribute to achievement of societally relevant outcomes. Such outcomes include, but are not limited to: full participation of women, persons with disabilities, and underrepresented minorities in science, technology, engineering, and mathematics (STEM); improved STEM education and educator development at any level; increased public scientific literacy and public engagement with science and technology; improved well-being of individuals in society; development of a diverse, globally competitive STEM workforce; increased partnerships between academia, industry, and others; improved national security; increased economic competitiveness of the United States; and enhanced infrastructure for research and education.

Proposers are reminded that reviewers will also be asked to review the Data Management Plan and the Postdoctoral Researcher Mentoring Plan, as appropriate.

Additional Solicitation Specific Review Criteria

Reviewers may be requested to provide numeric NIH overall impact scores based upon their evaluations of the intellectual merits and broader impacts of the applications. Overall Impact is the likelihood for the project to exert a sustained, powerful influence on the research field(s) involved, and is based on the following five scored review criteria and applicable additional review criteria. An application does not need to be strong in all categories to be judged likely to have major scientific impact. The five core review criteria for NIH are:

Review Criteria

- **Significance.** Does the project address an important problem or a critical barrier to progress in the field? Is there a strong scientific premise for the project? (Scientific premise is defined as the quality and strength of the prior research including preliminary and published data. It is distinct from the hypothesis or justification.) If the aims of the project are achieved, how will scientific knowledge, technical capability, and/or clinical practice be improved? How will successful completion of the aims change the concepts, methods, technologies, treatments, services, or preventative interventions that drive this field?
- **Investigator(s).** Are the PD(s)/PI(s), collaborators, and other researchers well suited to the project? Do they have appropriate experience and training? Have they demonstrated an ongoing record of accomplishments that have advanced their field(s)? If the project is collaborative or multi-PD/PI, do the investigators have complementary and integrated expertise; are their leadership approach, governance and organizational structure appropriate for the project?
- **Innovation.** Does the application challenge and seek to shift current research or clinical practice paradigms by utilizing novel theoretical concepts, approaches or methodologies, instrumentation, or interventions? Are the concepts, approaches or methodologies, instrumentation, or interventions novel to one field of research or novel in a broad sense? Is a refinement, improvement, or new application of theoretical concepts, approaches or methodologies, instrumentation, or interventions proposed?
- **Approach.** Are the overall strategy, methodology, and analyses well-reasoned and appropriate to accomplish the specific aims of the project? Is there scientific rigor in the proposed study? (Scientific rigor is defined as the strict application of the scientific method to ensure robust and unbiased experimental design, methodology, analysis, interpretation, and reporting of results.) Have the investigators presented strategies to ensure a robust and unbiased approach, as appropriate for the work proposed? Are potential problems, alternative strategies, and benchmarks for success presented? If the project is in the early stages of development, will the strategy establish feasibility and will particularly risky aspects be managed? Have the investigators presented adequate plans to address relevant biological variables (e.g. sex, age, weight, health condition, human ethnicity, animal species and strains, etc.) for studies in vertebrate animals or human subjects?
- **Environment.** Will the scientific environment in which the work will be done contribute to the probability of success? Are the institutional support, equipment and other physical resources available to the investigators adequate for the project proposed? Will the project benefit from unique features of the scientific environment, subject populations, or collaborative arrangements?

In addition to the above review criteria, the following criteria will be addressed and considered in the determination of scientific merit and rating (as part of the Overall Impact score) if any are relevant to the proposed project.

- **Protections for Human Subjects.** To be considered human subjects research, the participating individuals must be living and identifiable, and the data and/or specimens are specifically obtained for the proposed research. For research that involves human subjects but does not involve one of the six categories of research that are exempt under 45 CFR Part 46, the committee will evaluate the justification for involvement of human subjects and the proposed protections from research risk relating to their participation according to the following five review criteria: 1) risk to subjects, 2) adequacy of protection against risks, 3) potential benefits to the subjects and others, 4) importance of the knowledge to be gained, and 5) data and safety monitoring for clinical trials. For research that involves human subjects and meets the criteria for one or more of the six categories of research that are exempt under 45 CFR Part 46, the committee will evaluate: 1) the justification for the exemption, 2) human subjects involvement and characteristics, and 3) sources of materials.
- **Inclusion of Women, Minorities, and Children.** When the proposed project involves human subjects and/or NIH-defined clinical research, the committee will evaluate the proposed plans for the inclusion (or exclusion) of individuals on the basis of sex/gender, race, and ethnicity, as well as the inclusion (or exclusion) of children (under 18 years of age) to determine if it is justified in terms of the scientific goals and research strategy proposed.
- **Vertebrate Animals.** The committee will evaluate the involvement of live vertebrate animals as part of the scientific assessment according to the following criteria: (1) description of proposed procedures involving animals, including species, strains, ages, sex, and total number to be used; (2) justifications for the use of animals versus alternative models and for the appropriateness of the species proposed; (3) interventions to minimize discomfort, distress, pain and injury; and (4) justification for euthanasia method if NOT consistent with the AVMA Guidelines for the Euthanasia of Animals. Reviewers will assess the use of chimpanzees as they would any other application proposing the use of vertebrate animals.
- **Biohazards.** Reviewers will identify potential biohazards (biological organisms or their products (such as toxins) that pose a threat to human health) and other hazards (such as radioactivity, dangerous chemicals, or recombinant DNA that are known in their professional community to pose a particularly significant risk to research personnel and/or the environment). Reviewers will assess whether materials or procedures proposed are potentially hazardous to research personnel and/or the environment, and if needed, determine whether adequate protection is proposed.

As applicable for the proposed project, reviewers will address each of the following review considerations, but will not consider them in providing an NIH Overall Impact score.

- **Applications from Foreign Organizations.** Reviewers will assess whether the project presents special opportunities for furthering research programs through the use of unusual talent, resources, populations, or environmental conditions that exist in other countries and either are not readily available in the United States or augment existing U.S. resources.
- **Select Agent Research.** If the study involves a Select Agent (refer to <http://www.selectagents.gov/SelectAgentsandToxinsList.html>), reviewers will assess the information provided in this section of the application, including 1) the Select Agent(s) to be used in the proposed research, 2) the registration status of all entities where Select Agent(s) will be used, 3) the procedures that will be used to monitor possession use and transfer of Select Agent(s), and 4) plans for appropriate biosafety, biocontainment, and security of the Select Agent(s).
- **Budget and Period of Support.** Reviewers will consider whether the budget and the requested period of support are fully justified and reasonable in relation to the proposed research.

International Collaborations and Expenditures

For all proposals involving international collaborations, reviewers will consider: mutual benefits, true intellectual collaboration with the foreign partner(s), benefits to be realized from the expertise and specialized skills, facilities, sites and/or resources of the international counterpart, and active research engagement of U.S. students and early-career researchers, where such individuals are engaged in the research. Furthermore, the justification for funding for an international branch campus of a US IHE, or involvement of a foreign organization (e.g., through use of subawards or consultant arrangements), as described in PAPPG Chapter I.E, will be specifically reviewed to assure that conditions for the justification of such expenditures have been met, as detailed in [PAPPG Chapter I.E.6](#).

US-UK, US-Israel and US-China Collaborative Projects will also be reviewed with respect to the extent which they demonstrate a substantial collaboration between the US and foreign partners and enhance research on infectious disease transmission.

B. Review and Selection Process

NSF will manage the review of proposals in consultation with NIH and USDA, and in the case of US-UK, US-Israel or US-China Collaborative Projects, the UKRI-BBSRC, BSF or NSFC, respectively. Copies of proposals and unattributed reviews will be shared with the partner funding organizations, as appropriate. Upon conclusion of the review process, meritorious projects may be recommended for funding by any of the partner funding organizations at the option of the agencies, not the proposing organizations.

Proposals submitted in response to this program solicitation will be reviewed by Ad hoc Review and/or Panel Review.

Reviewers will be asked to evaluate proposals using two National Science Board approved merit review criteria and, if applicable, additional program specific criteria. A summary rating and accompanying narrative will generally be completed and submitted by each reviewer and/or panel. The Program Officer assigned to manage the proposal's review will consider the advice of reviewers and will formulate a recommendation.

NSF Process: Those proposals selected for funding by NSF will be handled in accordance with standard NSF procedures. After scientific, technical and programmatic review and consideration of appropriate factors, the NSF Program Officer recommends to the cognizant Division Director whether the proposal should be declined or recommended for award. NSF is striving to be able to tell applicants whether their proposals have been declined or recommended for funding within six months. The time interval begins on the deadline or target date, or receipt date, whichever is later. The interval ends when the Division Director accepts the Program Officer's recommendation.

A summary rating and accompanying narrative will be completed and submitted by each reviewer. In all cases, reviews are treated as confidential documents. Verbatim copies of reviews, excluding the names of the reviewers, are sent to the Principal Investigator/Project Director by the Program Officer. In addition, the proposer will receive an explanation of the decision to award or decline funding.

In all cases, after programmatic approval has been obtained, the proposals recommended for funding will be forwarded to the Division of Grants and Agreements for review of business, financial, and policy implications and the processing and issuance of a grant or other agreement. Proposers are cautioned that only a Grants and Agreements Officer may make commitments, obligations or awards on behalf of NSF or authorize the expenditure of funds. No commitment on the part of NSF should be inferred from technical or budgetary discussions with a NSF Program Officer. A Principal Investigator or organization that makes financial or personnel commitments in the absence of a grant or cooperative agreement signed by the NSF Grants and Agreements Officer does so at their own risk.

NIH Process: Proposals selected for funding consideration by NIH will be invited to submit reformatted applications to the Division of Receipt and Referral (DRR) in NIH's Center for Scientific Review (CSR). A receipt date of approximately March 15 annually is in effect for the NIH formatted applications. Following the initial peer review, recommended applications that have been resubmitted to the NIH are required to go to second level review by the Advisory Council or Advisory Board of the awarding Institute or Center. The following will be considered in making funding decisions:

- Scientific and technical merit of the proposed project as determined by scientific peer review.
- Availability of funds.
- Relevance of the proposed project to program priorities.

Subsequent award processing and grant administration procedures will be in accordance with NIH policies and procedures.

USDA/NIFA Process: Applicants submitting proposals selected for funding by USDA/NIFA will receive specific instructions outlining what additional information is needed in accordance with the policies of the agency. USDA/NIFA will make final funding decisions based on the results of the peer review process. Applications selected for funding by NIFA will be forwarded to the USDA/NIFA Awards Management Division for award processing in accordance with the USDA/NIFA procedures. All proposals selected for funding by USDA/NIFA, in FY 2019 will be limited to 30 percent indirect cost rate. Therefore, the recovery of indirect costs on awards made by NIFA under this program area may not exceed the lesser of the institution's official negotiated indirect cost rate or the equivalent of 30 percent of total Federal funds awarded. If the limitation of indirect costs changes, the applicant will be notified.

US-UK Collaborative Projects: The UK component of the collaboration will be awarded through the UKRI-BBSRC in accordance with the policies of that agency. If the UKRI-BBSRC selects an application for funding, the costs for the UK element of the proposal must be submitted via the UKRI's Je-S application submission system before final sign-off. UK collaborators should therefore ensure they are registered Je-S users before the proposal is submitted.

US-Israel Collaborative Projects: The Israeli component of the collaboration will be awarded through the BSF in accordance with its policies and regulations. The collaborative proposal must also be submitted to the BSF by the Israeli scientists and include the US scientists' information, after being submitted to the NSF.

US-China Collaborative Projects: The Chinese component of the collaboration will be awarded through the NSFC in accordance with its policies and regulations. The collaborative proposal must be submitted by the Chinese scientists to the NSFC as a supplementary document to their online applications by the NSFC-established deadline.

VII. AWARD ADMINISTRATION INFORMATION

A. Notification of the Award

NSF Process: Notification of the award is made to *the submitting organization* by a Grants Officer in the Division of Grants and Agreements. Organizations whose proposals are declined will be advised as promptly as possible by the cognizant NSF Program administering the program. Verbatim copies of reviews, not including the identity of the reviewer, will be provided automatically to the Principal Investigator. (See Section VI.B. for additional information on the review process.)

NIH Process: If the application is under consideration for NIH funding, NIH will request "just-in-time" information from the applicant as described in the [NIH Grants Policy Statement](#).

A formal notification in the form of a Notice of Award (NoA) will be provided to the applicant organization for successful applications. The NoA signed by the grants management officer is the authorizing document and will be sent via email to the grantee's business official.

NIFA Process: Notification of a recommended award is made to the submitting PI by a National Program Leader at NIFA. Verbatim copies of reviews, not including the identity of the reviewers, will be provided to the Principal Investigator at the time of the award recommendation notification.

B. Award Conditions

An NSF award consists of: (1) the award notice, which includes any special provisions applicable to the award and any numbered amendments thereto; (2) the budget, which indicates the amounts, by categories of expense, on which NSF has based its support (or otherwise communicates any specific approvals or disapprovals of proposed expenditures); (3) the proposal referenced in the award notice; (4) the applicable award conditions, such as Grant General Conditions (GC-1)*; or Research Terms and Conditions* and (5) any announcement or other NSF issuance that may be incorporated by reference in the award notice. Cooperative agreements also are administered in accordance with NSF Cooperative Agreement Financial and Administrative Terms and Conditions (CA-FATC) and the applicable Programmatic Terms and Conditions. NSF awards are electronically signed by an NSF Grants and Agreements Officer and transmitted electronically to the organization via e-mail.

*These documents may be accessed electronically on NSF's Website at https://www.nsf.gov/awards/managing/award_conditions.jsp?org=NSF. Paper copies may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-7827 or by e-mail from nsfpubs@nsf.gov.

More comprehensive information on NSF Award Conditions and other important information on the administration of NSF awards is contained in the NSF *Proposal & Award Policies & Procedures Guide* (PAPPG) Chapter VII, available electronically on the NSF Website at https://www.nsf.gov/publications/pub_summ.jsp?ods_key=pappg.

Special Award Conditions:

Proposals funded by NIH:

Selection of an application for award is not an authorization to begin performance. Any costs incurred before receipt of the Notice of Award are at the recipient's risk. These costs may be reimbursed only to the extent considered allowable pre-award costs.

Any application awarded by NIH in response to this solicitation will be subject to the DUNS, CCR Registration, and Transparency Act requirements as noted on the [Award Conditions and Information for NIH Grants](#) website.

All NIH grant and cooperative agreement awards include the *NIH Grants Policy Statement* as part of the NoA. For these terms of award, see the [NIH Grants Policy Statement Part II: Terms and Conditions of NIH Grant Awards, Subpart A: General](#) and [Part II: Terms and Conditions of NIH Grant Awards, Subpart B: Terms and Conditions for Specific Types of Grants, Grantees, and Activities](#). More information is provided at [Award Conditions and Information for NIH Grants](#).

Proposals funded by USDA/NIFA:

Awards issued as a result of this RFA will have designated the Automated Standard Applications for Payment System (ASAP), operated by the Department of Treasury's Bureau of the Fiscal Service, as the payment system for funds. For more information see <https://www.fiscal.treasury.gov/>.

Several federal statutes and regulations apply to grant applications considered for review and to project grants awarded under this program. These may include, but are not limited to, the ones listed on the NIFA web page - <http://nifa.usda.gov/federal-regulations>.

NIFA Federal Assistance Policy Guide—a compendium of basic NIFA policies and procedures that apply to all NIFA awards, unless there are statutory, regulatory, or award-specific requirements to the contrary is available at <http://nifa.usda.gov/policy-guide>.

Other Requirements

USDA/NIFA:

1. Delegation of Fiscal Responsibility

Unless the terms and conditions of the grant state otherwise, the grantee may not, in whole or in part, delegate or transfer to another person, institution, or organization the responsibility for use or expenditure of grant funds.

2. Changes in Project Plans

The permissible changes by the grantee, PD(s), or other key project personnel in the approved project grant shall be limited to changes in methodology, techniques, or other similar aspects of the project to expedite achievement of the project's approved goals. If the grantee or the PD(s) is uncertain as to whether a change complies with this provision, the question must be referred to the Authorized Departmental Officer (ADO) for a final determination. The ADO is the signatory of the award document, not the program contact.

- Changes in approved goals or objectives shall be requested by the grantee and approved in writing by the ADO prior to effecting such changes. In no event shall requests for such changes be approved which are outside the scope of the original approved project.
- Changes in approved project leadership or the replacement or reassignment of other key project personnel shall be requested by the grantee and approved in writing by the ADO prior to effecting such changes.
- Transfers of actual performance of the substantive programmatic work in whole or in part and provisions for payment of funds, whether or not Federal funds are involved, shall be requested by the grantee and approved in writing by the ADO prior to effecting such transfers, unless prescribed otherwise in the terms and conditions of the grant.
- Changes in Project Period: The project period may be extended by USDA/NIFA without additional financial support, for such additional period(s) as the ADO determines may be necessary to complete or fulfill the purposes of an approved project, but in no case shall the total project period exceed ten years. Any extension of time shall be conditioned upon prior request by the grantee and approval in writing by the ADO, unless prescribed otherwise in the terms and conditions of a grant.
- Changes in Approved Budget: Changes in an approved budget must be requested by the grantee and approved in writing by the ADO prior to instituting such changes if the revision will involve transfers or expenditures of amounts requiring prior approval as set forth in the applicable Federal cost principles, Departmental regulations, or grant award.

US-UK Collaborative projects:

UKRI-BBSRC Awardees are subject to UKRI-BBSRC reporting and administration requirements as appropriate and outlined in the Research Funding Guide at <https://bbsrc.ukri.org/funding/apply/>.

US-Israel Collaborative projects:

BSF Awardees are subject to BSF reporting and administration requirements as appropriate and outlined in the BSF website: <http://www.bsf.org.il/BSFPublic/DefaultPage1.aspx?PageId=41&innerTextID=41>. US-Israel Collaborative Projects should report on activities of the entire collaborative effort and submit that information to both NSF and BSF as part of the annual and final reports.

US-China Collaborative projects:

NSFC Awardees are subject to NSFC reporting and administration requirements as appropriate and outlined in the NSFC website: <http://www.nsf.gov.cn/publish/portal2/tab193/info24527.htm>. US-China Collaborative Projects should report on activities of the entire collaborative effort and submit that information to both NSF and NSFC as part of the annual and final reports.

C. Reporting Requirements

For all multi-year grants (including both standard and continuing grants), the Principal Investigator must submit an annual project report to the cognizant Program Officer no later than 90 days prior to the end of the current budget period. (Some programs or awards require submission of more frequent project reports). No later than 120 days following expiration of a grant, the PI also is required to submit a final project report, and a project outcomes report for the general public.

Failure to provide the required annual or final project reports, or the project outcomes report, will delay NSF review and processing of any future funding increments as well as any pending proposals for all identified PIs and co-PIs on a given award. PIs should examine the formats of the required reports in advance to assure availability of required data.

PIs are required to use NSF's electronic project-reporting system, available through Research.gov, for preparation and submission of annual and final project reports. Such reports provide information on accomplishments, project participants (individual and organizational), publications, and other specific products and impacts of the project. Submission of the report via Research.gov constitutes certification by the PI that the contents of the report are accurate and complete. The project outcomes report also must be prepared and submitted using Research.gov. This report serves as a brief summary, prepared specifically for the public, of the nature and outcomes of the project. This report will be posted on the NSF website exactly as it is submitted by the PI.

More comprehensive information on NSF Reporting Requirements and other important information on the administration of NSF awards is contained in the *NSF Proposal & Award Policies & Procedures Guide* (PAPPG) Chapter VII, available electronically on the NSF Website at https://www.nsf.gov/publications/pub_summ.jsp?ods_key=pappg.

Reporting on NIH Awards:

Awardees will be required to submit the [Research Performance Progress Report \(RPPR\)](#) annually and financial statements as required in the [NIH Grants Policy Statement](#).

A final progress report, invention statement, and the expenditure data portion of the Federal Financial Report are required for closeout of an award, as described in the *NIH Grants Policy Statement*.

The Federal Funding Accountability and Transparency Act of 2006 (Transparency Act), includes a requirement for awardees of Federal grants to report information about first-tier subawards and executive compensation under Federal assistance awards issued in FY2011 or later. All awardees of applicable NIH grants and cooperative agreements are required to report to the Federal Subaward Reporting System (FSRS) available at www.fsrs.gov on all subawards over \$25,000. See the [NIH Grants Policy Statement](#) for additional information on this reporting requirement.

Reporting on USDA Awards:

Grantees are to submit initial project information and annual summary reports to NIFA's electronic, Web-based inventory system that

facilitates both grantee submissions of project outcomes and public access to information on Federally-funded projects. The details of these reporting requirements are included in the award terms and conditions.

Any additional reporting requirements will be identified in the terms and conditions of the award (see Part VII, B. above for a link to view the NIFA award terms and conditions).

For informational purposes, the "Federal Financial Report," Form SF-425, consolidates into a single report the former Financial Status Report (SF-269 and SF-269A) and the Federal Cash Transactions Report (SF-272 and SF-272A). The [NIFA Agency-specific Terms and Conditions](#) include the requirement that Form SF-425 is due on an **annual basis no later than 90 days following the award's anniversary date (i.e., one year following the month and day of which the project period begins and each year thereafter up until a final report is required)**. A final "Federal Financial Report," Form SF-425, is due 90 days after the expiration date of this award.

US-UK Collaborative projects:

UKRI-BBSRC Awardees are subject to UKRI-BBSRC reporting requirements as outlined in the Research Funding Guide at <https://bbsrc.ukri.org/funding/apply/>. US-UK Collaborative Projects should report on activities of the entire collaborative effort and submit that information to both NSF and UKRI-BBSRC as part of the annual and final reports.

US-Israel Collaborative projects:

BSF Awardees are subject to BSF reporting and administration requirements as appropriate and outlined in the BSF website: <http://www.bsf.org.il/BSFPublic/DefaultPage1.aspx?PageId=41&innerTextID=41>. US-Israel Collaborative Projects should report on activities of the entire collaborative effort and submit that information to both NSF and BSF as part of the annual and final reports.

US-China Collaborative projects:

NSFC Awardees are subject to NSFC reporting and administration requirements as appropriate and outlined in the NSFC website: <http://www.nsf.gov.cn/publish/portal2/tab193/info24527.htm>. US-China Collaborative Projects should report on activities of the entire collaborative effort and submit that information to both NSF and NSFC as part of the annual and final reports.

VIII. AGENCY CONTACTS

Please note that the program contact information is current at the time of publishing. See program website for any updates to the points of contact.

General inquiries regarding this program should be made to:

- Katharina Dittmar, Program Director, DEB/NSF, telephone: (703) 292-7799, email: kdittmar@nsf.gov
- Christine Jessup, Program Director, NIH/FIC, telephone: (301) 496-1653, fax: (301) 402-0779, email: christine.jessup@nih.gov
- Peter Johnson, National Program Leader, USDA/NIFA, telephone: (202) 401-1896, email: pjohnson@nifa.usda.gov
- Sadhana Sharma, Strategy and Policy Manager, UKRI-BBSRC, telephone: 44 1793-413099, email: sadhana.sharma@bbsrc.ac.uk
- Rachel (Henri) Haring, Deputy Executive Director, BSF, telephone: 972 2 5828239, email: heni@bsf.org.il
- Xiuping Liu, Division Director, NSFC, telephone: 86 10-62325377, email: liuxp@nsfc.gov.cn
- Jie Shen, Program Manager, NSFC, telephone: 86 10-62327017, email: shenjie@nsfc.gov.cn
- Daniel Janes, Program Director, NIH/NIGMS, telephone: (301) 594-0943, email: daniel.janes@nih.gov
- Stephanie Coomes, Health Scientist Administrator, NIH/NIAID, telephone: (301) 761-6855, email: stephanie.coomes@nih.gov
- Deborah Winslow, Program Director, SBE/NSF, telephone: (703) 292-7315, email: dwinslow@nsf.gov
- Susanna Remold, Program Director, DEB/NSF, telephone: (703) 292-7836, email: sremold@nsf.gov
- Samuel M. Scheiner, Program Director, DEB/NSF, telephone: (703) 292-7175, email: sscheine@nsf.gov
- Colette St. Mary, Program Director, DEB/NSF, telephone: (703) 292-4659, email: cstmary@nsf.gov

For questions related to the use of FastLane, contact:

- FastLane Help Desk, telephone: 1-800-673-6188; e-mail: fastlane@nsf.gov.

For questions relating to Grants.gov contact:

- Grants.gov Contact Center: If the Authorized Organizational Representatives (AOR) has not received a confirmation message from Grants.gov within 48 hours of submission of application, please contact via telephone: 1-800-518-4726; e-mail: support@grants.gov.

IX. OTHER INFORMATION

The NSF website provides the most comprehensive source of information on NSF Directorates (including contact information), programs and funding opportunities. Use of this website by potential proposers is strongly encouraged. In addition, "NSF Update" is an information-delivery system designed to keep potential proposers and other interested parties apprised of new NSF funding opportunities and publications, important changes in proposal and award policies and procedures, and upcoming NSF [Grants Conferences](#). Subscribers are informed through e-mail or the user's Web browser each time new publications are issued that match their identified interests. "NSF Update" also is available on [NSF's website](#).

Grants.gov provides an additional electronic capability to search for Federal government-wide grant opportunities. NSF funding opportunities may be accessed via this mechanism. Further information on Grants.gov may be obtained at <http://www.grants.gov>.

A notice on the Ecology and Evolution of Infectious Disease research initiative and this announcement is also posted in the NIH Guide to Grants and Contracts <http://grants.nih.gov/grants/guide/index.html> along with all NIH opportunities.

ABOUT THE NATIONAL SCIENCE FOUNDATION

The National Science Foundation (NSF) is an independent Federal agency created by the National Science Foundation Act of 1950, as amended (42 USC 1861-75). The Act states the purpose of the NSF is "to promote the progress of science; [and] to advance the national health, prosperity, and welfare by supporting research and education in all fields of science and engineering."

NSF funds research and education in most fields of science and engineering. It does this through grants and cooperative agreements to more than 2,000 colleges, universities, K-12 school systems, businesses, informal science organizations and other research organizations throughout the US. The Foundation accounts for about one-fourth of Federal support to academic institutions for basic research.

NSF receives approximately 55,000 proposals each year for research, education and training projects, of which approximately 11,000 are funded. In addition, the Foundation receives several thousand applications for graduate and postdoctoral fellowships. The agency operates no laboratories itself but does support National Research Centers, user facilities, certain oceanographic vessels and Arctic and Antarctic research stations. The Foundation also supports cooperative research between universities and industry, US participation in international scientific and engineering efforts, and educational activities at every academic level.

Facilitation Awards for Scientists and Engineers with Disabilities (FASSED) provide funding for special assistance or equipment to enable persons with disabilities to work on NSF-supported projects. See the *NSF Proposal & Award Policies & Procedures Guide* Chapter II.E.6 for instructions regarding preparation of these types of proposals.

The National Science Foundation has Telephonic Device for the Deaf (TDD) and Federal Information Relay Service (FIRS) capabilities that enable individuals with hearing impairments to communicate with the Foundation about NSF programs, employment or general information. TDD may be accessed at (703) 292-5090 and (800) 281-8749, FIRS at (800) 877-8339.

The National Science Foundation Information Center may be reached at (703) 292-5111.

The National Science Foundation promotes and advances scientific progress in the United States by competitively awarding grants and cooperative agreements for research and education in the sciences, mathematics, and engineering.

To get the latest information about program deadlines, to download copies of NSF publications, and to access abstracts of awards, visit the NSF Website at <https://www.nsf.gov>

- **Location:** 2415 Eisenhower Avenue, Alexandria, VA 22314
- **For General Information** (NSF Information Center): (703) 292-5111
- **TDD (for the hearing-impaired):** (703) 292-5090
- **To Order Publications or Forms:**
 - Send an e-mail to: nsfpubs@nsf.gov
 - or telephone: (703) 292-7827
- **To Locate NSF Employees:** (703) 292-5111

PRIVACY ACT AND PUBLIC BURDEN STATEMENTS

The information requested on proposal forms and project reports is solicited under the authority of the National Science Foundation Act of 1950, as amended. The information on proposal forms will be used in connection with the selection of qualified proposals; and project reports submitted by awardees will be used for program evaluation and reporting within the Executive Branch and to Congress. The information requested may be disclosed to qualified reviewers and staff assistants as part of the proposal review process; to proposer institutions/grantees to provide or obtain data regarding the proposal review process, award decisions, or the administration of awards; to government contractors, experts, volunteers and researchers and educators as necessary to complete assigned work; to other government agencies or other entities needing information regarding applicants or nominees as part of a joint application review process, or in order to coordinate programs or policy; and to another Federal agency, court, or party in a court or Federal administrative proceeding if the government is a party. Information about Principal Investigators may be added to the Reviewer file and used to select potential candidates to serve as peer reviewers or advisory committee members. See Systems of Records, [NSF-50](#), "Principal Investigator/Proposal File and Associated Records," 69 Federal Register 26410 (May 12, 2004), and [NSF-51](#), "Reviewer/Proposal File and Associated Records," 69 Federal Register 26410 (May 12, 2004). Submission of the information is voluntary. Failure to provide full and complete information, however, may reduce the possibility of receiving an award.

An agency may not conduct or sponsor, and a person is not required to respond to, an information collection unless it displays a valid Office of Management and Budget (OMB) control number. The OMB control number for this collection is 3145-0058. Public reporting burden for this collection of information is estimated to average 120 hours per response, including the time for reviewing instructions. Send comments regarding the burden estimate and any other aspect of this collection of information, including suggestions for reducing this burden, to:

Suzanne H. Plimpton
Reports Clearance Officer
Office of the General Counsel
National Science Foundation
Alexandria, VA 22314

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National Science Foundation, 2415 Eisenhower Avenue, Alexandria, Virginia 22314, USA
Tel: (703) 292-5111, FIRS: (800) 877-8339 | TDD: (703) 292-5090 or (800) 281-8749

[Text Only](#)

Re: Re: Re: Invitation letter for the 8th International Symposium on Emerging Viral Diseases

From: 胡犇 <huben@wh.iov.cn>
To: Fang Li <lifang@umn.edu>
Cc: 石正丽 <zlshi@wh.iov.cn>
Sent: September 10, 2018 7:57:52 PM CDT
Received: September 10, 2018 7:58:01 PM CDT

Dear Prof Li:

Each speaker will have a 20-min presentation which includes questions and answers.

Best

Ben

-----原始邮件-----

发件人:"Fang Li" <lifang@umn.edu>

发送时间:2018-09-11 04:54:28 (星期二)

收件人:"胡犇" <huben@wh.iov.cn>

抄送:"石正丽" <zlshi@wh.iov.cn>

主题: Re: Re: Invitation letter for the 8th International Symposium on Emerging Viral Diseases

Hi Ben,

Thanks for the information. How long would my talk be?

Thanks,
Fang

On Mon, Aug 27, 2018 at 11:29 PM, 胡犇 <huben@wh.iov.cn> wrote:

Dear Prof Li:

The final program of the meeting has not been decided yet, as we are still collecting abstracts from our speakers.

Generally, 20th October will be date of registration, and the meeting will be on 21st and 22nd. Your session will be likely scheduled on 21st afternoon or 22nd morning.

I will update you once the agenda is ready.

Best

Ben

-----原始邮件-----

发件人:"Fang Li" <lifang@umn.edu>

发送时间:2018-08-28 02:11:57 (星期二)

收件人: "胡犇" <huben@wh.iov.cn>

抄送: "石正丽" <zlshi@wh.iov.cn>

主题: Re: Invitation letter for the 8th International Symposium on Emerging Viral Diseases

Thanks, Ben.

Do you have a copy of the meeting agenda? I will need that to plan my trip.

Best,
Fang

On Mon, Aug 27, 2018 at 8:50 AM, 胡犇 <huben@wh.iov.cn> wrote:

Dear Prof. Li:

Please find the invitation letter for the international symposium held by Wuhan Institute of Virology in October.

We are very glad that you can attend the meeting and give a talk about your recent research work.

I don't know whether you need a letter with the official seal of WIV for China visa application. If so, please let me know and I will prepare it immediately.

Thanks.

Best regards

Ben Hu Ph.D

Research assistant

Wuhan Institute of Virology, CAS

--

Fang Li, Ph.D.

Associate Professor

Department of Veterinary and Biomedical Sciences

University of Minnesota Twin Cities

612-625-6149, lifang@umn.edu

<http://www.msi.umn.edu/~lifang>

RE: grant opportunity

From: Baric, Ralph S <rbaric@email.unc.edu>
To: Fang Li <lifang@umn.edu>
Sent: September 11, 2018 11:52:19 AM CDT
Received: September 11, 2018 11:52:22 AM CDT

Stuck in student meeting till 2, 2 ok

From: Fang Li <lifang@umn.edu>
Sent: Tuesday, September 11, 2018 11:08 AM
To: Baric, Ralph S <rbaric@email.unc.edu>
Subject: Re: grant opportunity

Hi Ralph,

You can call my office now (612-625-6149).

Thanks,
Fang

On Tue, Sep 11, 2018 at 8:33 AM, Baric, Ralph S <rbaric@email.unc.edu> wrote:

Hi Fang, You available for a call this morning? I think this is a good opportunity, but it seems like ¾ of the awards are set aside for US-England, US-Israeli and US-China collaborations (~2 each), maybe 2 for US only US-Canada led operations. At about 2.5 million total costs each, we would either need a US collaborator (e.g., Dr. I. Lipkin or EcoHealth; I'd likely prefer Ian), or a Chinese collaborator (e.g, Dr. ZL Shi; KY Yuen, ?). I like the deadline because I'm traveling a lot in Oct. Ralph

From: Fang Li <lifang@umn.edu>
Sent: Friday, August 31, 2018 10:51 AM
To: Baric, Ralph S <rbaric@email.unc.edu>
Subject: grant opportunity

Hi Ralph,

Please see attached file. Should we submit a proposal on bat CoVs?

Best,
Fang

--

Fang Li, Ph.D.
Associate Professor
Department of Veterinary and Biomedical Sciences
University of Minnesota Twin Cities
612-625-6149, lifang@umn.edu
<http://www.msi.umn.edu/~lifang>

--

Fang Li, Ph.D.
Associate Professor

Department of Veterinary and Biomedical Sciences
University of Minnesota Twin Cities
612-625-6149, lifang@umn.edu
<http://www.msi.umn.edu/~lifang>

Re: Re: Re: Re: Invitation letter for the 8th International Symposium on Emerging Viral Diseases

From: 胡犇 <huben@wh.iov.cn>
To: Fang Li <lifang@umn.edu>
Cc: 石正丽 <zlshi@wh.iov.cn>
Sent: September 14, 2018 2:22:38 AM CDT
Received: September 14, 2018 2:22:51 AM CDT

Dear Prof Li:

We are now collecting abstracts from our speakers and making the final program for the meeting in Wuhan in October.

Could you please send me the abstract of your talk by 20th September? So that we can fix the program soon by the end of this month.

Thank you.

Best regards

Ben

-----Original Messages-----

From: "胡犇" <huben@wh.iov.cn>
Sent Time: 2018-09-11 08:57:52 (Tuesday)
To: "Fang Li" <lifang@umn.edu>
Cc: "石正丽" <zlshi@wh.iov.cn>
Subject: Re: Re: Re: Invitation letter for the 8th International Symposium on Emerging Viral Diseases

Dear Prof Li:

Each speaker will have a 20-min presentation which includes questions and answers.

Best

Ben

-----原始邮件-----

发件人: "Fang Li" <lifang@umn.edu>
发送时间: 2018-09-11 04:54:28 (星期二)
收件人: "胡犇" <huben@wh.iov.cn>
抄送: "石正丽" <zlshi@wh.iov.cn>
主题: Re: Re: Invitation letter for the 8th International Symposium on Emerging Viral Diseases

Hi Ben,

Thanks for the information. How long would my talk be?

Thanks,
Fang

On Mon, Aug 27, 2018 at 11:29 PM, 胡犇 <huben@wh.iov.cn> wrote:

Dear Prof Li:

The final program of the meeting has not been decided yet, as we are still collecting abstracts from our speakers.

Generally, 20th October will be date of registration, and the meeting will be on 21st and 22nd. Your session will be likely scheduled on 21st afternoon or 22nd morning.

I will update you once the agenda is ready.

Best

Ben

-----原始邮件-----

发件人:"Fang Li" <lifang@umn.edu>

发送时间:2018-08-28 02:11:57 (星期二)

收件人:"胡犇" <huben@wh.iov.cn>

抄送:"石正丽" <zlshi@wh.iov.cn>

主题: Re: Invitation letter for the 8th International Symposium on Emerging Viral Diseases

Thanks, Ben.

Do you have a copy of the meeting agenda? I will need that to plan my trip.

Best,
Fang

On Mon, Aug 27, 2018 at 8:50 AM, 胡犇 <huben@wh.iov.cn> wrote:

Dear Prof. Li:

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We are very glad that you can attend the meeting and give a talk about your recent research work.

I don't know whether you need a letter with the official seal of WIV for China visa application. If so, please let me know and I will prepare it immediately.

Thanks.

Best regards

Ben Hu Ph.D

Research assistant

Wuhan Institute of Virology, CAS

--

Fang Li, Ph.D.
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Fang Li, Ph.D.
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612-625-6149, lifang@umn.edu
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Re: Re: Re: Re: Invitation letter for the 8th International Symposium on Emerging Viral Diseases

From: Fang Li <lifang@umn.edu>
To: 胡犇 <huben@wh.iov.cn>
Cc: 石正丽 <zlishi@wh.iov.cn>
Sent: September 15, 2018 12:26:40 PM CDT
Received: September 15, 2018 12:26:40 PM CDT
Attachments: wiv-abstract-2018-FL.pdf

Please see attached the title and abstract of my talk. Thanks.

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Dear Prof Li:

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发送时间:2018-09-11 04:54:28 (星期二)

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发送时间: 2018-08-28 02:11:57 (星期二)

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Thanks.

Best regards

Ben Hu Ph.D

Research assistant

Wuhan Institute of Virology, CAS

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1. wiv-abstract-2018-FL.pdf

Type: application/pdf
Size: 53 KB (54,375 bytes)



Re: Re: Re: Re: Re: Invitation letter for the 8th International Symposium on Emerging Viral Diseases

From: 胡犇 <huben@wh.iov.cn>
To: Fang Li <lifang@umn.edu>
Cc: 石正丽 <zlshi@wh.iov.cn>
Sent: September 19, 2018 8:01:47 PM CDT
Received: September 19, 2018 8:01:58 PM CDT

Dear Prof Li:

Yes the conference focuses on EID, so if you can give a talk on MERS or SARS, it would be more intriguing and fit better the theme of the conference.

Sincerely

Beb

-----Original Messages-----

From: "Fang Li" <lifang@umn.edu>
Sent Time: 2018-09-19 23:03:57 (Wednesday)
To: "胡犇" <huben@wh.iov.cn>
Cc: "石正丽" <zlshi@wh.iov.cn>
Subject: Re: Re: Re: Re: Invitation letter for the 8th International Symposium on Emerging Viral Diseases

I just realized that the conference is about newly emerging viruses. Should I talk about MERS and SARS, instead of IBV?

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Could you please send me the abstract of your talk by 20th September? So that we can fix the program soon by the end of this month.

Thank you.

Best regards

Ben

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From: "胡犇" <huben@wh.iov.cn>

Sent Time:2018-09-11 08:57:52 (Tuesday)

To: "Fang Li" <lifang@umn.edu>

Cc: "石正丽" <zlshi@wh.iov.cn>

Subject: Re: Re: Re: Invitation letter for the 8th International Symposium on Emerging Viral Diseases

Dear Prof Li:

Each speaker will have a 20-min presentation which includes questions and answers.

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Ben

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发件人:"Fang Li" <lifang@umn.edu>

发送时间:2018-09-11 04:54:28 (星期二)

收件人:"胡犇" <huben@wh.iov.cn>

抄送:"石正丽" <zlshi@wh.iov.cn>

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Thanks for the information. How long would my talk be?

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Fang

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I will update you once the agenda is ready.

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发送时间:2018-08-28 02:11:57 (星期二)

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抄送: "石正丽" <zlshi@wh.iov.cn>

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Best regards

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Wuhan Institute of Virology, CAS

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Fang Li, Ph.D.

Associate Professor

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University of Minnesota Twin Cities

612-625-6149, lifang@umn.edu

<http://www.msi.umn.edu/~lifang>

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Re: Re: Re: Re: Re: Invitation letter for the 8th International Symposium on Emerging Viral Diseases

From: Fang Li <lifang@umn.edu>
To: 石正丽 <zlshi@wh.iov.cn>
Cc: 胡犇 <huben@wh.iov.cn>
Sent: September 20, 2018 11:59:02 PM CDT
Received: September 20, 2018 11:59:02 PM CDT
Attachments: wiv-abstract-2018-FangLi.pdf

Please see attached a new abstract of my talk. Thanks.

On Thu, Sep 20, 2018 at 12:15 AM, Fang Li <lifang@umn.edu> wrote:
Ok I will send you another abstract in a day or two.

On Wed, Sep 19, 2018 at 8:36 PM 石正丽 <zlshi@wh.iov.cn> wrote:
| That'll be great, thanks.

在2018-09-19 23:03:57, Fang Li lifang@umn.edu 写道:

I just realized that the conference is about newly emerging viruses. Should I talk about MERS and SARS, instead of IBV?

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Best regards

Ben Hu Ph.D

Research assistant

Wuhan Institute of Virology, CAS

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<http://www.msi.umn.edu/~lifang>


1. wiv-abstract-2018-FangLi.pdf

Type: application/pdf
Size: 49 KB (50,766 bytes)

Molecular mechanisms for cross-species transmissions of SARS and MERS coronaviruses

Fang Li
Department of Veterinary and Biomedical Sciences
University of Minnesota

SARS and MERS coronaviruses (SARS-CoV and MERS-CoV) are two highly pathogenic viral pathogens; they both transmitted from animals to humans and pose serious health threat to humans. Our research investigated the molecular events that led to the cross-species jump of SARS-CoV and MERS-CoV.



RE: PEDV project

From: Baric, Ralph S <rbaric@email.unc.edu>
To: Fang Li <lifang@umn.edu>
Sent: September 21, 2018 10:09:00 PM CDT
Received: September 21, 2018 10:20:31 PM CDT

Yes, struggling with [REDACTED] which is done. Sure. ralph

From: Fang Li <lifang@umn.edu>
Sent: Friday, September 21, 2018 1:09 PM
To: Baric, Ralph S <rbaric@email.unc.edu>
Subject: PEDV project

Hi Ralph,

[REDACTED] Will you be interested in doing the experiment?

Thanks,
Fang

--

Fang Li, Ph.D.
Associate Professor
Department of Veterinary and Biomedical Sciences
University of Minnesota Twin Cities
612-625-6149, lifang@umn.edu
<http://www.msi.umn.edu/~lifang>

Please fill the "third party rights"

From: zlshi <zlshi@wh.iov.cn>
To: lifang <lifang@umn.edu>
Sent: October 21, 2018 8:10:21 AM CDT
Received: October 21, 2018 8:10:38 AM CDT
Attachments: thirdpartyrights-table.doc

Dear Fang,

It's nice to hearing your excellant talk.

I forward you again the last email from the eidtor and the "third party rights" form I talked with you today. Can you please fill the form and send it back to me. I need to submit it by 23rd of this month.

Best regards,
Zhengli,

SHI Zhengli, Ph. D
Senior Scientist & Professor
Wuhan Institute of Virology, Chinese Academy of Sciences
44 Xiao Hong Shan
430071 Wuhan, Hubei
China
Tel & Fax: (0086) 27 87197240
Email: zlshi@wh.iov.cn

From: ursula.hofer1
Date: 2018-10-09 16:52
To: zlshi
Subject: Edited version of manuscript NRMICRO-17-293S2V4

Dear Zheng-Li,

Manuscript number: NRMICRO-17-293S2V4
Title: Origin and evolution of pathogenic coronaviruses
Authors: Zheng-Li Shi, Jie Cui, and Fang Li
Submission date for revisions: 23rd October 2018

Thank you very much for your patience in awaiting editorial feedback on the article that you have written for Nature Reviews Microbiology. As I mentioned previously, the article is accepted in principle, but this offer is conditional on editorial queries being addressed.

Two versions of the edited file are attached to this message. The one named "clean" is the one to which you should make revisions, ensuring you track the changes in Word. The other, named

"tracked", is for your information only and shows where and what changes have been made.

All our articles are thoroughly and often heavily edited, taking into account clarity, language, scientific correctness, consistency and house style, to ensure they meet our high publication standards. The majority of changes have been made to bring the article in line with house style and to tighten up the narrative flow. These changes are just suggestions and you should feel free to discuss them with me. At places marked [Au:OK?], I'd be grateful if you could check especially carefully that the meaning of what you wrote has not been altered by the editing. I have also asked a few questions where I felt a bit more information or clarity was needed.

Please be aware that we use standard gene and protein nomenclature — for example, human genes (uppercase and italic), human proteins (uppercase), mouse genes (first letter only uppercase and italic) and mouse proteins (uppercase). If it is not clear which species is being referred to, we default to human nomenclature.

The redrawn figures are not quite ready yet but I'll send them to you to check as soon as possible.

Finally, please ensure that all the following items are included when you submit the finalized manuscript (details for each are included at the end of this email). I will not be able to formally accept the manuscript if any are missing:

Third Party Rights Table

Copyright Assignment form

Competing interests statement

References complete, cited in order and without duplicates

Highlighted references

Glossary terms

Supplementary information

I would appreciate it if you could address the editorial queries and return your revised manuscript using the following link by 23d October 2018.

[REDACTED]

Thank you very much for all your hard work on this piece so far. Please don't hesitate to contact me if you have any questions or wish to discuss any points in this letter. Finally, I would be very grateful if you could acknowledge receipt of this e-mail and confirm whether you will be able to return your final draft by the suggested date.

Best wishes,

Ursula

Ursula Hofer, MD PhD

Chief Editor, Nature Reviews Microbiology

4 Crinan Street

London

N1 9XW

e-mail: ursula.hofer1@nature.com

tel: +44 (0)20 7014 6648

<http://www.nature.com/nrmicro>

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Please return your signed forms to naturereviews@nature.com.

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Nature Reviews journals require authors to declare any financial and non-financial competing interests in relation to the work described. Information on this policy is available [here](#). Common sources of competing interests include consultancy, honoraria for speaking, grants or support for research, owning stock in or directorship of companies and patents — for holders and applicants.

References:

References should be included as superscript numbers and cited sequentially in the following order: main text, boxes, figures and then tables. The numbered references should be listed at the end of the article in the following format:

1. Author, A. B. & Author, B. C. Title of the article. Nat. Cell Biol. 6, 123–131 (2001).
2. Author, A. B. Title of the article. Nat. Struct. Mol. Biol. 7, 101–109 (2003).

3. Author, A. B., Author, Z. X. & Author, B. C. Title of the article. EMBO J. 25, 3454–3461 (2006).

4. Author, A. B. in Title of Book (ed. Surname, I. N.) 75–98 (Publisher, 2000).

If a reference has six or more authors, only the first author should be listed followed by 'et al.'.

Clinical trials should be cited as references using the following format:

5. US National Library of Medicine. ClinicalTrials.gov, <http://www.clinicaltrials.gov/ct2/show/NCT004433589?term=NCT004433589&rank=1> (2009).

General websites can be provided in a 'Further information' box, but specific online articles should be cited as references using the following format:

6. Author. Title of online article. Website name. http address (2015).

Highlighted references:

Please select the top 5–10% of references in your list that those entering the field must read and write a single sentence in bold beneath each one to explain the significance of the work.

Glossary terms:

Please ensure the glossary terms are complete and included at the end of article. There is no need to alphabetize the glossary terms because, in the print journal, they are presented in the order in which they are mentioned in the article.

Supplementary information:

Supplementary items (boxes, figures, tables or movies) are not edited, so please ensure that they are clearly and succinctly presented. Please note that after the paper has been formally accepted you can only provide amended Supplementary Information files for critical changes to the scientific content, not for style. You should clearly explain what changes have been made if you do resupply any such files. The modification of supplementary information after a paper has been published requires a formal correction, so authors are encouraged to check their supplementary information carefully.

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Type: application/vnd.ms-word
Size: 74 KB (75,776 bytes)

| | |
|------------------------------------|----------------|
| Corresponding Author: | Zhengli Shi |
| Manuscript Number (if applicable): | NRMICRO-17-293 |

THIRD PARTY MATERIAL INFORMATION

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Re: Re: Please fill the "third party rights"

From: zlshi@wh.iov.cn
To: lifang <lifang@umn.edu>
Sent: October 22, 2018 2:13:43 AM CDT
Received: October 22, 2018 2:19:44 AM CDT

Thanks.

zlshi@wh.iov.cn

From: [Fang Li](#)
Date: 2018-10-22 04:21
To: [zlshi](#)
Subject: Re: Please fill the "third party rights"

Dear Zhengli,

Please see attached the copyright transfer form. As I noted in the form, JBC allows authors to reuse their own materials without getting permission from JBC. So we are fine with both Figure 6 and Table 1.

I am also attaching the revised figure and table legends in another version of the revised manuscript (I previously only checked the main text, forgetting about the legends. sorry about that). I also replaced reference 85 with my 2005 Science paper. I already send you the revised main text before.

If you have questions, please let me know.

Best,
Fang

On Sun, Oct 21, 2018 at 9:10 PM, zlshi <zlshi@wh.iov.cn> wrote:

Dear Fang,

It's nice to hearing your excellant talk.

I forward you again the last email from the eidtor and the "third party rights" form I talked with you today. Can you please fill the form and send it back to me. I need to submit it by 23rd of this month.

Best regards,
Zhengli,

SHI Zhengli, Ph. D
Senior Scientist & Professor
Wuhan Institute of Virology, Chinese Academy of Sciences
44 Xiao Hong Shan
430071 Wuhan, Hubei
China
Tel & Fax: (0086) 27 87197240
Email: zlshi@wh.iov.cn

From: ursula.hofer1
Date: 2018-10-09 16:52
To: zlshi
Subject: Edited version of manuscript NRMICRO-17-293S2V4

Dear Zheng-Li,

Manuscript number: NRMICRO-17-293S2V4
Title: Origin and evolution of pathogenic coronaviruses
Authors: Zheng-Li Shi, Jie Cui, and Fang Li
Submission date for revisions: 23rd October 2018

Thank you very much for your patience in awaiting editorial feedback on the article that you have written for Nature Reviews Microbiology. As I mentioned previously, the article is accepted in principle, but this offer is conditional on editorial queries being addressed.

Two versions of the edited file are attached to this message. The one named "clean" is the one to which you should make revisions, ensuring you track the changes in Word. The other, named "tracked", is for your information only and shows where and what changes have been made.

All our articles are thoroughly and often heavily edited, taking into account clarity, language, scientific correctness, consistency and house style, to ensure they meet our high publication standards. The majority of changes have been made to bring the article in line with house style and to tighten up the narrative flow. These changes are just suggestions and you should feel free to discuss them with me. At places marked [Au:OK?], I'd be grateful if you could check especially carefully that the meaning of what you wrote has not been altered by the editing. I have also asked a few questions where I felt a bit more information or clarity was needed.

Please be aware that we use standard gene and protein nomenclature — for example, human genes (uppercase and italic), human proteins (uppercase), mouse genes (first letter only uppercase and italic) and mouse proteins (uppercase). If it is not clear which species is being referred to, we default to human nomenclature.

The redrawn figures are not quite ready yet but I'll send them to you to check as soon as possible.

Finally, please ensure that all the following items are included when you submit the finalized manuscript (details for each are included at the end of this email). I will not be able to formally accept the manuscript if any are missing:

Third Party Rights Table

Copyright Assignment form

Competing interests statement

References complete, cited in order and without duplicates

Highlighted references

Glossary terms

Supplementary information

I would appreciate it if you could address the editorial queries and return your revised manuscript using the following link by 23d October 2018.

[REDACTED]

[REDACTED]

Thank you very much for all your hard work on this piece so far. Please don't hesitate to contact me if you have any questions or wish to discuss any points in this letter. Finally, I would be very grateful if you could acknowledge receipt of this e-mail and confirm whether you will be able to return your final draft by the suggested date.

Best wishes,

Ursula

Ursula Hofer, MD PhD

Chief Editor, Nature Reviews Microbiology

[4 Crinan Street](#)

[London](#)

[N1 9XW](#)

[e-mail:ursula.hofer1@nature.com](mailto:ursula.hofer1@nature.com)

tel: +44 (0)20 7014 6648

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Please return your signed forms to naturereviews@nature.com.

Competing interests statement:

Nature Reviews journals require authors to declare any financial and non-financial competing interests in relation to the work described. Information on this policy is available [here](#). Common sources of competing interests include consultancy, honoraria for speaking, grants or support for research, owning stock in or directorship of companies and patents — for holders and applicants.

References:

References should be included as superscript numbers and cited sequentially in the following order: main text, boxes, figures and then tables. The numbered references should be listed at the end of the article in the following format:

1. Author, A. B. & Author, B. C. Title of the article. *Nat. Cell Biol.* 6, 123–131 (2001).
2. Author, A. B. Title of the article. *Nat. Struct. Mol. Biol.* 7, 101–109 (2003).
3. Author, A. B., Author, Z. X. & Author, B. C. Title of the article. *EMBO J.* 25, 3454–3461 (2006).
4. Author, A. B. in Title of Book (ed. Surname, I. N.) 75–98 (Publisher, 2000).

If a reference has six or more authors, only the first author should be listed followed by 'et al.'.

Clinical trials should be cited as references using the following format:

5. US National Library of Medicine. ClinicalTrials.gov,
<http://www.clinicaltrials.gov/ct2/show/NCT004433589?term=NCT00433589&rank=1> (2009).

General websites can be provided in a 'Further information' box, but specific online articles should be cited as references using the following format:

6. Author. Title of online article. Website name. http address (2015).

Highlighted references:

Please select the top 5–10% of references in your list that those entering the field must read and write a single sentence in bold beneath each one to explain the significance of the work.

Glossary terms:

Please ensure the glossary terms are complete and included at the end of article. There is no need to alphabetize the glossary terms because, in the print journal, they are presented in the order in which they are mentioned in the article.

Supplementary information:

Supplementary items (boxes, figures, tables or movies) are not edited, so please ensure that they are clearly and succinctly presented. Please note that after the paper has been formally accepted you can only provide amended Supplementary Information files for critical changes to the scientific content, not for style. You should clearly explain what changes have been made if you do resupply any such files. The modification of supplementary information after a paper has been published requires a formal correction, so authors are encouraged to check their supplementary information carefully.

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Fang Li, Ph.D.
Associate Professor
Department of Veterinary and Biomedical Sciences
University of Minnesota Twin Cities
612-625-6149, lifang@umn.edu
<http://www.msi.umn.edu/~lifang>

Shipping of [REDACTED]

From: [REDACTED]
To: rbaric@email.unc.edu
Cc: Fang Li <lifang@umn.edu>
Sent: October 24, 2018 9:17:34 PM CDT
Received: October 24, 2018 9:18:15 PM CDT
Attachments: PEDv Virus Expansion.pdf

Hi, Dr. Baric,

I'm [REDACTED], a student from Dr. Fang Li's lab.

As Dr. Li informed, now I am going to send you the [REDACTED]
[REDACTED]
[REDACTED]

Could you please tell me your shipping address and when it is appropriate for you to receive these samples?
Or someone that I could contact with for the receiving?

Thanks very much! Any questions please let me know.

Best,

[REDACTED]

-
-

Materials:

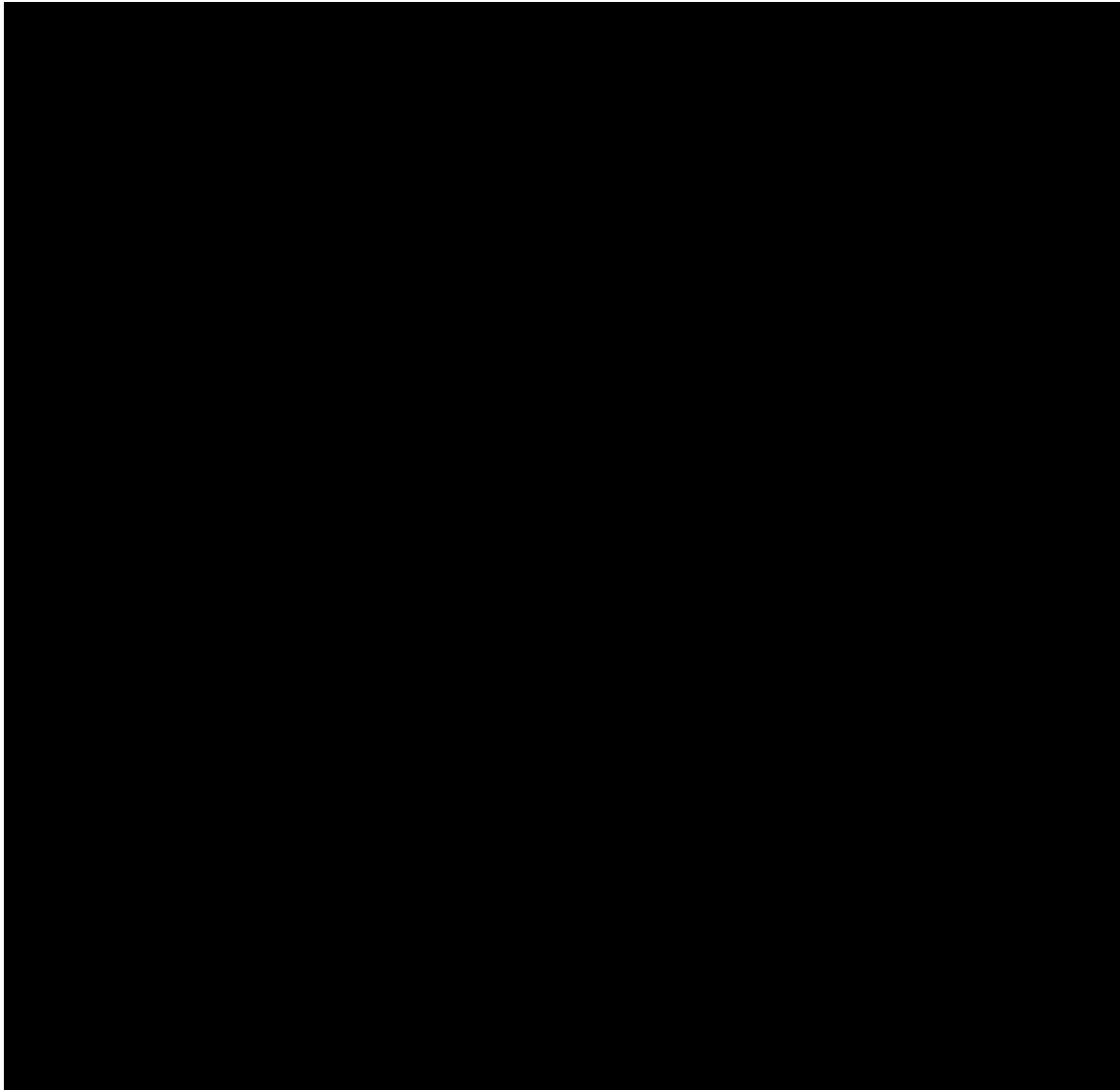
- PEDv Maintenance Media
- 5ml Sterile Individually wrapped pipettes for Pipet Aid
- 10ml Sterile Individually wrapped pipettes for Pipet Aid
- Sterile 1x PBS (no Ca, Mg)
- 70% EtOH
- Water bath set at 37°C
- 500ml Plastic waste container
- Gloves
- Laminar flow hood
- Paper Towels
- Confluent flasks of Vero cells
- 1mL of PEDv
- Conical holder/Rack
- Sterile 50ml conicals
- Microcentrifuge tubes

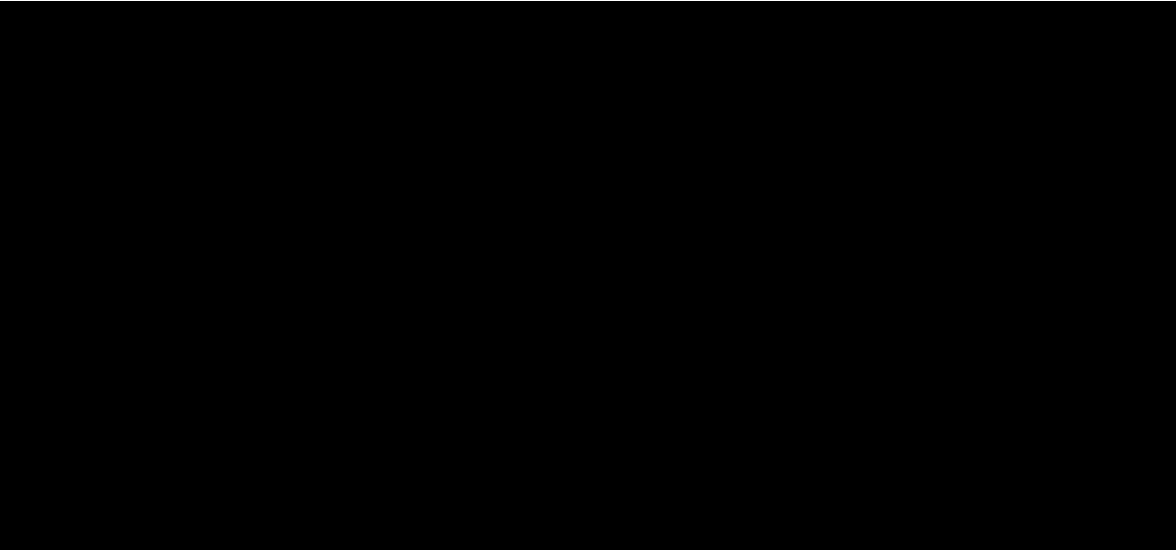
Safety:

- Wear gloves and lab coat while performing this procedure.
- This procedure is performed in a laminar flow hood
- Complete all training required by the University of Minnesota and the Department of Environmental and Health & Safety guidelines

Method

- 1)
- 2)
- 3)
- 4)





[REDACTED]

From: Fang Li <lifang@umn.edu>
To: Ralph Baric <rbaric@email.unc.edu>
Sent: October 24, 2018 9:45:12 PM CDT
Received: October 24, 2018 9:45:12 PM CDT
Attachments: FangLi_CV_2_2018.pdf

Dear Ralph,

It was nice chatting with you in Wuhan. My student [REDACTED] has emailed you the information about PEDV. [REDACTED] will email you the information about the [REDACTED] soon.

[REDACTED]

Best,
Fang

--

Fang Li, Ph.D.
Associate Professor
Department of Veterinary and Biomedical Sciences
University of Minnesota Twin Cities
612-625-6149, lifang@umn.edu
<http://www.msi.umn.edu/~lifang>

RE: [REDACTED]

From: Baric, Ralph S <rbaric@email.unc.edu>
To: [REDACTED]
Cc: Fang Li <lifang@umn.edu>
Sent: October 25, 2018 12:40:12 PM CDT
Received: October 25, 2018 12:40:15 PM CDT

Hi [REDACTED] thanks for this information. To make sure I understand, [REDACTED]
[REDACTED] Ralph

From: [REDACTED]
Sent: Wednesday, October 24, 2018 11:33 PM
To: Baric, Ralph S <rbaric@email.unc.edu>
Cc: Fang Li <lifang@umn.edu>
Subject: Re: [REDACTED]

Dear Dr. Baric

[REDACTED] Sorry for
the missing information.

Best Regards

[REDACTED]
On Wed, Oct 24, 2018 at 10:11 PM [REDACTED] wrote:

Dear Dr. Baric

The [REDACTED]
[REDACTED] They are [REDACTED]

[REDACTED]

Best regards,

[REDACTED]

--
[REDACTED]

[REDACTED]

Re: Mutation sites on MERS spike RBD

From: [REDACTED]
To: rbaric@email.unc.edu, Fang Li <lifang@umn.edu>
Sent: October 25, 2018 5:01:39 PM CDT
Received: October 25, 2018 5:01:52 PM CDT
Attachments: image001.png, image002.png, image002.png
About [REDACTED]

[REDACTED]

Best,

[REDACTED]

On Thu, Oct 25, 2018 at 12:42 PM Baric, Ralph S <rbaric@email.unc.edu> wrote:

[REDACTED]

Ralph

[REDACTED]

From: [REDACTED]
Sent: Wednesday, October 24, 2018 11:33 PM
To: Baric, Ralph S <rbaric@email.unc.edu>
Cc: Fang Li <lifang@umn.edu>
Subject: Re: Mutation sites on MERS spike RBD

Dear Dr. Baric

[REDACTED]

for the missing information.

Sorry

Best Regards

[Redacted]

On Wed, Oct 24, 2018 at 10:11 PM [Redacted] wrote:

Dear Dr. Baric

[Redacted]

[Redacted]

Best regards,

[Redacted]

--

[Redacted]

[Redacted]

[Redacted]

[Redacted]

RE: Fwd: Re: FW: No change in workscope Subcontract with NYBC for PI: Du, Lanying; 1 R01 AI139092-01

From: Walton, Theresa <TWalton@nybc.org>
To: Brett Carlson <carls234@umn.edu>
Cc: Anne M Mockovak-1 <a-mock@umn.edu>, Du, Lanying <LDu@nybc.org>, Fang Li <lifang@umn.edu>, Ross, Deborah <DRoss2@nybc.org>
Sent: November 27, 2018 12:32:34 PM CST
Received: November 27, 2018 12:40:36 PM CST
Attachments: FE-Subaward Agreement-University of Minnesota_Li 11262018.pdf

Good Morning,

Please find attached a fully executed agreement. A vendor packet will be sent shortly to establish an official PO, if your organization is not set up in our purchasing system.

Principal Investigator: Li, Fang
Subaward #: NIH000554

Thanks,
Theresa R. Walton, MPA
Manager, Grants & Contract Proposals

Office of Sponsored Programs
New York Blood Center
310 East 67th Street
New York, NY 10065
T: 212-570-3150
twalton@nybc.org

From: Brett Carlson <carls234@umn.edu>
Sent: Friday, November 02, 2018 9:28 AM
To: Walton, Theresa <TWalton@nybc.org>
Cc: Anne M Mockovak-1 <a-mock@umn.edu>; Du, Lanying <LDu@nybc.org>; Fang Li <lifang@umn.edu>; Brett Carlson <carls234@umn.edu>
Subject: Re: Fwd: Re: FW: No change in workscope Subcontract with NYBC for PI: Du, Lanying; 1 R01 AI139092-01

Hi Theresa,

Attached is the signed agreement. After NYBC signs, please send the fully executed agreement to my attention via email.

Note that in the last paragraph in Article 4, I removed the referenced to Article 10.1. This was an error.

Thank you,

Brett

On Wed, Oct 31, 2018 at 2:16 PM, Walton, Theresa <TWalton@nybc.org> wrote:

Hi Brett,

Please review attachment. We were able to incorporate the vast majority of your edits into the attached redline.

Thanks,
Theresa R. Walton, MPA
Manager, Grants & Contract Proposals

Office of Sponsored Programs
New York Blood Center
310 East 67th Street
New York, NY 10065
T: 212-570-3150
twalton@nybc.org

From: Walton, Theresa
Sent: Wednesday, October 31, 2018 1:11 PM
To: 'Brett Carlson' <carls234@umn.edu>
Cc: 'Anne M Mockovak-1' <a-mock@umn.edu>
Subject: RE: Fwd: Re: FW: No change in workscope Subcontract with NYBC for PI: Du, Lanying; 1 R01 AI139092-01

Sorry for the delay, this issue has been escalated to my Director who has ensured me the legal department will have this back to us today.

From: Brett Carlson <carls234@umn.edu>
Sent: Monday, October 29, 2018 2:37 PM
To: Walton, Theresa <TWalton@nybc.org>
Cc: Anne M Mockovak-1 <a-mock@umn.edu>
Subject: Re: Fwd: Re: FW: No change in workscope Subcontract with NYBC for PI: Du, Lanying; 1 R01 AI139092-01

Hi Theresa,

Please let me know what the status is of the revisions. Feel free to contact me if you require additional information. We are anxious to get this resolved and the agreement in place.

Thanks,

Brett

Brett Carlson
Sr. Grant & Contract Administrator
University of Minnesota
Office of Sponsored Projects Administration
450 McNamara Alumni Center
200 Oak Street SE
Minneapolis, MN 55455
Phone: 612-626-7441
Fax: 612-624-4843

On 9/25/2018 2:47 PM, Brett Carlson wrote:

Hi Theresa,

Please let me know what the status is of the requested changes.

Thanks,

Brett

Brett Carlson
Sr. Grant & Contract Administrator
University of Minnesota
Office of Sponsored Projects Administration

450 McNamara Alumni Center
200 Oak Street SE
Minneapolis, MN 55455
Phone: 612-626-7441
Fax: 612-624-4843

----- Forwarded Message -----

SubjectRe: FW: No change in workscope Subcontract with NYBC for PI: Du, Lanying; 1 R01
:AI139092-01
Date:Mon, 20 Aug 2018 14:49:36 -0500
From:Brett Carlson <carls234@umn.edu>
To:Walton, Theresa <TWalton@nybc.org>

Hi Theresa,

After reviewing the referenced agreement, we request the following changes to the agreement language:

Page 1 Header and First paragraph: Please change University of Minnesota to "Regents of the University of Minnesota"

Article 4 -Invoices and Payment - We request the addition of the following paragraph:

"In the event of early termination of this Agreement by NYBC pursuant to Article 10.1, NYBC shall pay all costs incurred by Subcontractor as of the date of termination, together with all non cancellable obligations, which shall include all non cancelable contracts, graduate assistantships, fellowships and postdoctoral associate appointments, entered into prior to the notice of termination. After termination, any obligation of NYBC for fellowships, graduate assistantships or postdoctoral associates shall end no later than the end of University's academic year following termination."

"Subcontractor may rebudget as allowed by the Prime Federal Award."

Article 7 - Research Materials - We request that the first sentence be removed as well as section (a.). It is not a known that research materials will be exchanged.

Article 9 - Confidentiality - First Paragraph - We request replacing the first paragraph of this article with the following:

"For purposes of this Agreement, "Confidential Information" means written or tangible information disclosed by either party to the other, which at the time of disclosure is clearly and conspicuously labeled "Confidential" or "Proprietary". Confidential Information shall also include oral and visual disclosures which are identified as confidential at the time of such disclosures and which are confirmed and summarized within fifteen (15) days of the disclosure by the disclosing party in a writing that sets forth the substance of the Confidential Information disclosed. The parties agree to maintain confidentiality of the Confidential Information during the term of this Agreement, including any renewal periods, and for a period of three (3) years from the effective termination or expiration date of this Agreement. Neither party shall use said Confidential Information for any purpose other than those purposes specified in this Agreement. The parties may disclose Confidential Information to employees requiring access thereto for the purposes of this Agreement provided, however, that prior to making any such disclosures each such employee shall be apprised of the duty and obligation to maintain Confidential Information in confidence and not to use such information for any purpose other than in accordance with the terms and conditions of this Agreement. Neither party will be held financially liable for any inadvertent disclosure, but each will agree to use its reasonable efforts not to disclose any Confidential Information."

Article 10 - Publication and Rights to Data - We request the following replacement language:

"NYBC recognizes that under University policy the results of the Project must be publishable and agrees that researchers engaged in Project shall be permitted to present at symposia, national or regional professional meetings and to publish in journals, theses or dissertations, or otherwise of their own choosing, methods and results of Project. Subcontractor shall have the final authority to determine the scope and content of any publication; provided, however, that Subcontractor shall provide copies of any proposed publication at least thirty (30) days in advance of the publication or

presentation to NYBC to review and object to such publication or presentation because such draft either contains information deemed to be Confidential Information under the provisions of this Agreement, or reveals information that if published within thirty (30) days would have an adverse effect on a patent application in which NYBC owns full or part interest, or intends to obtain an interest from Subcontractor pursuant to this Agreement. In the event that NYBC notifies the Subcontractor in writing that the proposed publication or presentation contains NYBC's Confidential Information, Subcontractor shall remove any NYBC Confidential Information from the draft prior to such publication or presentation. In the event NYBC requests in writing a delay in publication to file for patent protection, Subcontractor and the Researcher shall refrain from making such publication or presentation for a maximum of ninety (90) days from the receipt of such objection, and NYBC shall indicate with specificity to what manner and degree Subcontractor may disclose said information during the ninety (90) day period.

Publication by either party to this Agreement shall give proper credit to the other party for the cooperative character of the investigation. No commercial brands or trade names shall appear in the publication of the results except as such brand or trade name is essential in the description of the research."

Article 12 Patent Rights - We request removing paragraphs 3 and 4 and adding the following language:

"Subject Invention" means any invention that is first conceived or reduced to practice by one or more employees of University, alone or with others, in performance of the Project. The inventorship of a Subject Invention will be determined in accordance with Title 35 of the United States Code.

"University Subject Inventions" are those Subject Inventions invented solely by employees of University. "Joint Subject Inventions" are those Subject Inventions invented by employees of University jointly with employees of NYBC.

(a) No rights to Subcontractor background intellectual property are granted under the terms of this agreement.

(b) Each party shall promptly disclose to the other party in writing any Subject Invention of which that party becomes aware during the Term or afterwards.

(c) Subrecipient grants to NYBC the right to use data created in the performance of this Subaward solely for the purpose of and only to the extent required to meet NYBC's obligations to the Federal Government under its Prime Federal Award.

Article 13 - Indemnification - The University of Minnesota's liability is subject to the limitations as set out in MN Statute Ch. 3.736. We therefore request the following language:

"Each party shall be responsible for claims, losses, damages and Expenses which are proximately caused by the wrongful or negligent acts or omissions of that party or its agents, employees or representatives acting within the scope of their duties. The liability of the University of Minnesota is as set out in chapter 3.736 of the Minnesota Statutes and subject to the limitations therein. Nothing herein shall be construed to limit either party from asserting against third parties any defenses or immunities (including common law, statutory and constitutional) it may have or be construed to create a basis for a claim or suit when none would otherwise exist. This provision shall survive the termination of this Agreement."

Article 14 - The University of Minnesota is a part of the State of Minnesota with MN Statute requirements on insurance. We request the following replacement language:

"The parties agree to maintain coverage for workmen's compensation, as required by applicable state law, and comprehensive general liability insurance and employer's liability insurance. The University of Minnesota is self-insured and carries the statutory required level of insurance."

Article 26 - The University of Minnesota is a part of the State of Minnesota and can't agree to New York State law. We request that this article be removed.

Please let me know if you require additional information or clarification.

Thank you for considering these requested changes.

Brett

Brett Carlson
Sr. Grant & Contract Administrator
University of Minnesota
Office of Sponsored Projects Administration
450 McNamara Alumni Center
200 Oak Street SE
Minneapolis, MN 55455
Phone: 612-626-7441
Fax: 612-624-4843

On 8/2/2018 9:26 AM, Walton, Theresa wrote:

Good Morning Brett,

Please see attached. If all is ok, please send back a partially executed agreement.

Thanks,
Theresa R. Walton, MPA
Manager, Grants & Contract Proposals

Office of Sponsored Programs
New York Blood Center
310 East 67th Street
New York, NY 10065
T: 212-570-3150
twalton@nybc.org

From: Brett Carlson [<mailto:carls234@umn.edu>]
Sent: Tuesday, June 26, 2018 4:34 PM
To: Walton, Theresa
Cc: Du, Lanying; Anne M Mockovak-1
Subject: Re: No change in workscope Subcontract with NYBC for PI: Du, Lanying; 1 R01 AI139092-01

Ms. Walton,

I am not understanding why there are 2 sets of terms (2 separate agreements) for the subaward to the University of Minnesota. One also seems to be (in part) written to The Scripps Research Institute which is not correct. Please send one consortium agreement for the University of Minnesota with all appropriate terms and any related attachments.

Thank you,

Brett

Brett Carlson
Sr. Grant & Contract Administrator
University of Minnesota
Office of Sponsored Projects Administration
450 McNamara Alumni Center
200 Oak Street SE
Minneapolis, MN 55455
Phone: 612-626-7441
Fax: 612-624-4843

On 6/6/2018 1:26 PM, Walton, Theresa wrote:

Hi Brett,

My apologies, see attached. I am new to NYBC and did not find the original scope of work in our files which is why I requested in again.

Thanks,
Theresa R. Walton, MPA
Manager, Grants & Contract Proposals

Office of Sponsored Programs
New York Blood Center
310 East 67th Street
New York, NY 10065
T: 212-570-3150
twalton@nybc.org

From: Brett Carlson [<mailto:carls234@umn.edu>]
Sent: Wednesday, June 06, 2018 2:16 PM
To: Walton, Theresa
Cc: Du, Lanying; Anne M Mockovak-1
Subject: Re: No change in workscope Subcontract with NYBC for PI: Du, Lanying; 1 R01 AI139092-01

Ms. Walton,

I am the assigned grant & contract administrator in the University of Minnesota's Office of Sponsored Projects Administration. The attached "Additional Terms and Conditions" document that was sent appears to be part of the subaward agreement that will be coming to my office. We would generally receive the subaward with all terms and conditions and related attachments together. Please send the complete subaward and attachments together to my attention via email for review.

Also, according to our Principal Investigator, the scope of work has not changed from what was originally submitted.

Feel free to contact me with any questions.

Thank you,

Brett

Brett Carlson
Sr. Grant & Contract Administrator
University of Minnesota
Office of Sponsored Projects Administration
450 McNamara Alumni Center
200 Oak Street SE
Minneapolis, MN 55455
Phone: 612-626-7441
Fax: 612-624-4843

----- Forwarded message -----

From: Fang Li <lifang@umn.edu>
Date: Thu, May 24, 2018 at 10:30 AM
Subject: Re: Subcontract with NYBC for PI: Du, Lanying; 1 R01 AI139092-01

To: "Walton, Theresa" <TWalton@nybc.org>, Anne Mockovak <a-mock@umn.edu>
Cc: "Du, Lanying" <LDu@nybc.org>

Hi Theresa,

Thanks for your email. I am CC'ing our grant accountant Anne here. She will take over the paper work.

Best,
Fang

On Thu, May 24, 2018 at 9:45 AM, Walton, Theresa <TWalton@nybc.org> wrote:
Hi Dr. Li

We received the notice of award for grant # 1R01AI13092-01 for the project titled "Structure-Based design of coronavirus subunit vaccines". Please verify if the attached documents are still correct and send your scope of work for this project. I'll also need the contact information for your grants/ contracts administrator so I can send the preliminary subaward agreement for your institutions review.

This Notice of Award (NoA) includes funds for activity with **University of Minnesota** in the amount of **\$184,600** (\$120,000 direct costs + \$64,600 F&A costs).

Please let me know if you have any questions.

Thanks,
Theresa R. Walton, MPA
Manager, Grants & Contract Proposals

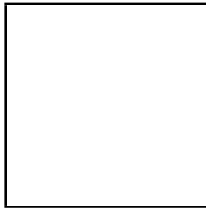
Office of Sponsored Programs
New York Blood Center
[310 East 67th Street](#)
[New York, NY 10065](#)
T: 212-570-3150
twalton@nybc.org

From: era-notify@mail.nih.gov [mailto:era-notify@mail.nih.gov]
Sent: Monday, May 21, 2018 12:04 AM
To: ResearchAdmin
Subject: NoA: 1 R01 AI139092-01 PI: Du, Lanying

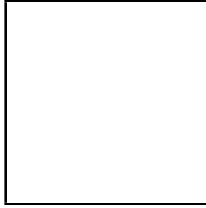
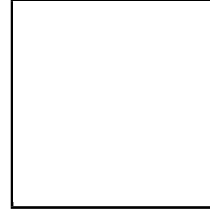
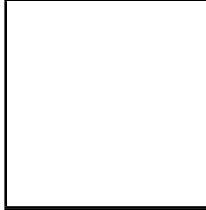
Grant Number: 1 R01 AI139092-01
Principal Investigator: Du, Lanying
Project Title: Structure-based design of coronavirus subunit vaccines
Institution: NEW YORK BLOOD CENTER
CFDA: 93.855
OC: 414A
PCC: M51C B

Award Issue Date: 05/21/2018
Grants Management Officer: Mason, Chernay
Program Official: Stemmy, Erik
Grants Specialist: Graham, Adam

*** This is an automated notification - Please do not reply to this message. ***



LIFESAVING INNOVATION SINCE 1964



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--

Brett Carlson
Sr. Grant & Contract Administrator
Office of Sponsored Projects Administration
Ph: (612) 626-7441

1. FE-Subaward Agreement-University of Minnesota_Li 11262018.pdf

Type: application/pdf
Size: 10 MB (11,161,108 bytes)



CONSORTIUM AGREEMENT

NIH000554

BETWEEN

NEW YORK BLOOD CENTER, INC.

P.I.: Dr. Lanying Du

AND

Regents of the University of Minnesota

P.I.: Dr. Fang Li

This Agreement is entered into and made effective May 21, 2018 by and between the NEW YORK BLOOD CENTER, INC., a New York Not-for-Profit Corporation, with a place of business at 310 E. 67th Street, New York, New York 10065 (“NYBC” or “Grantee”) and Regents of the University of Minnesota (“Subcontractor” or “Subgrantee”).

1. Background

NYBC, with the assistance of Subcontractor and other collaborators, has received funding for research proposed in a grant application submitted to the National Institutes of Health (“NIH”), an agency of the United States Department of Health and Human Services (“HHS”). The NIH grant 1R01AI139092-01 (“Prime Grant”) contemplates that the research will be undertaken by a consortium of institutions, acting under the direction of NYBC, and further specifies that various aspects of the research will be undertaken at specified collaborating institutions, including Subcontractor. The purposes of this Agreement, a copy of which will be submitted to NIH if requested, is to set forth the responsibilities and obligations of each party to this Agreement.

2. Statement of Work

Subcontractor shall provide the necessary personnel, services, equipment and facilities (except as otherwise specifically provided herein) to perform the work, as more fully set forth in the Statement of Work, annexed hereto as Exhibit A to this Agreement (the “Research Project”).

3. Period of Performance

Performance under this Agreement shall commence on **May 21, 2018 (“Project Start Date”)** and shall end on **April 30, 2019 (“Project End Date”)**. Unless specifically identified in the grant application accepted by NIH, NYBC shall not reimburse Subcontractor for any expenses incurred prior to the Project Start Date or subsequent to the Project End Date. Nor may the Subcontractor seek reimbursement from NYBC for expenses other than those specified in the budget submitted to and approved by NIH as part of the Prime Grant. The period of this Agreement may be extended annually by the mutual written consent of both parties. This Agreement will not under any circumstances extend beyond the expiration or termination of the Prime Grant.

4. Invoices and Payment

Subcontractor shall submit invoices to NYBC for payment of Subcontractor's costs that are allowable and allocable to this Agreement. Subcontractor's invoices shall be in the form and contain all certifications reasonably required by the Prime Grant and shall include the invoice date; the Prime Grant number; the names, titles, and percent effort of all personnel charged to the Prime Grant; and a complete breakout of the costs incurred by budget category for the goods or services encompassed by the invoice.

Invoices shall be submitted monthly, no later than 30 days after the last day of the month to which the invoice relates to:

Office of Sponsored Programs
NEW YORK BLOOD CENTER, INC.
310 East 67th Street
New York, NY 10065
Attention: **Kenneth P. Mathis**

A final invoice for each budget period must be submitted within 60 calendar days after the budget period's termination date and be marked "**Final Invoice.**"

Subcontractor's invoices shall be prepared in a manner that is consistent with the budget that has been submitted to and approved by the grants officer. That budget (Exhibit B) provides for a total payment to Subcontractor of no more than **\$184,600**. Subcontractor shall not invoice NYBC for costs not included in that budget or in excess of the amounts set forth in the budget.

Payment of all invoices is contingent upon compliance with the terms and conditions of this Agreement and the Prime Grant application as it applies to Subcontractor, and the propriety of the costs incurred, as determined by NYBC. Subcontractor shall reimburse NYBC for any amounts contained in Subcontractor's invoices and paid by NYBC that are subsequently determined by NYBC or the NIH to be unallowable or unallocable to the performance of this Agreement.

If NYBC's Prime Grant is incrementally funded, it is understood that this Agreement is funded only to the extent funds are available to pay Subcontractor in accordance with the Prime Grant, and that Subcontractor will be paid only to the extent funds are available for allocation to Subcontractor under the Prime Grant. NYBC shall notify Subcontractor thirty (30) days in advance of any period for which the Prime Grant has not been funded. In the absence of funding available for allocation to Subcontractor under the Prime Grant, NYBC may direct Subcontractor to stop work until such time as funding becomes available. Such a direction to stop work shall not entitle Subcontractor to reimbursement for any additional cost.

Subcontractor agrees to incorporate the requirements of this section, including the applicability of the appropriate set of cost principles, in any lower-tier cost reimbursement sub-grant or subcontract it enters into.

In the event of early termination of this Agreement by NYBC, NYBC agrees to pay all costs properly incurred by Subcontractor under the Prime Grant and this Agreement, as of the date of termination, together with all non-cancellable obligations.

Subcontractor may re-budget as allowed by the Prime Grant.

5. Availability of Funds

This Agreement is subject to and contingent upon the continuing availability of federal funds for the purpose hereof.

6. Grantee, Principal Investigator, and Project Directors

Although each institution will be involved in performing important aspects of the proposed research, NYBC, as the Grantee, is the sole entity legally responsible to the Secretary of HHS for ensuring that the research will be conducted as proposed in the Prime Grant. Accordingly, Subcontractor agrees that in carrying out its research responsibilities under this Agreement and the Prime Grant, it shall take direction from and abide by the decisions of NYBC and its Principal Investigator. Subcontractor shall address all questions concerning the scope of work or its performance of the scope of work to the NYBC Principal Investigator. Subcontractor shall provide all information reasonably requested by NYBC's Principal Investigator or his/her designee to permit NYBC to direct and monitor Subcontractor's work.

7. Research Materials

In the event that, in performing services under this Agreement, the parties transfer and exchange biological and other research materials ("Research Materials") in connection with the Research Project, the following terms shall govern any transfer of Research Materials pursuant to the Research Project.

Materials developed solely by NYBC, whether developed before or after the Effective Date, together with progeny and unmodified derivatives, will be owned solely by NYBC ("NYBC Research Materials"); materials developed solely by Subcontractor, whether developed before or after the Effective Date, together with progeny and unmodified derivatives, will be owned solely by Subcontractor ("Subcontractor Research Materials"); and materials developed jointly by researchers at NYBC and Subcontractor in the course of the Research Project will be owned jointly ("Jointly Developed Research Materials"). All materials that may be transferred hereunder are sometimes hereinafter referred to as "Research Materials," singly or collectively. Legal title to any Research Materials transferred hereunder shall be unaffected by this Agreement or the transfer made hereunder. Subcontractor shall use NYBC Research Materials only in work done in the course of the Research Project, and only in Subcontractor's laboratory in research by laboratory personnel under his/her immediate and direct control. Subcontractor shall not transfer or share any NYBC Research Materials with other institutions or entities without NYBC's written consent.

8. Reporting

Subcontractor acknowledges that the Prime Grant and applicable laws, regulations and NIH policies impose on NYBC certain reporting requirements (for example, periodic reports on the performance of the grant work, financial status reports, annual reports and final reports). Subcontractor agrees to provide NYBC with requested reports and with the information that NYBC needs concerning all aspects of Subcontractor's performance of its work so that NYBC may make full and accurate reports to appropriate government personnel. NYBC will inform Subcontractor of the information it needs and the date when such information is needed from Subcontractor. To the extent possible, NYBC will provide Subcontractor at least ten (10) business days to provide the information needed.

9. Confidentiality.

Subject to Section 10, below, each party shall cause all Confidential Information, that is disclosed to it by the other party in connection with the Research Project to be treated according to the same internal security procedures and with the same degree of care regarding its secrecy and confidentiality as the party receiving the disclosure treats similar information of its own within its organization. Confidential Information shall mean without limitation any information, data or know-how which relates to the research, business, services or products of the disclosing party, including, without limitation, any

computer programs, algorithms, specifications, schematics, records, data, drawings, biological samples, notes, reports, processes, formulas, methodologies, conceptual or developmental products, compilations, trade secrets, copyrights, inventions, patent applications, financial information, business plans, or personnel, marketing or sales information, which is disclosed by the disclosing party or on its behalf, after the date hereof, to the receiving party either in writing, orally, by inspection or in any other form or medium, or which a reasonable party should understand to be confidential given the nature of the information or circumstances of disclosure. The parties agree to maintain confidentiality of the Confidential Information during the term of this Agreement, including any renewal periods, and for a period of three (3) years from the effective termination or expiration date of this Agreement. Neither party shall use said Confidential Information for any purpose other than those purposes specified in this Agreement. The parties may disclose Confidential Information to employees requiring access thereto for the purposes of this Agreement provided, however, that prior to making any such disclosures each such employee shall be apprised of the duty and obligation to maintain Confidential Information in confidence and not to use such information for any purpose other than in accordance with the terms and conditions of this Agreement. Neither party will be held financially liable for any inadvertent disclosure, but each will agree to use its reasonable efforts not to disclose any Confidential Information. These obligations of confidentiality and non-use shall not apply to Confidential Information which:

- a. is in the public domain by use and/or publication before its receipt from the disclosing party, or thereafter enter the public domain through no fault of the receiving party;
- b. was already in the receiving party's possession prior to receipt from the disclosing party, as evidenced by the receiving party's written records;
- c. is properly obtained by the receiving party from a third party which has a valid right to disclose such information to the receiving party and is not under a confidentiality obligation to the disclosing party; or
- d. is developed independently by the receiving party without knowledge of the information provided by the disclosing party.

In addition, the receiving party may disclose Confidential Information if required by law, government regulation, or court order, provided that the disclosing party is promptly notified in writing in advance of any such requirement so that it has an opportunity to oppose or limit such disclosure.

10. Publication and Rights to Data

NYBC recognizes that results of the Project must be publishable by Subcontractor and agrees that researchers engaged in Project shall be permitted to present at symposia, national or regional professional meetings and to publish in journals, theses or dissertations, or otherwise of their own choosing, methods and results of Project. Subcontractor shall have the final authority to determine the scope and content of any publication; provided, however, that Subcontractor shall provide copies of any proposed publication at least thirty (30) days in advance of the publication or presentation to NYBC to review and object to such publication or presentation because such draft either contains information deemed to be Confidential Information under the provisions of this Agreement, or reveals information that if published within thirty (30) days would have an adverse effect on a patent application in which NYBC owns full or part interest, or intends to obtain an interest from Subcontractor pursuant to this Agreement. In the event that NYBC notifies the Subcontractor in writing that the proposed publication or presentation contains NYBC's Confidential Information, Subcontractor shall remove any NYBC Confidential Information from the draft prior to such publication or presentation. In the event NYBC requests in writing a delay in publication to

file for patent protection, Subcontractor and the Researcher shall refrain from making such publication or presentation for a maximum of ninety (90) days from the receipt of such objection, and NYBC shall indicate with specificity to what manner and degree Subcontractor may disclose said information during the ninety (90) day period.

Publication by either party to this Agreement shall give proper credit to the other party for the cooperative character of the investigation. No commercial brands or trade names shall appear in the publication of the results except as such brand or trade name is essential in the description of the research.

11. Publicity

Subcontractor and NYBC shall not use, expressly or by implication, the name(s) or trademark(s) of the other party or its staff in any news release, publicity, policy recommendation, advertising or commercial communication without the prior written approval of the other party.

12. Patent Rights

Patents and inventions shall be treated in accordance with P.L. 96-517, as amended, 35 U.S.C., Chapter 18, entitled "**Patent Rights in Inventions Made with Federal Assistance**," the government-wide implementing regulations in 37 C.F.R. Part 401, and Appendix 9 from the PHS Grants Policy Statement. Subcontractor warrants that it has in place a patent policy that complies with the provisions of federal law.

Under federal law, NYBC, as the Grantee, is required to notify NIH of any inventions developed with NIH grant funds. To permit NYBC to discharge this responsibility, Subcontractor agrees to and shall within 30 calendar days of learning that an invention had been conceived of by its employees or agents with funds made available under the Prime Grant or this Agreement (i) notify NYBC in writing of such invention and (ii) provide NYBC with such information about the invention so as to enable NYBC to fully notify NIH.

Any inventions created as a result of the work performed under this Agreement shall remain the property of the originating party; provided, however, that if such an invention is conceived of by at least one employee of the Subcontractor and no employee of NYBC is an inventor, then the Subcontractor shall grant to NYBC a non-exclusive, worldwide, royalty-free fully paid-up license to practice the inventions solely for NYBC's to meet its obligations under the Prime Grant, excluding rights to Subcontractor background intellectual property.

In the event of joint inventions, NYBC and Subcontractor shall establish their respective rights pursuant to good faith negotiations between them. The parties agree to consult with one another prior to taking any action to obtain patent protection of joint inventions and shall agree upon the patent filing and prosecution strategy of any joint invention. Subject to the terms of the Prime Grant, the parties agree to cooperate to utilize and exploit any joint invention. Neither party has any right to utilize or exploit any joint invention without the express written permission of the other party, which shall not be unreasonably withheld. Nothing in this paragraph shall alter the rights of the Government under federal law including without limitation rights in patents, technical data, computer software, copyrights and other intellectual property.

Each party shall promptly disclose to the other party in writing any subject invention of which that party becomes aware during the Term or afterwards.

13. Indemnification

Each party shall be responsible for claims, losses, damages and expenses which are proximately caused by the negligent acts or omissions of that party or its agents, employees or representatives acting within the scope of their duties. The liability of the University of Minnesota is as set out in chapter 3.736 of the Minnesota Statutes and subject to the limitations therein. Nothing herein shall be construed to limit either party from asserting against third parties any defenses or immunities (including common law, statutory and constitutional) it may have or be construed to create a basis for a claim or suit when none would otherwise exist.

14. Insurance

The parties agree to maintain coverage for workmen's compensation, as required by applicable state law, and comprehensive general liability insurance and employer's liability insurance. The University of Minnesota is self-insured and carries the statutory required level of insurance.

15. Equal Opportunity

Subcontractor will comply with all applicable federal laws regarding equal opportunity in employment, including without limitation Title VI of the Civil Rights Act of 1964; Executive Order 11246; and Section 504 of the Rehabilitation Act of 1973; as each may be amended.

16. Drug-Free Workplace Requirements

Subcontractor certifies that it will carry out the provisions relating to maintaining a drug-free workplace as required by 45 C.F.R. Part 76, subpart F.

17. Assignment

This Agreement is not assignable without the written consent of both parties. Any such attempted assignment shall be void and of no legal effect.

18. Termination

This Agreement may be terminated as follows: (i) Either party may terminate with cause upon thirty (30) days written notice; or (ii) NYBC may terminate, effective on the date Subcontractor receives written notice, if the Prime Grant terminates. Upon its issuance or receipt of a termination notice, Subcontractor shall cancel as many outstanding obligations as possible, work shall stop, and Subcontractor shall not incur new obligations after the effective date of termination.

At the conclusion of the Agreement, Subcontractor shall deliver to NYBC copies of all work, materials and data produced or acquired under this Agreement. NYBC shall pay Subcontractor for costs incurred and/or irrevocably obligated prior to the effective date of termination in accordance with the applicable termination cost principle. In the event of termination by NYBC for Subcontractor's failure to perform, NYBC may proceed with the work in any manner deemed proper by NYBC.

19. Independent Contractor Status

The relationship between the parties under this Agreement is that of independent contractors. Neither party is authorized or permitted to act as an agent or employee of the other. Neither party, by virtue of this Agreement, assumes any liability for any debts or obligations incurred by the other party to this Agreement.

20. Scientific Misconduct Certification

Subcontractor certifies that it has in place procedures for responding to allegations of **“misconduct in science”**.

In the event that Subcontractor learns of an allegation that any of its employees or agents, or any of the employees or agents of any lower-tier subcontractor performing work under this Agreement, has engaged in **“misconduct in science”** with respect to such work, Subcontractor shall immediately notify NYBC of such allegation and shall provide NYBC, NIH, or the Office of Research Integrity (**“ORI”**) with such information as each may request concerning said allegation.

Upon learning of an allegation of misconduct in science, as described above, Subcontractor shall immediately undertake an **“inquiry,”** and if warranted, an **“investigation”**. Subcontractor shall immediately notify NYBC of the results of any such inquiry and investigation and shall provide NYBC with any reports prepared by Subcontractor concerning the inquiry or investigation, as the case may be. In the event that the matter proceeds to an investigation, Subcontractor shall also advise ORI that Subcontractor intends to undertake such an investigation.

21. Physician Payment Sunshine Provisions

Subcontractor understands and acknowledges that, in accordance with the Physician Payment Sunshine Provision of the Patient Protection and Affordable Care Act of 2010 (**“PPACA”**), Section 6002, and all implementing regulations, NYBC is required to report to the Secretary of Health and Human Services for public disclosure all covered payments and transfers of value made under this Agreement from NYBC to Subcontractor if Subcontractor is a physician currently licensed to practice in the United States or is a teaching hospital, as defined by the PPACA and its implementing regulations (**“Covered Recipient”**). Such information required to be reported shall include the name and address of the Covered Recipient, the amount of the payment or transfer of value, the date of the payment or transfer of value, the nature and form of the payment or transfer of value, and, if the payment or transfer of value is related to research specific to a covered drug, device, biological or medical supply, the name of that covered drug, device, biological or medical supply.

22. Animal Welfare Certification

If the grant application proposes research involving the care and use of animals, under federal law, each institution at which such research is to be conducted should have on file with OPRR an **“Assurance of Compliance with PHS Policy on Humane Care and Use of Laboratory Animals”** acceptable to OPRR which among other things describes the institution’s program for animal care and use and which acknowledges that the institution has in place an Institutional Animal Care and Use Committee (**“IACUC”**).

In the event that there are animals involved in the proposed research which will be maintained under the aegis of Subcontractor, Subcontractor certifies that it has on file with OPRR an approved **“Assurance of Compliance with PHS Policy on Human Care and Use of Laboratory Animals”** and further certifies that its IACUC approved those aspects of the grant application involving the care or use of animals. Subcontractor further agrees to take such actions as may be required to ensure the humane treatment of laboratory animals and to comply fully with the requirements of both the PHS Policy on Humane Care and Use of Laboratory Animals and 9 C.F.R. Part 2.

23. Significant Financial Interest and Financial Conflict of Interest Certification

Subcontractor certifies that it is in compliance with all the requirements of 42 C.F.R. Part 50, Subpart F and 45 C.F.R. Part 94, related to identifying, reporting and managing Significant Financial Interests and Financial Conflicts of Interest.

Subcontractor certifies that none of the investigators or other personnel responsible for the design, conduct or reporting of the research relevant to the Prime Grant or Research Project, nor any spouse, domestic partner or dependent child of such individual, has any Significant Financial Interest or Financial Conflict of Interest as defined in the above-referenced regulations.

In the event Subcontractor learns of any Significant Financial Interest or Financial Conflict of Interest, Subcontractor shall immediately notify NYBC of such and shall provide NYBC with any information it may request concerning such Significant Financial Interest or Financial Conflict of Interest. Subcontractor shall further undertake all measures required under the above-referenced regulations to properly report and manage the identified Significant Financial Interest or Financial Conflict of Interest.

24. Other Certifications

Acceptance of this Agreement constitutes certification that Subcontractor is not presently debarred, suspended, proposed for disbarment, declared ineligible or voluntarily excluded from covered transactions by any federal department or agency.

Acceptance of this Agreement constitutes certification that Subcontractor is not delinquent on any federal debt.

Acceptance of this Agreement constitutes certification that to the best of signatory's knowledge and belief:

(1) No federal appropriated funds have been paid or will be paid, by or on behalf of Subcontractor, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any federal contract, the making of any federal grant, the making of any federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any federal contract, grant, loan, or cooperative agreement.

(2) If funds other than federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress in connection with this federal contract, grant loan, or cooperative agreement, Subcontractor shall complete and submit Standard Form - LLL, "**Disclosure Form to Report Lobbying,**" in accordance with its instructions.

(3) Subcontractor shall require that the language of this certification be included in the award documents for all sub-awards at all tiers (including subcontracts, sub-grants, and contracts under grants, loans, and cooperative agreements) and that all sub-recipients shall certify and disclose accordingly.

Subcontractor agrees to notify NYBC immediately if there is any change of status in the certifications above or other certifications or assurances required under law or by this Agreement.

25. Record Retention

As required by 45 CFR § 74.53, the Subcontractor agrees to retain for the "retention period" all records related in any way to the work performed under this Agreement. The retention period is three (3) years after the later of (i) receipt of final payment under this Agreement or (ii) all pending matters are closed. Provided, however, if an audit, administrative action, investigation, litigation or other action is commenced during the retention period, the records must be retained by the Subcontractor until all issues arising out of the action are fully and finally resolved or until the end of the normal retention period,

whichever is later. This provision shall be included in any agreement between Subcontractor and a lower-tier subcontractor or subgrantee to perform work under this Agreement.

26. Choice of Law; Jurisdiction

Intentionally omitted.

27. Force Majeure

With the exception of payment to Subcontractor for work performed under this Agreement, the parties shall be excused from any performance required under this Agreement if performance is impossible or unfeasible due to any event beyond their reasonable control, including without limitation war, riot or insurrection; government action or inaction; lockouts or other serious labor disputes; or floods, fires, explosions, or other natural disasters. When such events abate, and in any event within one year, the parties' respective obligations will resume.

28. Severability

Each clause of this Agreement is a distinct and severable clause and if any clause is deemed illegal, void or unenforceable, the validity, legality or enforceability of any other clause or portion of this Agreement will not be affected.

29. Counterparts

This Agreement may be executed in one or more counterparts, all of which taken together shall constitute one original.

30. Titles

All titles and article headings contained in this Agreement are inserted only as a matter of convenience and reference. They do not define, limit, extend or describe the scope of this Agreement or the intent of any of its provisions.

31. Entire Agreement

This Agreement, together with any and all attachments incorporated by reference, constitutes the full and complete understanding of the parties regarding the subject matter hereof. No modification or alteration of or addition to this Agreement shall be effective to bind the parties hereto unless it shall be in writing and signed by authorized representatives of the parties.

IN WITNESS WHEREOF, the authorized officers of the respective parties do hereby set their hand.

NEW YORK BLOOD CENTER, INC.
New York, New York



Signed

UNIVERSITY OF MINNESOTA
Minneapolis, MN



Signed

Barry A. Greene, M.P.A
Name

Executive Director,
Office of Sponsored Programs
Title

11/26/18
Date

Brett Carlson
Name

Sr. Grant & Contract Administrator
Title

11-2-18
Date

SCOPE OF WORK- University of Minnesota
Structure-based design of coronavirus subunit vaccines

Dr. Fang Li's group will be responsible for designing novel [REDACTED] vaccines against MERS-CoV and SARS-CoV. The innovative strategies that we will use include: (i) identify, characterize, and overcome [REDACTED] (ii) develop and apply a novel concept of [REDACTED] for evaluation of the contribution of [REDACTED] [REDACTED] (iii) to use the above concepts to design highly effective RBD vaccines against highly pathogenic coronaviruses.

This Workspace form is one of the forms you need to complete prior to submitting your Application Package. This form can be completed in its entirety offline using Adobe Reader. You can save your form by clicking the "Save" button and see any errors by clicking the "Check For Errors" button. In-progress and completed forms can be uploaded at any time to Grants.gov using the Workspace feature.

When you open a form, required fields are highlighted in yellow with a red border. Optional fields and completed fields are displayed in white. If you enter invalid or incomplete information in a field, you will receive an error message. Additional instructions and FAQs about the Application Package can be found in the Grants.gov Applicants tab.

OPPORTUNITY & PACKAGE DETAILS:

| | |
|-------------------------|--|
| Opportunity Number: | PA-16-160 |
| Opportunity Title: | NIH Research Project Grant (Parent R01) |
| Opportunity Package ID: | PKG00222267 |
| CFDA Number: | |
| CFDA Description: | |
| Competition ID: | FORMS-D |
| Competition Title: | Use for due dates on or after May 25, 2016 |
| Opening Date: | 04/17/2016 |
| Closing Date: | 05/07/2019 |
| Agency: | National Institutes of Health |
| Contact Information: | eRA Service Desk Monday to Friday 7 am to 8 pm ET http://grants.nih.gov/support/ |

APPLICANT & WORKSPACE DETAILS:

| | |
|--------------------------|--|
| Workspace ID: | WS00065439 |
| Application Filing Name: | Du R01 10.5.17 |
| DUNS: | 0732718270000 |
| Organization: | NEW YORK BLOOD CENTER, INC., THE |
| Form Name: | R & R Subaward Budget Attachment(s) Form 5 YR 30 ATT |
| Form Version: | 1.3 |
| Subform Name: | Subcontract Budget |
| Requirement: | Optional |
| Download Date/Time: | Aug 25, 2017 02:50:33 PM EDT |
| Form State: | No Errors |

FORM ACTIONS:

RESEARCH & RELATED BUDGET - Budget Period 1

OMB Number: 4040-0001
Expiration Date: 6/30/2016

ORGANIZATIONAL DUNS: **Enter name of Organization:**

Budget Type: Project Subaward/Consortium **Budget Period: 1** **Start Date:** **End Date:**

A. Senior/Key Person

| Prefix | First | Middle | Last | Suffix | Base Salary (\$) | Months | | | Requested Salary (\$) | Fringe Benefits (\$) | Funds Requested (\$) |
|---|-------|--------|------|--------|------------------|--------|-------|------|-----------------------|----------------------|----------------------|
| | | | | | | Cal. | Acad. | Sum. | | | |
| | Fang | | Li | | 130,000.00 | 1.20 | | | 13,000.00 | 4,355.00 | 17,355.00 |
| Project Role: <input type="text" value="PD/P1"/> | | | | | | | | | | | |

Additional Senior Key Persons: **Total Funds requested for all Senior Key Persons in the attached file**

Total Senior/Key Person

B. Other Personnel

| Number of Personnel | Project Role | Months | | | Requested Salary (\$) | Fringe Benefits (\$) | Funds Requested (\$) |
|---------------------|--------------------------|--------|-------|------|-----------------------|----------------------|----------------------|
| | | Cal. | Acad. | Sum. | | | |
| 1 | Post Doctoral Associates | 12.00 | | | 47,476.00 | 10,160.00 | 57,636.00 |
| | Graduate Students | | | | | | |
| | Undergraduate Students | | | | | | |
| | Secretarial/Clerical | | | | | | |
| | | | | | | | |

Total Number Other Personnel **Total Other Personnel**

Total Salary, Wages and Fringe Benefits (A+B)

C. Equipment Description

List items and dollar amount for each item exceeding \$5,000

| Equipment Item | Funds Requested (\$) |
|----------------------|----------------------|
| <input type="text"/> | <input type="text"/> |

Additional Equipment:

Total funds requested for all equipment listed in the attached file
Total Equipment

D. Travel

| | Funds Requested (\$) |
|--|---------------------------------------|
| 1. Domestic Travel Costs (Incl. Canada, Mexico and U S Possessions) | <input type="text" value="2,000.00"/> |
| 2. Foreign Travel Costs | <input type="text"/> |
| Total Travel Cost | <input type="text" value="2,000.00"/> |

E. Participant/Trainee Support Costs

| | Funds Requested (\$) |
|--|--|
| 1. Tuition/Fees/Health Insurance | <input type="text"/> |
| 2. Stipends | <input type="text"/> |
| 3. Travel | <input type="text"/> |
| 4. Subsistence | <input type="text"/> |
| 5. Other <input type="text"/> | <input type="text"/> |
| <input type="text"/> Number of Participants/Trainees | Total Participant/Trainee Support Costs <input type="text"/> |

| F. Other Direct Costs | | Funds Requested (\$) |
|---|--|-----------------------------|
| 1. Materials and Supplies | | 38,009.00 |
| 2. Publication Costs | | 2,000.00 |
| 3. Consultant Services | | |
| 4. ADP/Computer Services | | |
| 5. Subawards/Consortium/Contractual Costs | | |
| 6. Equipment or Facility Rental/User Fees | | 3,000.00 |
| 7. Alterations and Renovations | | |
| 8. | | |
| 9. | | |
| 10. | | |
| Total Other Direct Costs | | 43,009.00 |

| G. Direct Costs | Funds Requested (\$) |
|--------------------------------------|-----------------------------|
| Total Direct Costs (A thru F) | 120,000.00 |

| H. Indirect Costs | | | |
|-----------------------------|------------------------|-------------------------|----------------------|
| Indirect Cost Type | Indirect Cost Rate (%) | Indirect Cost Base (\$) | Funds Requested (\$) |
| MTIC | 54.00 | 120,000.00 | 64,600.00 |
| Total Indirect Costs | | | 64,600.00 |

Cognizant Federal Agency (Agency Name, POC Name, and POC Phone Number)

| I. Total Direct and Indirect Costs | Funds Requested (\$) |
|--|-----------------------------|
| Total Direct and Indirect Institutional Costs (G + H) | 184,600.00 |

| J. Fee | Funds Requested (\$) |
|---------------|-----------------------------|
| | |

K. Budget Justification

(Only attach one file)

RESEARCH & RELATED BUDGET - Budget Period 2

OMB Number: 4040-0001
Expiration Date: 6/30/2016

ORGANIZATIONAL DUNS: 5559179960000

Enter name of Organization: Regents of the University of Minnesota

Budget Type: Project Subaward/Consortium

Budget Period: 2 Start Date: 07/01/2019 End Date: 06/30/2020

A. Senior/Key Person

| Prefix | First | Middle | Last | Suffix | Base Salary (\$) | Months | | Requested Salary (\$) | Fringe Benefits (\$) | Funds Requested (\$) |
|--------|-------|--------|------|--------|------------------|--------|------------|-----------------------|----------------------|----------------------|
| | | | | | | Cal. | Acad. Sum. | | | |
| | Fang | | Li | | 132,600.00 | 1.20 | | 13,260.00 | 4,442.00 | 17,702.00 |

Project Role: PD/P1

Additional Senior Key Persons: Total Funds requested for all Senior Key Persons in the attached file
Total Senior/Key Person 17,702.00

B. Other Personnel

| Number of Personnel | Project Role | Months | | | Requested Salary (\$) | Fringe Benefits (\$) | Funds Requested (\$) |
|--------------------------------|--------------------------|--------|-------|------|-----------------------|----------------------|----------------------|
| | | Cal. | Acad. | Sum. | | | |
| <input type="text" value="1"/> | Post Doctoral Associates | 12.00 | | | 48,426.00 | 10,363.00 | 58,789.00 |
| <input type="text"/> | Graduate Students | | | | | | |
| <input type="text"/> | Undergraduate Students | | | | | | |
| <input type="text"/> | Secretarial/Clerical | | | | | | |
| <input type="text"/> | | | | | | | |

Total Number Other Personnel 58,789.00
Total Salary, Wages and Fringe Benefits (A+B) 76,491.00

C. Equipment Description

List items and dollar amount for each item exceeding \$5,000

| Equipment Item | Funds Requested (\$) |
|----------------------|----------------------|
| <input type="text"/> | <input type="text"/> |

Additional Equipment:

Total funds requested for all equipment listed in the attached file
Total Equipment

D. Travel

| | Funds Requested (\$) |
|---|---------------------------------------|
| 1. Domestic Travel Costs (Incl. Canada, Mexico and U.S. Possessions) | <input type="text" value="2,000.00"/> |
| 2. Foreign Travel Costs | <input type="text"/> |
| Total Travel Cost | <input type="text" value="2,000.00"/> |

E. Participant/Trainee Support Costs

| | Funds Requested (\$) |
|--|--|
| 1. Tuition/Fees/Health Insurance | <input type="text"/> |
| 2. Stipends | <input type="text"/> |
| 3. Travel | <input type="text"/> |
| 4. Subsistence | <input type="text"/> |
| 5. Other <input type="text"/> | <input type="text"/> |
| <input type="text"/> Number of Participants/Trainees | Total Participant/Trainee Support Costs <input type="text"/> |

| F. Other Direct Costs | | Funds Requested (\$) |
|---|--|----------------------|
| 1. Materials and Supplies | | 36,509.00 |
| 2. Publication Costs | | 2,000.00 |
| 3. Consultant Services | | |
| 4. ADP/Computer Services | | |
| 5. Subawards/Consortium/Contractual Costs | | |
| 6. Equipment or Facility Rental/User Fees | | 3,000.00 |
| 7. Alterations and Renovations | | |
| 8. | | |
| 9. | | |
| 10. | | |
| Total Other Direct Costs | | 41,509.00 |

| G. Direct Costs | Funds Requested (\$) |
|--------------------------------------|----------------------|
| Total Direct Costs (A thru F) | 120,000.00 |

| H. Indirect Costs | | | |
|-----------------------------|------------------------|-------------------------|----------------------|
| Indirect Cost Type | Indirect Cost Rate (%) | Indirect Cost Base (\$) | Funds Requested (\$) |
| MTDC | 54.00 | 120,000.00 | 64,800.00 |
| Total Indirect Costs | | | 64,800.00 |

Cognizant Federal Agency (Agency Name, POC Name, and POC Phone Number)

| I. Total Direct and Indirect Costs | Funds Requested (\$) |
|--|----------------------|
| Total Direct and Indirect Institutional Costs (G + H) | 184,800.00 |

| J. Fee | Funds Requested (\$) |
|--------|----------------------|
| | |

K. Budget Justification

(Only attach one file)

RESEARCH & RELATED BUDGET - Budget Period 3

OMB Number: 4040-0001
Expiration Date: 6/30/2016

ORGANIZATIONAL DUNS: 5559173960000

Enter name of Organization: Regents of the University of Minnesota

Budget Type: Project Subaward/Consortium

Budget Period: 3 Start Date: 07/01/2020 End Date: 06/30/2021

A. Senior/Key Person

| Prefix | First | Middle | Last | Suffix | Base Salary (\$) | Months | | | Requested Salary (\$) | Fringe Benefits (\$) | Funds Requested (\$) |
|---------------------|-------|--------|------|--------|------------------|--------|-------|------|-----------------------|----------------------|----------------------|
| | | | | | | Cal. | Acad. | Sum. | | | |
| | Fang | | Li | | 135,252.00 | 1.20 | | | 13,525.00 | 4,531.00 | 18,056.00 |
| Project Role: PD/PI | | | | | | | | | | | |

Additional Senior Key Persons: Total Funds requested for all Senior Key Persons in the attached file
Total Senior/Key Person 18,056.00

B. Other Personnel

| Number of Personnel | Project Role | Months | | | Requested Salary (\$) | Fringe Benefits (\$) | Funds Requested (\$) |
|---------------------|--------------------------|--------|-------|------|-----------------------|----------------------|----------------------|
| | | Cal. | Acad. | Sum. | | | |
| 1 | Post Doctoral Associates | 12.00 | | | 49,394.00 | 10,570.00 | 59,964.00 |
| | Graduate Students | | | | | | |
| | Undergraduate Students | | | | | | |
| | Secretarial/Clerical | | | | | | |
| | | | | | | | |

1 Total Number Other Personnel 59,964.00
Total Salary, Wages and Fringe Benefits (A+B) 78,020.00

C. Equipment Description

List items and dollar amount for each item exceeding \$5,000

| Equipment Item | Funds Requested (\$) |
|----------------------|----------------------|
| <input type="text"/> | <input type="text"/> |

Additional Equipment:

Total funds requested for all equipment listed in the attached file
Total Equipment

D. Travel

| | Funds Requested (\$) |
|---|---------------------------------------|
| 1. Domestic Travel Costs (Incl. Canada, Mexico and U.S. Possessions) | <input type="text" value="2,000.00"/> |
| 2. Foreign Travel Costs | <input type="text"/> |
| Total Travel Cost | <input type="text" value="2,000.00"/> |

E. Participant/Trainee Support Costs

| | Funds Requested (\$) |
|--|--|
| 1. Tuition/Fees/Health Insurance | <input type="text"/> |
| 2. Stipends | <input type="text"/> |
| 3. Travel | <input type="text"/> |
| 4. Subsistence | <input type="text"/> |
| 5. Other <input type="text"/> | <input type="text"/> |
| <input type="text"/> Number of Participants/Trainees | Total Participant/Trainee Support Costs <input type="text"/> |

| F. Other Direct Costs | | Funds Requested (\$) |
|---|--|-----------------------------|
| 1. Materials and Supplies | | 34,980.00 |
| 2. Publication Costs | | 2,000.00 |
| 3. Consultant Services | | |
| 4. ADP/Computer Services | | |
| 5. Subawards/Consortium/Contractual Costs | | |
| 6. Equipment or Facility Rental/User Fees | | 3,000.00 |
| 7. Alterations and Renovations | | |
| 8. | | |
| 9. | | |
| 10. | | |
| Total Other Direct Costs | | 39,980.00 |

| G. Direct Costs | Funds Requested (\$) |
|--------------------------------------|-----------------------------|
| Total Direct Costs (A thru F) | 120,000.00 |

| H. Indirect Costs | | | |
|-----------------------------|------------------------|-------------------------|----------------------|
| Indirect Cost Type | Indirect Cost Rate (%) | Indirect Cost Base (\$) | Funds Requested (\$) |
| MTDC | 54.00 | 120,000.00 | 64,800.00 |
| Total Indirect Costs | | | 64,800.00 |

Cognizant Federal Agency (Agency Name, POC Name, and POC Phone Number)

| I. Total Direct and Indirect Costs | Funds Requested (\$) |
|--|-----------------------------|
| Total Direct and Indirect Institutional Costs (G + H) | 184,800.00 |

| J. Fee | Funds Requested (\$) |
|---------------|-----------------------------|
| | |

K. Budget Justification

(Only attach one file)

RESEARCH & RELATED BUDGET - Budget Period 4

OMB Number: 4040-0001
Expiration Date: 6/30/2016

ORGANIZATIONAL DUNS:

Enter name of Organization:

Budget Type: Project Subaward/Consortium

Budget Period: 4 Start Date: End Date:

A. Senior/Key Person

| Prefix | First | Middle | Last | Suffix | Base Salary (\$) | Months | | | Requested Salary (\$) | Fringe Benefits (\$) | Funds Requested (\$) |
|--------|-------|--------|------|--------|------------------|--------|-------|------|-----------------------|----------------------|----------------------|
| | | | | | | Cal. | Acad. | Sum. | | | |
| | Fang | | Li | | 137,957.00 | 1.20 | | | 13,796.00 | 4,622.00 | 18,418.00 |

Project Role:

Additional Senior Key Persons: Total Funds requested for all Senior Key Persons in the attached file:
Total Senior/Key Person:

B. Other Personnel

| Number of Personnel | Project Role | Months | | | Requested Salary (\$) | Fringe Benefits (\$) | Funds Requested (\$) |
|--------------------------------|--------------------------|--------|-------|------|-----------------------|----------------------|----------------------|
| | | Cal. | Acad. | Sum. | | | |
| <input type="text" value="1"/> | Post Doctoral Associates | 12.00 | | | 50,382.00 | 10,791.00 | 61,163.00 |
| <input type="text"/> | Graduate Students | | | | | | |
| <input type="text"/> | Undergraduate Students | | | | | | |
| <input type="text"/> | Secretarial/Clerical | | | | | | |
| <input type="text"/> | | | | | | | |

Total Number Other Personnel: Total Other Personnel:
Total Salary, Wages and Fringe Benefits (A+B):

C. Equipment Description

List items and dollar amount for each item exceeding \$5,000

| Equipment Item | Funds Requested (\$) |
|----------------------|----------------------|
| <input type="text"/> | <input type="text"/> |

Additional Equipment:

Total funds requested for all equipment listed in the attached file
Total Equipment

| D. Travel | Funds Requested (\$) |
|---|---------------------------------------|
| 1. Domestic Travel Costs (Incl. Canada, Mexico and U.S. Possessions) | <input type="text" value="2,000.00"/> |
| 2. Foreign Travel Costs | <input type="text"/> |
| Total Travel Cost | <input type="text" value="2,000.00"/> |

| E. Participant/Trainee Support Costs | Funds Requested (\$) |
|--|----------------------|
| 1. Tuition/Fees/Health Insurance | <input type="text"/> |
| 2. Stipends | <input type="text"/> |
| 3. Travel | <input type="text"/> |
| 4. Subsistence | <input type="text"/> |
| 5. Other <input type="text"/> | <input type="text"/> |
| <input type="text"/> Number of Participants/Trainees | <input type="text"/> |
| Total Participant/Trainee Support Costs | <input type="text"/> |

| F. Other Direct Costs | | Funds Requested (\$) |
|---|--|----------------------|
| 1. Materials and Supplies | | 33,419.00 |
| 2. Publication Costs | | 2,000.00 |
| 3. Consultant Services | | |
| 4. ADP/Computer Services | | |
| 5. Subawards/Consortium/Contractual Costs | | |
| 6. Equipment or Facility Rental/User Fees | | 3,000.00 |
| 7. Alterations and Renovations | | |
| 8. | | |
| 9. | | |
| 10. | | |
| Total Other Direct Costs | | 38,419.00 |

| G. Direct Costs | Funds Requested (\$) |
|--------------------------------------|----------------------|
| Total Direct Costs (A thru F) | 120,000.00 |

| H. Indirect Costs | | | |
|-----------------------------|------------------------|-------------------------|----------------------|
| Indirect Cost Type | Indirect Cost Rate (%) | Indirect Cost Base (\$) | Funds Requested (\$) |
| MTDC | 54.00 | 120,000.00 | 64,800.00 |
| Total Indirect Costs | | | 64,800.00 |

Cognizant Federal Agency (Agency Name, POC Name, and POC Phone Number)

| I. Total Direct and Indirect Costs | Funds Requested (\$) |
|--|----------------------|
| Total Direct and Indirect Institutional Costs (G + H) | 184,800.00 |

| J. Fee | Funds Requested (\$) |
|--------|----------------------|
| | |

K. Budget Justification

(Only attach one file)

RESEARCH & RELATED BUDGET - Budget Period 5

OMB Number: 4040-0001
Expiration Date: 6/30/2016

ORGANIZATIONAL DUNS: 5559179960000

Enter name of Organization: Regents of the University of Minnesota

Budget Type: Project Subaward/Consortium

Budget Period: 5 Start Date: 07/01/2022 End Date: 06/30/2023

A. Senior/Key Person

| Prefix | First | Middle | Last | Suffix | Base Salary (\$) | Months | | | Requested Salary (\$) | Fringe Benefits (\$) | Funds Requested (\$) |
|--------|-------|--------|------|--------|------------------|--------|-------|------|-----------------------|----------------------|----------------------|
| | | | | | | Cal. | Acad. | Sum. | | | |
| | Fang | | Li | | 140,716.00 | 1.20 | | | 14,072.00 | 4,714.00 | 18,786.00 |

Project Role: PD/PI

Additional Senior Key Persons: Total Funds requested for all Senior Key Persons in the attached file
Total Senior/Key Person

B. Other Personnel

| Number of Personnel | Project Role | Months | | | Requested Salary (\$) | Fringe Benefits (\$) | Funds Requested (\$) |
|--------------------------------|--------------------------|--------|-------|------|-----------------------|----------------------|----------------------|
| | | Cal. | Acad. | Sum. | | | |
| <input type="text" value="1"/> | Post Doctoral Associates | 12.00 | | | 51,390.00 | 10,997.00 | 62,387.00 |
| <input type="text"/> | Graduate Students | | | | | | |
| <input type="text"/> | Undergraduate Students | | | | | | |
| <input type="text"/> | Secretarial/Clerical | | | | | | |
| <input type="text"/> | | | | | | | |

Total Number Other Personnel
Total Other Personnel
Total Salary, Wages and Fringe Benefits (A+B)

C. Equipment Description

List items and dollar amount for each item exceeding \$5,000

| Equipment Item | Funds Requested (\$) |
|----------------------|----------------------|
| <input type="text"/> | <input type="text"/> |

Additional Equipment:

Total funds requested for all equipment listed in the attached file
Total Equipment

D. Travel

Funds Requested (\$)

| | |
|--|---------------------------------------|
| 1. Domestic Travel Costs (incl. Canada, Mexico and U.S. Possessions) | <input type="text" value="2,000.00"/> |
| 2. Foreign Travel Costs | <input type="text"/> |
| Total Travel Cost | <input type="text" value="2,000.00"/> |

E. Participant/Trainee Support Costs

Funds Requested (\$)

| | |
|--|--|
| 1. Tuition/Fees/Health Insurance | <input type="text"/> |
| 2. Stipends | <input type="text"/> |
| 3. Travel | <input type="text"/> |
| 4. Subsistence | <input type="text"/> |
| 5. Other <input type="text"/> | <input type="text"/> |
| <input type="text"/> Number of Participants/Trainees | Total Participant/Trainee Support Costs <input type="text"/> |

| F. Other Direct Costs | | Funds Requested (\$) |
|---|--|-----------------------------|
| 1. Materials and Supplies | | 31,827.00 |
| 2. Publication Costs | | 2,000.00 |
| 3. Consultant Services | | |
| 4. ADP/Computer Services | | |
| 5. Subawards/Consortium/Contractual Costs | | |
| 6. Equipment or Facility Rental/User Fees | | 3,000.00 |
| 7. Alterations and Renovations | | |
| 8. <input type="text"/> | | |
| 9. <input type="text"/> | | |
| 10. <input type="text"/> | | |
| Total Other Direct Costs | | 36,827.00 |

| G. Direct Costs | Funds Requested (\$) |
|--------------------------------------|-----------------------------|
| Total Direct Costs (A thru F) | 120,000.00 |

| H. Indirect Costs | | | |
|-----------------------------|-------------------------------|--------------------------------|-----------------------------|
| Indirect Cost Type | Indirect Cost Rate (%) | Indirect Cost Base (\$) | Funds Requested (\$) |
| MTDC | 54.00 | 120,000.00 | 64,800.00 |
| Total Indirect Costs | | | 64,800.00 |

Cognizant Federal Agency
 (Agency Name, POC Name, and POC Phone Number)

| I. Total Direct and Indirect Costs | Funds Requested (\$) |
|--|-----------------------------|
| Total Direct and Indirect Institutional Costs (G + H) | 184,800.00 |

| J. Fee | Funds Requested (\$) |
|---------------|-----------------------------|
| | |

K. Budget Justification

(Only attach one file)

RESEARCH & RELATED BUDGET - Cumulative Budget

| | Totals (\$) | |
|---|--------------------|------------|
| Section A, Senior/Key Person | | 90,317.00 |
| Section B, Other Personnel | | 299,935.00 |
| Total Number Other Personnel | 5 | |
| Total Salary, Wages and Fringe Benefits (A+B) | | 390,256.00 |
| Section C, Equipment | | |
| Section D, Travel | | 10,000.00 |
| 1. Domestic | 10,000.00 | |
| 2. Foreign | | |
| Section E, Participant/Trainee Support Costs | | |
| 1. Tuition/Fees/Health Insurance | | |
| 2. Stipends | | |
| 3. Travel | | |
| 4. Subsistence | | |
| 5. Other | | |
| 6. Number of Participants/Trainees | | |
| Section F, Other Direct Costs | | 199,744.00 |
| 1. Materials and Supplies | 174,744.00 | |
| 2. Publication Costs | 10,000.00 | |
| 3. Consultant Services | | |
| 4. ADP/Computer Services | | |
| 5. Subawards/Consortium/Contractual Costs | | |
| 6. Equipment or Facility Rental/User Fees | 15,000.00 | |
| 7. Alterations and Renovations | | |
| 8. Other 1 | | |
| 9. Other 2 | | |
| 10. Other 3 | | |
| Section G, Direct Costs (A thru F) | | 600,000.00 |
| Section H, Indirect Costs | | 323,800.00 |
| Section I, Total Direct and Indirect Costs (G + H) | | 923,800.00 |
| Section J, Fee | | |

Budget justification

Personnel Justification

Fang Li, PhD, Principal Investigator (1.2 calendar months), 10% effort, will be responsible for laboratory management and supervision of the projects, including experimental design, execution, data analysis, and write-up.

One Postdoctoral Scientist (To be named) (12.00 calendar months), 100% effort, will be responsible for the designs, preparations, and biochemical and structural studies of coronavirus RBD vaccines (wild type or mutants).

Research Supplies Justification

Research supplies will include reagents for molecular biology, insect and mammalian cell culture, protein expression and purification, protein-protein binding assays, pseudovirus entry assays, and protein crystallography. More specifically, these reagents will include cloning enzymes, restriction enzymes, plasmid purification kits, DNA retraction kits, DNA transfection reagents, insect cells, insect cell culture media, mammalian cells, mammalian cell culture media, protein purification columns, Biacore chips, crystallization kits and plates, and crystal freezing tools.

Travel

For the PI and the postdoctoral scientist, on average there will be two trips to National synchrotron laboratories for X-ray data collection, and one trip to a national conference per year.

Publication

On average three publications will be expected per year.

Communications

Fax, long distance phone call, and shipping of experimental materials to collaborators.

Equipment maintenance

Purchase of service contracts for equipments such as AKTA purification system, centrifuges, plate readers, and insect cell shaker/incubators.

Lab service fees

Use of services from several on-campus labs, such as the electron microscopy lab, robot crystallization lab, mass spectrometry lab, and protein sequencing lab.



RESEARCH
Department of Health and Human Services
National Institutes of Health

Notice of Award

Federal Award Date: 05/21/2018



NATIONAL INSTITUTE OF ALLERGY AND INFECTIOUS DISEASES

Grant Number: 1R01AI139092-01
FAIN: R01AI139092

Principal Investigator(s):
Lanying Du, PHD

Project Title: Structure-based design of coronavirus subunit vaccines

Mr. Greene, Barry A., MPA
Executive Director
310 East 67 Street
New York, NY 100656275

Award e-mailed to: researchadmin@nybloodcenter.org

Period Of Performance:
Budget Period: 05/21/2018 – 04/30/2019
Project Period: 05/21/2018 – 04/30/2023

Dear Business Official:

The National Institutes of Health hereby awards a grant in the amount of \$911,083 (see "Award Calculation" in Section I and "Terms and Conditions" in Section III) to NEW YORK BLOOD CENTER in support of the above referenced project. This award is pursuant to the authority of 42 USC 241 42 CFR 52 and is subject to the requirements of this statute and regulation and of other referenced, incorporated or attached terms and conditions.

Acceptance of this award including the "Terms and Conditions" is acknowledged by the grantee when funds are drawn down or otherwise obtained from the grant payment system.

Each publication, press release, or other document about research supported by an NIH award must include an acknowledgment of NIH award support and a disclaimer such as "Research reported in this publication was supported by the National Institute Of Allergy And Infectious Diseases of the National Institutes of Health under Award Number R01AI139092. The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health." Prior to issuing a press release concerning the outcome of this research, please notify the NIH awarding IC in advance to allow for coordination.

Award recipients must promote objectivity in research by establishing standards that provide a reasonable expectation that the design, conduct and reporting of research funded under NIH awards will be free from bias resulting from an Investigator's Financial Conflict of Interest (FCOI), in accordance with the 2011 revised regulation at 42 CFR Part 50 Subpart F. The Institution shall submit all FCOI reports to the NIH through the eRA Commons FCOI Module. The regulation does not apply to Phase I Small Business Innovative Research (SBIR) and Small Business Technology Transfer (STTR) awards. Consult the NIH website <http://grants.nih.gov/grants/policy/coi/> for a link to the regulation and additional important information.

If you have any questions about this award, please contact the individual(s) referenced in Section IV.

Sincerely yours,

Chernay L. Mason
Grants Management Officer
NATIONAL INSTITUTE OF ALLERGY AND INFECTIOUS DISEASES

Additional information follows

SECTION I – AWARD DATA – 1R01AI139092-01**Award Calculation (U.S. Dollars)**

| | |
|---|-----------|
| Salaries and Wages | \$82,628 |
| Fringe Benefits | \$27,268 |
| Personnel Costs (Subtotal) | \$109,896 |
| Materials & Supplies | \$16,000 |
| Travel | \$3,000 |
| Other | \$30,000 |
| Subawards/Consortium/Contractual Costs | \$569,748 |

| | |
|--|-----------|
| Federal Direct Costs | \$728,644 |
| Federal F&A Costs | \$182,439 |
| Approved Budget | \$911,083 |
| Total Amount of Federal Funds Obligated (Federal Share) | \$911,083 |
| TOTAL FEDERAL AWARD AMOUNT | \$911,083 |

AMOUNT OF THIS ACTION (FEDERAL SHARE) \$911,083

| SUMMARY TOTALS FOR ALL YEARS | | |
|------------------------------|------------|-------------------|
| YR | THIS AWARD | CUMULATIVE TOTALS |
| 1 | \$911,083 | \$911,083 |
| 2 | \$845,133 | \$845,133 |
| 3 | \$839,218 | \$839,218 |
| 4 | \$831,474 | \$831,474 |
| 5 | \$825,463 | \$825,463 |

Recommended future year total cost support, subject to the availability of funds and satisfactory progress of the project

Fiscal Information:

CFDA Name: Allergy and Infectious Diseases Research
CFDA Number: 93.855
EIN: 1131949477A1
Document Number: RAI139092A
PMS Account Type: P (Subaccount)
Fiscal Year: 2018

| IC | CAN | 2018 | 2019 | 2020 | 2021 | 2022 |
|----|---------|-----------|-----------|-----------|-----------|-----------|
| AI | 8472364 | \$911,083 | \$845,133 | \$839,218 | \$831,474 | \$825,463 |

Recommended future year total cost support, subject to the availability of funds and satisfactory progress of the project

NIH Administrative Data:

PCC: M51C B / **OC:** 414A / **Released:** MASONC 05/15/2018
Award Processed: 05/21/2018 12:04:20 AM

SECTION II – PAYMENT/HOTLINE INFORMATION – 1R01AI139092-01

For payment and HHS Office of Inspector General Hotline information, see the NIH Home Page at <http://grants.nih.gov/grants/policy/awardconditions.htm>

SECTION III – TERMS AND CONDITIONS – 1R01AI139092-01

This award is based on the application submitted to, and as approved by, NIH on the above-titled project and is subject to the terms and conditions incorporated either directly or by reference in the following:

- a. The grant program legislation and program regulation cited in this Notice of Award.
- b. Conditions on activities and expenditure of funds in other statutory requirements, such as those included in appropriations acts.

- c. 45 CFR Part 75.
- d. National Policy Requirements and all other requirements described in the NIH Grants Policy Statement, including addenda in effect as of the beginning date of the budget period.
- e. Federal Award Performance Goals: As required by the periodic report in the RPPR or in the final progress report when applicable.
- f. This award notice, INCLUDING THE TERMS AND CONDITIONS CITED BELOW.

(See NIH Home Page at <http://grants.nih.gov/grants/policy/awardconditions.htm> for certain references cited above.)

Research and Development (R&D): All awards issued by the National Institutes of Health (NIH) meet the definition of "Research and Development" at 45 CFR Part§ 75.2. As such, auditees should identify NIH awards as part of the R&D cluster on the Schedule of Expenditures of Federal Awards (SEFA). The auditor should test NIH awards for compliance as instructed in Part V, Clusters of Programs. NIH recognizes that some awards may have another classification for purposes of indirect costs. The auditor is not required to report the disconnect (i.e., the award is classified as R&D for Federal Audit Requirement purposes but non-research for indirect cost rate purposes), unless the auditee is charging indirect costs at a rate other than the rate(s) specified in the award document(s).

An unobligated balance may be carried over into the next budget period without Grants Management Officer prior approval.

This grant is subject to Streamlined Noncompeting Award Procedures (SNAP).

This award is subject to the requirements of 2 CFR Part 25 for institutions to receive a Dun & Bradstreet Universal Numbering System (DUNS) number and maintain an active registration in the System for Award Management (SAM). Should a consortium/subaward be issued under this award, a DUNS requirement must be included. See <http://grants.nih.gov/grants/policy/awardconditions.htm> for the full NIH award term implementing this requirement and other additional information.

This award has been assigned the Federal Award Identification Number (FAIN) R01A1139092. Recipients must document the assigned FAIN on each consortium/subaward issued under this award.

Based on the project period start date of this project, this award is likely subject to the Transparency Act subaward and executive compensation reporting requirement of 2 CFR Part 170. There are conditions that may exclude this award; see <http://grants.nih.gov/grants/policy/awardconditions.htm> for additional award applicability information.

In accordance with P.L. 110-161, compliance with the NIH Public Access Policy is now mandatory. For more information, see NOT-OD-08-033 and the Public Access website: <http://publicaccess.nih.gov/>.

In accordance with the regulatory requirements provided at 45 CFR 75.113 and Appendix XII to 45 CFR Part 75, recipients that have currently active Federal grants, cooperative agreements, and procurement contracts with cumulative total value greater than \$10,000,000 must report and maintain information in the System for Award Management (SAM) about civil, criminal, and administrative proceedings in connection with the award or performance of a Federal award that reached final disposition within the most recent five-year period. The recipient must also make semiannual disclosures regarding such proceedings. Proceedings information will be made publicly available in the designated integrity and performance system (currently the Federal Awardee Performance and Integrity Information System (FAPIIS)). Full reporting requirements and procedures are found in Appendix XII to 45 CFR Part 75. This term does not apply to NIH fellowships.

**Treatment of Program Income:
Additional Costs**

SECTION IV – AI Special Terms and Conditions – 1R01AI139092-01

Clinical Trial Indicator: No

This award does not support any NIH-defined Clinical Trials. See the NIH Grants Policy Statement Section 1.2 for NIH definition of Clinical Trial.

This Notice of Award (NoA) includes funds for activity with **University of Minnesota** in the amount of **\$184,600** (\$120,000 direct costs + \$64,600 F&A costs).

This Notice of Award (NoA) includes funds for activity with **Scripps Research Institute** in the amount of **\$232,200** (\$120,000 direct costs + \$112,200 F&A costs).

This Notice of Award (NoA) includes funds for activity with **University of Iowa** in the amount of **\$152,948** (\$100,294 direct costs + \$52,654 F&A costs).

In accordance with the NIAID Financial Management Plan, NIAID does not provide funds for inflationary increases. Committed future year (s) funding was adjusted accordingly. See: <https://www.niaid.nih.gov/grants-contracts/financial-management-plan>.

The Research Performance Progress Report (RPPR), Section G.9 (Foreign component), includes reporting requirements for all research performed outside of the United States. Research conducted at the following site(s) must be reported in your RPPR:

Beijing Institute of Microbiology and Epidemiology, China

This award may include collaborations with and/or between foreign organizations. Please be advised that short term travel visa expenses are an allowable expense on this grant, if justified as critical and necessary for the conduct of the project.

The budget period anniversary start date for future year(s) will be **May 1**.

Select Agents:

Awardee of a project that at any time involves a restricted experiment with a select agent, is responsible for notifying and receiving prior approval from the NIAID. Please be advised that changes in the use of a Select Agent will be considered a change in scope and require NIH awarding office prior approval. The approval is necessary for new select agent experiments as well as changes in on-going experiments that would require change in the biosafety plan and/or biosafety containment level. An approval to conduct a restricted experiment granted to an individual cannot be assumed an approval to other individuals who conduct the same restricted experiment as defined in the Select Agents Regulation 42 CFR Part 73, Section 13.b (<http://www.selectagents.gov/Regulations.html>).

Highly Pathogenic Agent:

NIAID defines a Highly Pathogenic Agent as an infectious Agent or Toxin that may warrant a biocontainment safety level of BSL3 or higher according to the current edition of the CDC/NIH Biosafety in Microbiological and Biomedical Laboratories (BMBL) (<http://www.cdc.gov/OD/ohs/biosfty/bmb15/bmb15toc.htm>). Research funded under this grant must adhere to the BMBL, including using the BMBL-recommended biocontainment level at a minimum. If your Institutional Biosafety Committee (or equivalent body) or designated institutional biosafety official recommend a higher biocontainment level, the highest recommended containment level must be used.

When submitting future Progress Reports indicate at the beginning of the report:

If no research with a Highly Pathogenic Agent or Select Agent has been performed or is planned to be performed under this grant.

If your IBC or equivalent body or official has determined, for example, by conducting a risk assessment, that the work being planned or performed under this grant may be conducted at a biocontainment safety level that is lower than BSL3.

If the work involves Select Agents and/or Highly Pathogenic Agents, also address the following points:

Any changes in the use of the Agent(s) or Toxin(s) including its restricted experiments that have resulted in a change in the required biocontainment level, and any resultant change in location, if applicable, as determined by your IBC or equivalent body or official.

If work with a new or additional Agent(s)/Toxin(s) is proposed in the upcoming project period, provide:

- o A list of the new and/or additional Agent(s) that will be studied;
- o A description of the work that will be done with the Agent(s), and whether or not the work is a restricted experiment;
- o The title and location for each biocontainment resource/facility, including the name of the organization that operates the facility, and the biocontainment level at which the work will be conducted, with documentation of approval by your IBC or equivalent body or official. It is important to note if the work is being done in a new location.

STAFF CONTACTS

The Grants Management Specialist is responsible for the negotiation, award and administration of this project and for interpretation of Grants Administration policies and provisions. The Program Official is responsible for the scientific, programmatic and technical aspects of this project. These individuals work together in overall project administration. Prior approval requests (signed by an Authorized Organizational Representative) should be submitted in writing to the Grants Management Specialist. Requests may be made via e-mail.

Grants Management Specialist: Adam Graham
Email: adam.graham@nih.gov **Phone:** 301-761-6260 **Fax:** 301-493-0597

Program Official: Erik J. Stemmy
Email: erik.stemmy@nih.gov **Phone:** 240-627-3380

SPREADSHEET SUMMARY

GRANT NUMBER: 1R01AI139092-01

INSTITUTION: NEW YORK BLOOD CENTER

| Budget | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 |
|--|------------------|------------------|------------------|------------------|------------------|
| Salaries and Wages | \$82,628 | \$82,628 | \$82,628 | \$82,628 | \$82,628 |
| Fringe Benefits | \$27,268 | \$27,268 | \$27,268 | \$27,268 | \$27,268 |
| Personnel Costs (Subtotal) | \$109,896 | \$109,896 | \$109,896 | \$109,896 | \$109,896 |
| Materials & Supplies | \$16,000 | \$15,000 | \$14,000 | \$14,000 | \$14,000 |
| Travel | \$3,000 | \$3,000 | \$3,000 | \$3,000 | \$3,000 |
| Other | \$30,000 | \$28,000 | \$27,000 | \$24,000 | \$22,000 |
| Subawards/Consortium/Contractual Costs | \$569,748 | \$567,638 | \$565,283 | \$562,879 | \$560,428 |
| TOTAL FEDERAL DC | \$728,644 | \$723,534 | \$719,179 | \$713,775 | \$709,324 |
| TOTAL FEDERAL F&A | \$182,439 | \$121,599 | \$120,039 | \$117,699 | \$116,139 |
| TOTAL COST | \$911,083 | \$845,133 | \$839,218 | \$831,474 | \$825,463 |

| Facilities and Administrative Costs | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 |
|-------------------------------------|--------|--------|--------|--------|--------|
| | | | | | |

| | | | | | |
|-----------------|-----------|-----------|-----------|-----------|-----------|
| F&A Cost Rate 1 | 78% | 78% | 78% | 78% | 78% |
| F&A Cost Base 1 | \$233,896 | \$155,896 | \$153,896 | \$150,896 | \$148,896 |
| F&A Costs 1 | \$182,439 | \$121,599 | \$120,039 | \$117,699 | \$116,139 |

Re: Co-MERS nanoparticle

From: Fang Li <lifang@umn.edu>
To: Jiang Zhu <jiang@scripps.edu>
Cc: Shibo Jiang (姜世勃) <shibojiang@fudan.edu.cn>, Perlman, Stanley <stanley-perlman@uiowa.edu>
Sent: January 3, 2017 1:56:49 PM CST
Received: January 3, 2017 1:56:49 PM CST

Hi Jiang,

Thanks for the update. It sounds great. I hope that our grant will get funded in the first try. However, in case we need to resubmit it, your preliminary results would be very helpful.

Happy new year!
Fang

On Tue, Jan 3, 2017 at 9:58 AM, Jiang Zhu <jiang@scripps.edu> wrote:

Hi Fang and all,

Happy New Year!

We have started to work on several Co-MERS nanoparticle constructs and will update you as we go.

Best regards

Jiang

--

Fang Li, Ph.D.
Associate Professor
Department of Pharmacology
University of Minnesota Twin Cities
612-625-6149, lifang@umn.edu
<http://www.msi.umn.edu/~lifang>

Re: Progress report for Year 2 and Budget for Year 3

From: Sims, Amy C <sims0018@email.unc.edu>
To: Lynn Weber <weber117@umn.edu>, Fang Li <lifang@umn.edu>, Baric, Ralph S <rbaric@email.unc.edu>, Caldwell, Chandra <ccaldwel@email.unc.edu>
Sent: January 5, 2017 4:01:17 PM CST
Received: January 5, 2017 4:01:29 PM CST
Attachments: 2590-fp7.docx, ATT00001.htm

Hi Fang,

I am resending this in case it got missed over the holidays.

Please let me know if you have any questions or need any additional information.

We need all of the documents no later than February 1, 2017.

Happy new year. Thank you, Amy

1. 2590-fp7.docx

Type: application/vnd.openxmlformats-officedocument.wordprocessingml.document
Size: 41 KB (42,169 bytes)

2. ATT00001.htm

Type: text/html
Size: 4 KB (4,098 bytes)

Program Director/Principal Investigator (Last, First, Middle):

ALL PERSONNEL REPORT

GRANT NUMBER

Place this form at the end of the signed original copy of the application. Do not duplicate.

Always list the PD/PI(s). In addition, list all other personnel who participated in the project during the current budget period for at least one person month or more, regardless of the source of compensation (a person month equals approximately 160 hours or 8.3% of annualized effort). Use the following abbreviated categories for describing Role on Project:

- PD/PI*
- Co-Investigator
- Faculty
- Postdoctoral (scholar, fellow, or other postdoctoral position)*
- Technician
- Staff Scientist (doctoral level)
- Statistician
- Graduate Student (research assistant)
- Non-student Research Assistant
- Undergraduate Student
- High School Student
- Consultant
- Other (please specify)

If personnel are supported by a Reentry or Diversity Supplement please indicate such after the Role on Project, using the following abbreviations: RS - Reentry Supplement; DS - Diversity Supplement.

*Commons ID required for any personnel holding this Role on Project and for all individuals supported by a Reentry or Diversity Supplement. The Commons ID will be required in the future for all individuals with a graduate student, or undergraduate role. The Commons ID is strongly encouraged, but not required, for all other Project Personnel.

Use Cal (calendar), Acad, or Summer to enter months devoted to project.

| Commons ID* | Name | Degree(s) | SSN (last 4 digits) | Role on Project | DoB (MM /YY) | Cal | Acad | Summer |
|-------------|------|-----------|---------------------|-----------------|--------------|-----|------|--------|
| | | | | | | | | |

On Dec 20, 2016, at 5:24 PM, Sims, Amy C <sims0018@email.unc.edu> wrote:

Dear Lynn,

I hope you are doing well and looking forward to the break for the holidays.

I wanted to make sure you had this request before the holidays.

Below is the list of items we will need from Minnesota by the first of February as well as the current template of the all personnel report which we will also need.

The total amount of the award remains the same in year 3.

Please let me know if you have any questions.

Thank you very much and Happy New Year!! Amy

From the University of Minnesota (Deadline February 1, 2017)

-other support for Fang Li

-complete the **attached personnel report** (**please include eRA username for key personnel, GRAs and postdocs)

-budget for \$372,400 (amount includes both direct and indirect costs)

-budget justification

<2590-fp7.docx>

FW:

From: Tseng, Chien-Te K. <sktseng@UTMB.EDU>
To: Fang Li <lifang@umn.edu>, Jiang, Shibo <SJiang@nybc.org>, Lanying <LDu@nybc.org>
Sent: February 7, 2017 2:35:48 PM CST
Received: February 7, 2017 2:35:55 PM CST

Guys,

Bob sent me this comment based on the recent Science paper of ADE – Dengue virus. We have shown previously that neither human monocyte-derived macrophages nor dendritic cells are permissive to SARS-CoV, an observation was well accepted later by the community of SARS research. Despite of a report indicated that human primary macrophage and dendritic cells were permissive to productive MERS-CoV infection, conflicting data have also been reported. Although we did not check if human macrophages and dendritic cells were indeed permissive (or non-permissive) to MERS-CoV infection, we have verified that bone marrow-derived macrophages or dendritic cells of our hDPP4 transgenic mice were absolutely non-permissive despite their prominent surface hDPP4 expression. I hope Bob's comment can more or less unify our thought of vaccination-induced immunopathology and the classic ADE. Any comments? Thanks!

Best,
Kent

From: Couch, Robert B.
Sent: Friday, February 03, 2017 4:48 PM
To: Tseng, Chien-Te K.
Subject: RE:

You may know but this is a refinement of available info and current understanding of Dengue pathogenesis. The original proposal for which data was provided was that Dengue hemorrhagic fever was caused by cross-reacting non-neutralizing antibodies with Fc-mediated uptake induced by a prior infection with another Dengue serotype. It was later shown that DHF can occur during a primary infection. This paper refines the Fc mediated uptake data. That data and belief is the reason Sanofi could not move to humans with their Dengue vaccine until they a strain for all 4 serotypes. I have wondered if

I don't know if anyone looked for that possibility but it would unify DHF pathogenesis for 1st and repeat infections. Since the dominant Fc uptake cells are macrophages, SARS/MERS would have to replicate in Macros like Dengue and your data says no. But,

Bob

From: Tseng, Chien-Te K.
Sent: Friday, February 03, 2017 2:29 PM
To: Couch, Robert B.
Subject:

FYI

Re: R01AI098728

From: Fang Li <lifang@umn.edu>
To: Baric, Ralph S <rbaric@email.unc.edu>
Sent: March 9, 2017 6:58:06 PM CST
Received: March 9, 2017 6:58:06 PM CST

Hi Ralph,

No problem. I will call you around 10 am of your time tomorrow.

Best,
fang

On Thu, Mar 9, 2017 at 4:35 PM, Baric, Ralph S <rbaric@email.unc.edu> wrote:

Hi Fang, How about tomorrow morning after 9AM anytime (Fri), today turned out to be a mess. I will be at [REDACTED] or just send me your number and a time and I can call. Ralph

From: Fang Li [mailto:lifang@umn.edu]
Sent: Wednesday, March 08, 2017 5:58 PM
To: Baric, Ralph S
Subject: Re: R01AI098728

Hi Ralph,

I will be available tomorrow between 1 pm and 3 pm of your time, or after 4 pm of your time. Please let me know what time works best for you.

Best,

Fang

On Wed, Mar 8, 2017 at 3:39 PM, Baric, Ralph S <rbaric@email.unc.edu> wrote:

Hi Fang, we are working on a Uganda SARS strain. [REDACTED]

[REDACTED]. Will be glad to talk about it.

Figured out a way to [REDACTED]. talk with you tomorrow. ralph

From: Fang Li [mailto:lifang@umn.edu]
Sent: Tuesday, March 07, 2017 12:30 PM
To: Baric, Ralph S
Subject: Fwd: R01AI098728

Hi Ralph,

Hope you are doing well. Please see the message below from Erik. Have you done any of the proposed work on SARS?

Best,

Fang

----- Forwarded message -----

From: **Stemmy, Erik (NIH/NIAID)** [E] <erik.stemmy@nih.gov>

Date: Tue, Mar 7, 2017 at 8:52 AM

Subject: R01AI098728

To: Fang Li <lifang@umn.edu>

Hello Fang,

Earlier this year the White House issued policy guidance related to the Gain of Function research funding pause (link below). While HHS has been working to implement the policy guidance the original GoF policy is still in place, and at NIAID we have been revisiting projects that had aims subject to the GoF research pause to ask for any relevant updates to the work. Your R01 referenced above was awarded almost a year ago, and I wanted to reach out and ask if you have any updates on the work. Specifically if you expect any of the mutations to the SARS-like CoVs to have increased pathogenicity and/or transmissibility. I'd appreciate it if you could let me know how the work is progressing.

Thanks!

Erik

<https://obamawhitehouse.archives.gov/blog/2017/01/09/recommended-policy-guidance-potential-pandemic-pathogen-care-and-oversight>

Erik J. Stemmy, Ph.D.

Program Officer

Respiratory Diseases Branch

Division of Microbiology and Infectious Diseases NIAID/NIH/HHS

5601 Fishers Lane, Room 8E18

Bethesda, MD 20892-9825

Phone: [\(240\)-627-3380](tel:(240)627-3380)

Email: erik.stemmy@nih.gov

Getting ready to publish? Share the good news with your program officer asap! NIAID may be able to help publicize your article. And, remember to list your NIAID grant or contract number in the publication.

NOTE: This material is intended for the individual or entity to which it is addressed. It may contain privileged, confidential information that is protected from disclosure under applicable laws. If you are not the addressee, or a person authorized to deliver the document to the addressee, please note that you are strictly prohibited from reviewing, copying, disclosing, disseminating or distributing this material or any other action based on the contents of this material. If you have received this communication in error, please permanently delete this from your system immediately. Thank you.

--

Fang Li, Ph.D.
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[612-625-6149](tel:612-625-6149), lifang@umn.edu
<http://www.msi.umn.edu/~lifang>

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--

Fang Li, Ph.D.
Associate Professor
Department of Pharmacology
University of Minnesota Twin Cities
612-625-6149, lifang@umn.edu
<http://www.msi.umn.edu/~lifang>

Re: human and bat cathepsin L plasmids

From: [REDACTED]
To: Fang Li <lifang@umn.edu>
Cc: Ralph Baric <rbaric@email.unc.edu>
Sent: March 12, 2017 10:43:36 PM CDT
Received: March 12, 2017 10:43:38 PM CDT

Hi Ralph

Could you please give me your shipping address? I plan to send you the plasmids next week, thanks.

Best,
[REDACTED]

On Fri, Mar 10, 2017 at 10:33 AM, Fang Li <lifang@umn.edu> wrote:
Hi Ralph,

Nice talking to you on the phone. [REDACTED] will send you the human and bat cathepsin L plasmids early next week. Could you tell her your shipping address?

Thanks,
Fang

--

Fang Li, Ph.D.
Associate Professor
Department of Pharmacology
University of Minnesota Twin Cities
[612-625-6149](tel:612-625-6149), lifang@umn.edu
<http://www.msi.umn.edu/~lifang>

RE: R01AI098728

From: Baric, Ralph S <rbaric@email.unc.edu>
To: Fang Li <lifang@umn.edu>
Sent: March 20, 2017 3:51:30 PM CDT
Received: March 20, 2017 3:51:44 PM CDT
Attachments: Baric-SARS Uganda Request.pdf

Hi Fang, here is the official letter. Below I have appended the sequence of the spike. Appreciate your thoughts and advice in terms of how to enhance [REDACTED]. Hate writing these letters.

Ralph



1. Baric-SARS Uganda Request.pdf

Type: application/pdf
Size: 134 KB (137,738 bytes)



RE: SARS-Uganda Constructs

March 20, 2017

Dear Fang and Erik,

We are considering the synthetic recovery of a chimeric bat SARS-like coronavirus. [REDACTED]

[REDACTED] Neither of these viruses have caused disease or are likely capable of wide and uncontrollable spread in human populations, nor is the virulence of these isolates in humans known, as neither have caused human infections. We believe that potential concerns and oversight of this chimera remain focused on sections 2.1 and 2.2 of the P3C0 document.

- 2.1. A *potential pandemic pathogen* (PPP) is one that satisfies both of the following:
 - 2.2.1. It is likely highly transmissible and likely capable of wide and uncontrollable spread in human populations, and
 - 2.2.2. It is likely highly virulent and likely to cause significant morbidity and/or mortality in humans.
- 2.2. An *enhanced PPP* is a PPP resulting from the enhancement of a pathogen's transmissibility and/or virulence. Wild-type pathogens that are circulating in or have been recovered from nature are not enhanced PPPs, regardless of their pandemic potential.

We do not believe that this chimera satisfies either of the above for mentioned criteria as: [REDACTED]

Background

SARS-CoV emerged from bats, likely underwent additional selection in civets and raccoon dogs before colonizing humans, leading to the 2002-2003 outbreak, which infected ~8,000 individuals and causing about 800 deaths. Several bat coronaviruses (e.g., SCH014, WIV-1) retain the capacity to use the human ACE2 receptor for docking and entry ([PMC4801244](#), [PMC4797993](#)), but have not been shown to cause human disease. SARS-Uganda was sequenced from bats and is about 77% identical to SARS-CoV (**Fig 1**), it is equally distant from WIV1 (Rs3367) and RsSHC014). It has not been successfully cultured, but rather exists as

a sequence isolated from bats. [REDACTED]

Experimental Design.

The SARS Uganda PDF-2386 S glycoprotein gene will be purchased from commercial vendors with two small adaptive cassettes, which allow for rapid insertion of the SCH014 or mouse adapted residues into the PDF-2386 S gene. [REDACTED]

Risk Management.

If any chimeras are capable of using the human ACE2 receptor for docking and entry, [REDACTED]

[REDACTED] e will halt all experiments, inform the local IBC, the program officer at NIH and the NIH and participate in any discussions regarding the suitability of these experiments to move forward.

Please do not hesitate to contact me should you acquire additional information. We thank you for your consideration of this request.

Sincerely,



Ralph S. Baric, PhD
Professor, University of North Carolina at Chapel Hill
Department of Epidemiology, Gillings School of Global Health
Chapel Hill, NC 27599
rbaric@email.unc.edu
919-966-3895

Re: NIH Progress Report for AI089728

From: Sims, Amy C <sims0018@email.unc.edu>
To: Fang Li <lifang@umn.edu>
Cc: Baric, Ralph S <rbaric@email.unc.edu>, Lynn Weber <weber117@umn.edu>
Sent: March 21, 2017 9:52:43 AM CDT
Received: March 21, 2017 9:52:48 AM CDT

Thank you, Fang. I appreciate it. Amy

On Mar 21, 2017, at 10:48 AM, Fang Li <lifang@umn.edu> wrote:

Hi Amy,

Thanks for your message. I would appreciate it if you could get the documents to us by Sunday March 26.

Best,
Fang

On Tue, Mar 21, 2017 at 9:33 AM, Sims, Amy C <sims0018@email.unc.edu> wrote:

Thank you for the reminder, Fang. I will work with Ralph and make sure you get what you need in time.

Can you please provide me with a deadline so that I make sure the documents are on time?

I hope you are doing well.

Thank you again, Amy

On Mar 20, 2017, at 9:31 PM, Fang Li <lifang@umn.edu> wrote:

Dear Amy,

We will need to write a progress report for grant AI089728. Please send me any update on science, and send Lynn (CC'ed here) the other documents that she will need.

Thanks a lot!

Fang

--

Fang Li, Ph.D.
Associate Professor
Department of Pharmacology
University of Minnesota Twin Cities
[612-625-6149](tel:612-625-6149), lifang@umn.edu
<http://www.msi.umn.edu/~lifang>

--

Fang Li, Ph.D.

Associate Professor
Department of Pharmacology
University of Minnesota Twin Cities
612-625-6149, lifang@umn.edu
<http://www.msi.umn.edu/~lifang>

Re: human and bat cathepsin L plasmids

From: [REDACTED]
To: Sims, Amy C <sims0018@email.unc.edu>
Cc: Baric, Ralph S <rbaric@email.unc.edu>, Fang Li <lifang@umn.edu>
Sent: March 21, 2017 1:06:51 PM CDT
Received: March 21, 2017 1:06:53 PM CDT

Hi Amy

Thanks for your information, I will give you tracking information when I send out the plasmid.

Best,
[REDACTED]

On Tue, Mar 21, 2017 at 9:30 AM, Sims, Amy C <sims0018@email.unc.edu> wrote:

[REDACTED]
Please send the shipment to the following address.

Ralph Baric/Amy Sims
UNC Chapel Hill
135 Dauer Drive
3109 Hooker Research Center
Chapel Hill, NC 27599-7435
[919-966-7991](tel:919-966-7991) Amy's office number

Please let me know if you need any additional information.

Thank you very much, Amy

Amy Sims, Ph.D.

UNC Chapel Hill
2107 McGavran-Greenberg Hall
CB7435
Chapel Hill, NC 27599-7435

[919-966-7991](tel:919-966-7991) office
sims0018@ad.unc.edu

On Mar 20, 2017, at 4:53 PM, Baric, Ralph S <rbaric@email.unc.edu> wrote:

Hi [REDACTED] Amy can you send our shipping address. This is for plasmid DNAs encoding bat cathepsin genes. Thanks, ralph

From: [REDACTED]
Sent: Sunday, March 12, 2017 11:44 PM
To: Fang Li
Cc: Baric, Ralph S
Subject: Re: human and bat cathepsin L plasmids

Hi Ralph

Could you please give me your shipping address? I plan to send you the plasmids next week, thanks.

Best,
[REDACTED]

On Fri, Mar 10, 2017 at 10:33 AM, Fang Li <lifang@umn.edu> wrote:
Hi Ralph,

Nice talking to you on the phone. [REDACTED] will send you the human and bat
cathepsin L plasmids early next week. Could you tell her your shipping address?

Thanks,
Fang

--

Fang Li, Ph.D.
Associate Professor
Department of Pharmacology
University of Minnesota Twin Cities
[612-625-6149](tel:612-625-6149), lifang@umn.edu
<http://www.msi.umn.edu/~lifang>

Re: NIH Progress Report for AI089728

From: Sims, Amy C <sims0018@email.unc.edu>
To: Fang Li <lifang@umn.edu>
Cc: Baric, Ralph S <rbaric@email.unc.edu>, Lynn Weber <weber117@umn.edu>
Sent: March 27, 2017 11:15:21 AM CDT
Received: March 27, 2017 11:15:42 AM CDT
Attachments: Baric-Fang Li progress report 2017 year 1 second RO1.docx, ATT00001.htm

Hi Fang,

I got the science progress report for the second RO1 from Ralph this morning.

Please find it attached.

If there is anything else you need from us please let me know.

Thank you, Amy

1. Baric-Fang Li progress report 2017 year 1 second RO1.docx

Type: application/vnd.openxmlformats-officedocument.wordprocessingml.document
Size: 246 KB (252,308 bytes)

2. ATT00001.htm

Type: text/html
Size: 1 KB (1,567 bytes)

Introduction. CoVs recognize a variety of host receptors through one or both of its spike S1 domains (S1-NTD and S1-CTD), and are also regulated for cell entry by host proteases that cleave at the S1/S2 boundary. Understanding the receptor recognition and cell entry by CoVs has important implications for virology, medicine, and epidemics. Our studies have elucidated how CoVs explore different host receptors and host proteases to expand their host ranges, and how SARS-CoV and MERS-CoV transmit from animals to humans to cause epidemics. During the past year, the Baric laboratory has made considerable progress in two principle areas of Aims 1-3 of the grant; specifically, developing a molecular clone for porcine delta coronavirus and in designing and recovering synthetic bat SARS-like CoV.

Porcine epidemic diarrhea virus. Previously, our group developed a molecular clone for porcine epidemic diarrhea virus. Several S glycoprotein deletions mutants have been described in the literature, including TC-PC177. To investigate whether 197 aa-deletion was the determinant for the attenuation of TC-PC177, we generated a mutant (icPC22A-S1 Δ 197) bearing the 197 aa-deletion based on an infectious cDNA clone of PC22A strain (icPC22A). In collaboration with the Wang laboratory at Ohio State University, the icPC22A-S1 Δ 197 virus caused mild to moderate diarrhea and no mortality, whereas the icPC22A virus caused severe diarrhea and death in all piglets. Our data indicate that the deletion of this 197 aa-fragment in spike protein can attenuate a highly virulent PEDV, but may lose important epitopes for inducing robust protective immunity. A manuscript detailing the construct of the mutant and its pathogenic outcomes in swine has been drafted and will soon be submitted for review.

Porcine delta coronavirus reverse genetic platforms. In addition to porcine epidemic diarrhea virus, porcine delta coronavirus was first reported in the United States in February 2014, causing severe disease outbreaks of lethal disease in piglets in swine herds. *Deltacoronavirus* genus is new, having only been recently defined by genomic sequence analysis from both pig and avian isolates. Since 2009, avian deltacoronaviruses have been detected in a wide range of domestic and wild birds and then porcine deltacoronaviruses (PdCV) Hong Kong (HK) strains emerged suddenly in south east asia. To develop a PdCV molecular clone, we developed a collaboration with Dr. Linda Saif, who provided us with wildtype and tissue culture adapted strain OH-FD22. We have deep sequenced these isolates and have ordered a molecular clone from BioBasic. ■

New SARS-Like Bat Coronaviruses. The SARS-like bat coronavirus, WIV16 was isolated from a single fecal sample of *Rhinolophus sinicus*, which was collected in Kunming, Yunnan Province, in July 2013. The full genomic sequence of SL-CoV WIV16 (GenBank accession number [KT444582](#)) was determined (PMC4810638).

PDF-2386 (SARS-Ubanda). We have recently identified a new bat SARS like virus from Uganda (SARS-Uganda) in collaboration with Simon Anthony at EcoHealth. [REDACTED]

On Mar 20, 2017, at 9:31 PM, Fang Li <lifang@umn.edu> wrote:

Dear Amy,

We will need to write a progress report for grant AI089728. Please send me any update on science, and send Lynn (CC'ed here) the other documents that she will need.

Thanks a lot!

Fang

--

Fang Li, Ph.D.
Associate Professor
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University of Minnesota Twin Cities
612-625-6149, lifang@umn.edu
<http://www.msi.umn.edu/~lifang>

Re: NIH Progress Report for AI089728

From: Fang Li <lifang@umn.edu>
To: Sims, Amy C <sims0018@email.unc.edu>
Cc: Baric, Ralph S <rbaric@email.unc.edu>, Lynn Weber <weber117@umn.edu>
Sent: March 27, 2017 12:34:07 PM CDT
Received: March 27, 2017 12:34:07 PM CDT

Thanks, Amy.

On Mon, Mar 27, 2017 at 11:15 AM, Sims, Amy C <sims0018@email.unc.edu> wrote:

Hi Fang,

I got the science progress report for the second RO1 from Ralph this morning.

Please find it attached.

If there is anything else you need from us please let me know.

Thank you, Amy

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Fang Li, Ph.D.

Associate Professor

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sequence alignment of sars and sars like

From: Fang Li <lifang@umn.edu>
To: Ralph Baric <rbaric@email.unc.edu>
Sent: March 28, 2017 8:25:14 PM CDT
Received: March 28, 2017 8:25:14 PM CDT
Attachments: sequence-comparison-sars-sars-like-FL.pdf

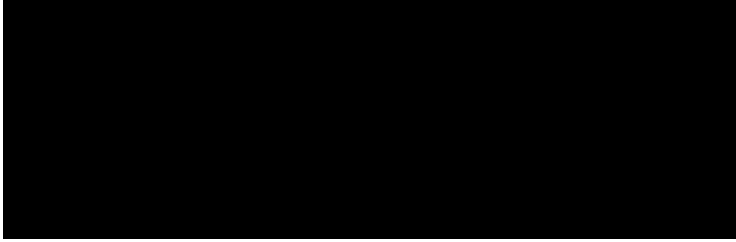
Hi Ralph,



Best,
Fang

--

Fang Li, Ph.D.
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612-625-6149, lifang@umn.edu
<http://www.msi.umn.edu/~lifang>





RE: sequence alignment of sars and sars like

From: Baric, Ralph S <rbaric@email.unc.edu>
To: Fang Li <lifang@umn.edu>
Sent: March 29, 2017 1:23:51 PM CDT
Received: March 29, 2017 1:23:54 PM CDT

Yes, your insight has definitely spurred a lot of interest in that connection, could be very important. Any idea from erik about the timeline for his review process on this virus? ralph

From: Fang Li [mailto:lifang@umn.edu]
Sent: Wednesday, March 29, 2017 11:02 AM
To: Baric, Ralph S <rbaric@email.unc.edu>
Subject: Re: sequence alignment of sars and sars like

Hi Ralph,

That will be great. Knowing the sequence of [REDACTED] will help us understand host adaptations of this virus.

[REDACTED]

Best,
Fang

On Wed, Mar 29, 2017 at 8:53 AM, Baric, Ralph S <rbaric@email.unc.edu> wrote:

[REDACTED]

From: Fang Li [mailto:lifang@umn.edu]
Sent: Tuesday, March 28, 2017 9:25 PM
To: Baric, Ralph S <rbaric@email.unc.edu>
Subject: sequence alignment of sars and sars like

Hi Ralph,

[REDACTED]

Best,
Fang

--

Fang Li, Ph.D.
Associate Professor
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[612-625-6149](tel:612-625-6149), lifang@umn.edu
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HKU2 CoV S RBD prediction

From: zlshi@wh.iov.cn
To: lifang <lifang@umn.edu>
Sent: March 31, 2017 10:17:09 AM CDT
Received: March 31, 2017 10:17:21 AM CDT
Attachments: HKU2_S.cm5

Hi, Fang,

Hope everything is going well with you.

We are planing to work on receptor analysis on bat [REDACTED] As the expression of [REDACTED] is challenging, can you please help us to predict [REDACTED].

Thank you,

Best regards,

Zhengli,

zlshi@wh.iov.cn

Fwd: R01AI098728

From: Fang Li <lifang@umn.edu>
To: Ralph Baric <rbaric@email.unc.edu>
Sent: April 3, 2017 9:21:40 AM CDT
Received: April 3, 2017 9:21:40 AM CDT

----- Forwarded message -----

From: **Stemmy, Erik (NIH/NIAID) [E]** <erik.stemmy@nih.gov>
Date: Mon, Apr 3, 2017 at 9:17 AM
Subject: RE: R01AI098728
To: Fang Li <lifang@umn.edu>

Hi Fang,

Nothing to report yet on this. Our internal committee hasn't met yet. It's a little bit of a gray area at the moment since the GoF research funding pause is still technically in effect while the department implements the P3CO policy that will replace it. I'll let you know if we have any questions for you.

Erik

From: Fang Li [mailto:lifang@umn.edu]
Sent: Thursday, March 30, 2017 2:26 PM
To: Stemmy, Erik (NIH/NIAID) [E] <erik.stemmy@nih.gov>
Subject: Re: R01AI098728

Dear Erik,

Do you have any update on Ralph's request to carry out the proposed SARS-like research?

Thanks,

Fang

On Mon, Mar 20, 2017 at 8:24 PM, Fang Li <lifang@umn.edu> wrote:

Hi Erik,

Ralph and I haven't done any study that may lead to increased pathogenesis or transmissibility of SARS-like or MERS-like coronaviruses. However, Ralph is considering [REDACTED]
[REDACTED] His request letter is being attached here.

Best,

Fang

On Tue, Mar 7, 2017 at 8:52 AM, Stemmy, Erik (NIH/NIAID) [E] <erik.stemmy@nih.gov> wrote:

Hello Fang,

Earlier this year the White House issued policy guidance related to the Gain of Function research funding pause ([link below](#)). While HHS has been working to implement the policy guidance the original GoF policy is still in place, and at NIAID we have been revisiting projects that had aims subject to the GoF research pause to ask for any relevant updates to the work. Your R01 referenced above was awarded almost a year ago, and I wanted to reach out and ask if you have any updates on the work. Specifically if you expect any of the mutations to the SARS-like CoVs to have increased pathogenicity and/or transmissibility. I'd appreciate it if you could let me know how the work is progressing.

Thanks!

Erik

<https://obamawhitehouse.archives.gov/blog/2017/01/09/recommended-policy-guidance-potential-pandemic-pathogen-care-and-oversight>

Erik J. Stemmy, Ph.D.

Program Officer

Respiratory Diseases Branch

Division of Microbiology and Infectious Diseases NIAID/NIH/HHS

5601 Fishers Lane, Room 8E18

Bethesda, MD 20892-9825

Phone: [\(240\)-627-3380](tel:(240)627-3380)

Email: erik.stemmy@nih.gov

Getting ready to publish? Share the good news with your program officer asap! NIAID may be able to help publicize your article. And, remember to list your NIAID grant or contract number in the publication.

NOTE: This material is intended for the individual or entity to which it is addressed. It may contain privileged, confidential information that is protected from disclosure under applicable laws. If you are not the addressee, or a person authorized to deliver the document to the addressee, please note that you are strictly prohibited from reviewing, copying, disclosing, disseminating or distributing this material or any other action based on the contents of this material. If you have received this communication in error, please permanently delete this from your system immediately. Thank you.

--

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<http://www.msi.umn.edu/~lifang>

Fwd: HKU2 CoV S RBD prediction

From: Fang Li <lifang@umn.edu>
To: Zhengli Shi <zlshi@wh.iov.cn>, [REDACTED]
Sent: April 3, 2017 11:33:02 AM CDT
Received: April 3, 2017 11:33:02 AM CDT
Attachments: HKU2_S.cm5

Hi Zhengli,

I am forwarding your email to [REDACTED]. He will take on this task.

Best,
Fang

----- Forwarded message -----

From: zlshi@wh.iov.cn <zlshi@wh.iov.cn>
Date: Fri, Mar 31, 2017 at 10:17 AM
Subject: HKU2 CoV S RBD prediction
To: lifang <lifang@umn.edu>

Hi, Fang,

Hope everything is going well with you.

We are planing to work on receptor analysis on [REDACTED]. As the expression of [REDACTED] is challenging, can you please help us to predict [REDACTED].

Thank you,

Best regards,

Zhengli,

zlshi@wh.iov.cn

--

Fang Li, Ph.D.
Associate Professor
Department of Pharmacology
University of Minnesota Twin Cities
612-625-6149, lifang@umn.edu
<http://www.msi.umn.edu/~lifang>

Re: Fwd: HKU2 CoV S RBD prediction

From: [REDACTED]
To: 石正丽 <zlshi@wh.iov.cn>
Cc: Fang Li <lifang@umn.edu>
Sent: April 5, 2017 6:46:25 PM CDT
Received: April 5, 2017 6:46:26 PM CDT
Attachments: HKU2 RBD and S1 prediction.docx

Hi, dear Dr. Shi,

Please refer to the attachment of the predicted [REDACTED], the prediction was mainly based on the structure of the NL63 and MHV published last year etc.

Any question please let us know.

All the best,

[REDACTED]

On Mon, Apr 3, 2017 at 8:14 PM, 石正丽 <zlshi@wh.iov.cn> wrote:

Thanks.

-----原始邮件-----

发件人: "Fang Li" <lifang@umn.edu>

发送时间: 2017年4月4日 星期二

收件人: "Zhengli Shi" <zlshi@wh.iov.cn>, [REDACTED]

主题: Fwd: HKU2 CoV S RBD prediction

Hi Zhengli,

I am forwarding your email to [REDACTED]. He will take on this task.

Best,
Fang

----- Forwarded message -----

From: zlshi@wh.iov.cn <zlshi@wh.iov.cn>

Date: Fri, Mar 31, 2017 at 10:17 AM

Subject: HKU2 CoV S RBD prediction

To: lifang <lifang@umn.edu>

Hi, Fang,

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We are planing to work on receptor analysis on [REDACTED]. As the expression of [REDACTED] is challenging, can you please help us to predict [REDACTED].

Thank you,

Best regards,

Zhengli,

zlshi@wh.iov.cn

--

Fang Li, Ph.D.
Associate Professor
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<http://www.msi.umn.edu/~lifang>

--



Re: Re: Re: Is there any news about the possibility of finding our R01 grant application?

From: Shibo Jiang (姜世勃) <shibojiang@fudan.edu.cn>
To: Perlman, Stanley <stanley-perlman@uiowa.edu>
Cc: Fang Li <lifang@umn.edu>, Du Lanying_NYBC <ldu@nybc.org>
Sent: May 14, 2017 10:32:43 PM CDT
Received: May 14, 2017 10:28:06 PM CDT

Thanks, Stanley!

In that case, should we submit it as a regular R01 proposal in Oct or submit it in response to a similar RFA in the future?

Shibo

-----Original Messages-----

From: "Perlman, Stanley" <stanley-perlman@uiowa.edu>
Sent Time: 2017-05-15 11:04:26 (Monday)
To: "Shibo Jiang (姜世勃)" <shibojiang@fudan.edu.cn>, "Fang Li" <lifang@umn.edu>
Cc: "Du Lanying_NYBC" <ldu@nybc.org>
Subject: Re: Re: Is there any news about the possibility of finding our R01 grant application?

Shibo,

I think that an RO1 may be pulled out for funding if it achieved a 14 or 15% or less, no matter what the actual score was. The rules are different for U01 because they are not percentiled. Thus, 35 may have been a very good score for the U01 RFA that you applied under. Unless the funding line changes radically, I doubt that there is much hope.

Stanley

Stanley Perlman, M.D., Ph.D.
Professor
Department of Microbiology
University of Iowa

From: Shibo Jiang (姜世勃) <shibojiang@fudan.edu.cn>
Sent: Sunday, May 14, 2017 9:45:47 PM
To: Fang Li
Cc: Perlman, Stanley; Du Lanying_NYBC
Subject: Re: Re: Is there any news about the possibility of finding our R01 grant application?

Hi Fang,

Thanks for letting me know. If we cannot get it this time, we may have to submit it in Oct.

Hi Stanley,

I would appreciate it very much if you could also talk to Erik. I believe you would have much stronger opinion to convince him to support our NII proposal.

Thanks,

Shibo

-----Original Messages-----

From: "Fang Li" <lifang@umn.edu>
Sent Time: 2017-05-15 10:17:37 (Monday)
To: "Shibo Jiang (姜世勃)" <shibojiang@fudan.edu.cn>

Cc:

Subject: Re: Is there any news about the possibility of finding our R01 grant application?

Hi Shibo,

I contacted Erik before, but he didn't have much information about our grant. I will contact him again. I have to say that it doesn't look very promising.

Best,
Fang

On Sun, May 14, 2017 at 1:07 AM, Shibo Jiang (姜世勃) <shibojiang@fudan.edu.cn> wrote:

Dear Fang,

Hope everything is going very well with you!

Have you heard any news about the possibility of finding our R01 grant application?

The Impact score of our joint U01 grant application on adjuvant combination (Sara Lustigman is the contact PI) is also 35. In the first discussion of the committee in May of last year, our grant was not funded. After Sara kept talking to the Program Official, we finally got the grant last August. This suggests that communicating with the PO is critical for us to get the grant. I believe that you may have contacted with Dr. Erik Stemmy and hope you have gotten some information from him.

Thanks,

Shibo

--

Fang Li, Ph.D.
Associate Professor
Department of Pharmacology
University of Minnesota Twin Cities
612-625-6149, lifang@umn.edu
<http://www.msi.umn.edu/~lifang>

Re: Re: Re: Is there any news about the possibility of finding our R01 grant application?

From: Fang Li <lifang@umn.edu>
To: Shibo Jiang (姜世勃) <shibojiang@fudan.edu.cn>
Cc: Perlman, Stanley <stanley-perlman@uiowa.edu>, Du Lanying_NYBC <ldu@nybc.org>
Sent: May 15, 2017 9:26:11 AM CDT
Received: May 15, 2017 9:26:11 AM CDT
Attachments: 1R01AI132188-01.pdf

Hi all,

Please see attached the summary statement. I don't agree with many of the criticisms. Maybe the study section didn't think that coronavirus vaccines are important?

We can submit it as a regular R01 for the October deadline. The question is whether we should include the nanoparticle part.

Fang

On Sun, May 14, 2017 at 10:32 PM, Shibo Jiang (姜世勃) <shibojiang@fudan.edu.cn> wrote:

Thanks, Stanley!

In that case, should we submit it as a regular R01 proposal in Oct or submit it in response to a similar RFA in the future?

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To: "Shibo Jiang (姜世勃)" <shibojiang@fudan.edu.cn>, "Fang Li" <lifang@umn.edu>

Cc: "Du Lanying_NYBC" <ldu@nybc.org>

Subject: Re: Re: Is there any news about the possibility of finding our R01 grant application?

Shibo,

I think that an RO1 may be pulled out for funding if it achieved a 14 or 15% or less, no matter what the actual score was. The rules are different for U01 because they are not percentiled. Thus, 35 may have been a very good score for the U01 RFA that you applied under. Unless the funding line changes radically, I doubt that there is much hope.

Stanley

Stanley Perlman, M.D., Ph.D.
Professor

Department of Microbiology
University of Iowa

From: Shibo Jiang (姜世勃) <shibojiang@fudan.edu.cn>

Sent: Sunday, May 14, 2017 9:45:47 PM

To: Fang Li

Cc: Perlman, Stanley; Du Lanying_NYBC

Subject: Re: Re: Is there any news about the possibility of finding our R01 grant application?

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--

Fang Li, Ph.D.
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RE: Is there any news about the possibility of finding our R01 grant application?

From: Du, Lanying <LDu@nybc.org>
To: Perlman, Stanley <stanley-perlman@uiowa.edu>, Fang Li <lifang@umn.edu>
Cc: Shibo Jiang (姜世勃) <shibojiang@fudan.edu.cn>
Sent: May 15, 2017 11:16:55 AM CDT
Received: May 15, 2017 11:17:03 AM CDT

Reviewers are always criticizing. If no NHPs are provided, they will say that mouse data cannot be translated into humans; but if NHPs are provided, they will mention that the data are not sufficient. Reviewer 4 even put ZIKV's part in our Environment!

Lanying

From: Perlman, Stanley [mailto:stanley-perlman@uiowa.edu]
Sent: Monday, May 15, 2017 11:48 AM
To: Fang Li
Cc: Shibo Jiang (姜世勃); Du, Lanying
Subject: Re: Is there any news about the possibility of finding our R01 grant application?

Fang,



Stanley

Stanley Perlman, MD, Ph.D.
Professor
Depts of Microbiology and Pediatrics
BSB 3-712
University of Iowa
Iowa City, IA 52242
319-335-8549

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Hi all,

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Cc:

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<http://www.msi.umn.edu/~lifang>

--

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<http://www.msi.umn.edu/~lifang>

<1R01AI132188-01.pdf>



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Fw: Re: Conversion deadline for the PCT application

From: Du, Lanying <LDu@nybc.org>
To: li.926@osu.edu
Cc: lifang@umn.edu
Sent: July 7, 2017 3:07:35 PM CDT
Received: July 7, 2017 3:07:58 PM CDT

Hi Jianrong,

Please see below questions from our patent office. Do you have the [REDACTED] you used for the challenge? Could you answer below questions regarding the advantages of this new U.S. PEDV strain over the strains mentioned in the Chinese patent?

I am in China now, and am not easily to find the [REDACTED] used for your challenge. It would be very helpful if you and Fang can address some of the questions mentioned below. The strain you used is the new US strain, right? Could we emphasize its advantages over the ones mentioned in the Chinese patent?

Thanks,
Lanying

From: Du, Lanying

Sent: Friday, July 07, 2017 3:53 PM

To: Edelman, Lambert; Patel, Krishna; Jiang, Shibo; shibojiang@fudan.edu.cn

Subject: Re: Re: Conversion deadline for the PCT application

Hi Lambert,

Here is the description for the strains in the Chinese patent. I could not find the sequence of HN1301 (see below), and the following link shows the S sequence of CV777 (<https://www.ncbi.nlm.nih.gov/protein/AAK38656.1>).

I am checking with our co-inventer to see if he has the [REDACTED] strain we used for the challenge.

Thanks,
Lanying

[0067] embodiment of the invention as porcine epidemic diarrhea virus strains for the Shanghai strains attack or HN1301 strain (Porcine epidemic diarrhea virus, strain HN1301), in which Shanghai strains disclosed in the patent CN101117627A in China, the Ministry of Agriculture Notice No. 270 document the strain as porcine epidemic diarrhea efficient check with ordinary strains virulent strain CV777 strain; Accession No. HN1301 strain as CCTCC NO V201341, the depositary institution for the Chinese Type Culture Collection, preservation address. China, Wuhan University, Wuhan, deposit date of September 16, 2013, but the embodiment under no circumstances to be construed as limiting the present invention.

From: Edelman, Lambert

Sent: Thursday, July 06, 2017 1:27 PM

To: Du, Lanying; Patel, Krishna; Jiang, Shibo; shibojiang@fudan.edu.cn

Subject: RE: Re: Conversion deadline for the PCT application

One other thought, because the Chinese patent is a novelty problem to our application, we could hone in on the virus serotype that you used.

- If you do not mind, can you please point out the serotypes and sequences that were superior and which were not?
- Would you say that the US virus serotype sequence fragment is basically the same as the Chinese virus serotype sequence to get best results? In other words, if I used [REDACTED] of the Chinese virus would I also use [REDACTED] of the US serotype?
- Lastly, can you please honestly state to me the meaningfulness of claiming the US serotype sequences given the adaptability and mutations in virus epitopes?

Thank you.
Lambert

From: Edelmann, Lambert
Sent: Thursday, July 06, 2017 12:56 PM
To: Du, Lanying; Patel, Krishna; Jiang, Shibo; shibojiang@fudan.edu.cn
Subject: RE: Re: Conversion deadline for the PCT application

Lanying, the [REDACTED] Or is there other information?
Thank you,
Lambert

From: Du, Lanying
Sent: Tuesday, June 27, 2017 9:34 PM
To: Patel, Krishna; Jiang, Shibo; shibojiang@fudan.edu.cn
Cc: Edelmann, Lambert
Subject: Re: Re: Conversion deadline for the PCT application

Hi Lambert and Krishna,

Shibo is not in New York currently. Thursday afternoon after 2 pm is fine with me.

Thanks,
Lanying

From: Patel, Krishna
Sent: Tuesday, June 27, 2017 12:06 PM
To: Jiang, Shibo; Du, Lanying; shibojiang@fudan.edu.cn
Cc: Edelmann, Lambert
Subject: Re: Conversion deadline for the PCT application

Dear Dr. Du and Dr. Jiang,

My name is Krishna Patel and I'm currently an Intern at the Office of Scientific Business Development working with Dr. Lambert Edelmann. We are running close to the conversion deadline of the attached PCT application (porcine epidemic diarrhea virus (PEDV) immunogenic compositions) and would like to meet and discuss with you since our meeting planned for July 27 is too late for this specific case. Does the end of this week or sometime next week work for you? Please let me know your time preference and we can try to schedule it accordingly.

Sincerely,
Krishna

Krishna Patel, PhD
Business Development Intern
Office of Scientific Business Development
New York Blood Center
310 East 67th Street
New York, NY 10065

Phone: 212-699-5205

Kpatel@nybc.org



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RE: NYBC659 PEDV

From: Edelmann, Lambert <LEdelmann@nybc.org>
To: Du, Lanying <LDu@nybc.org>
Cc: Shibo Jiang (姜世勃) <shibojiang@fudan.edu.cn>, Li, Jianrong <li.926@osu.edu>, Fang Li <lifang@umn.edu>
Sent: July 13, 2017 9:39:41 AM CDT
Received: July 13, 2017 9:39:59 AM CDT
Attachments: CN-104262488_-ENGLISH.pdf

Dear Lanying,

Thank you very much for your analysis and including your co-inventors.

[REDACTED]

[REDACTED]

[REDACTED]

But I am really interested in hearing from your co-inventors as well.
Thank you very much for your comprehensive analysis.

Best regards,
Lambert

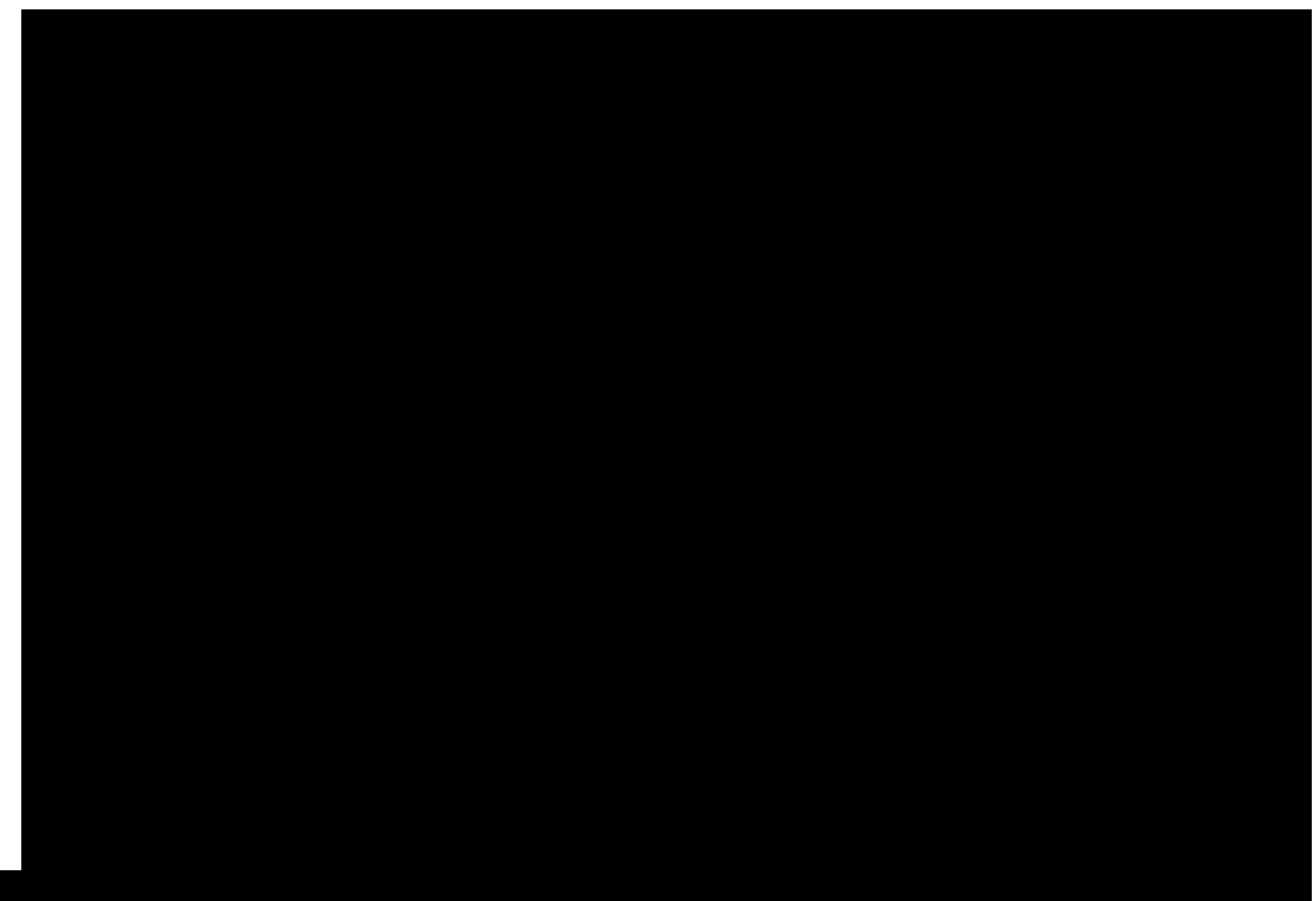
From: Du, Lanying
Sent: Wednesday, July 12, 2017 6:19 PM
To: Edelmann, Lambert
Cc: Shibo Jiang (姜世勃); Fang Li; Li, Jianrong
Subject: Re: NYBC659 PEDV

Hi Lambert,

I have cc'd our co-inventors in this email in case they have good explanations or suggestions about our application.

Thanks,
Lanying

[REDACTED]



From: Edelmann, Lambert
Sent: Wednesday, July 12, 2017 4:54 PM
To: Du, Lanying
Subject: NYBC659 PEDV

Dear Lanying,



Thanks for getting back to me,
Lambert

Lambert Edelman PhD
Director
Scientific Business Development

Comprehensive Cell Solutions
New York Blood Center

310 East 67th Street
New York, NY 10065
Phone (office) 212-570-3215

Comprehensive Cell Solutions
www.comprehensivecellsolutions.com



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Fw: PEDV

From: Du, Lanying <LDu@nybc.org>
To: Shibo Jiang (姜世勃) <shibojiang@fudan.edu.cn>, Fang Li <lifang@umn.edu>, Li, Jianrong <li.926@osu.edu>
Sent: July 14, 2017 11:25:29 AM CDT
Received: July 14, 2017 11:25:51 AM CDT

Hi all,

Any suggestions or feedback on the application? Looks like we may have to give up this application and look for future opportunities.

Thanks,

Lanying



From: Edelmann, Lambert
Sent: Friday, July 14, 2017 11:45 AM
To: Du, Lanying
Cc: Jiang, Shibo
Subject: PEDV

Hi Lanying,

I just heard from UMN that they want to drop the application, however, please let me know the feedback from your co-inventors.

Thank you, Lambert

Lambert Edelmann PhD
Director
Scientific Business Development

Comprehensive Cell Solutions
New York Blood Center

310 East 67th Street
New York, NY 10065
Phone (office) 212-570-3215

Comprehensive Cell Solutions
www.comprehensivecellsolutions.com

From: Edelmann, Lambert
Sent: Thursday, July 13, 2017 11:05 AM
To: Du, Lanying
Subject: PEDV

Hi Lanying,

Thanks again for your analysis,

While I have not yet heard back from the inventors upon your nice email, the office at OSU will not continue with the filing and MNU also signaled that they will rather let the application lapse based on the situation.

I will fill you in and hope to hear from the inventors as well.

Best regards,
Lambert

Lambert Edelmann PhD
Director
Scientific Business Development

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New York Blood Center

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New York, NY 10065
Phone (office) 212-570-3215

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RE: Re: Conversion deadline for the PCT application

From: Li, Jianrong <li.926@osu.edu>
To: Du, Lanying <LDu@nybc.org>
Cc: lifang@umn.edu
Sent: July 17, 2017 4:27:16 PM CDT
Received: July 17, 2017 4:27:22 PM CDT

Hi Lanying,

I apologize that I have not responded to your email. The [REDACTED]
[REDACTED]

Thanks,

Jianrong

From: Du, Lanying [mailto:LDu@nybc.org]
Sent: Friday, July 07, 2017 4:08 PM
To: Li, Jianrong
Cc: lifang@umn.edu
Subject: Fw: Re: Conversion deadline for the PCT application

Hi Jianrong,

Please see below questions from our patent office. Do you have the [REDACTED] you used for the challenge? Could you answer below questions regarding the advantages of this new U.S. PEDV strain over the strains mentioned in the Chinese patent?

I am in China now, and am not easily to find the [REDACTED] used for your challenge. It would be very helpful if you and Fang can address some of the questions mentioned below. The strain you used is the [REDACTED] Could we emphasize its advantages over the ones mentioned in the Chinese patent?

Thanks,
Lanying

From: Du, Lanying
Sent: Friday, July 07, 2017 3:53 PM
To: Edelman, Lambert; Patel, Krishna; Jiang, Shibo; shibojiang@fudan.edu.cn
Subject: Re: Re: Conversion deadline for the PCT application

Hi Lambert,

[REDACTED]

Thanks,
Lanying

From: Edelmann, Lambert
Sent: Thursday, July 06, 2017 1:27 PM
To: Du, Lanying; Patel, Krishna; Jiang, Shibo; shibojiang@fudan.edu.cn
Subject: RE: Re: Conversion deadline for the PCT application

One other thought, because the Chinese patent is a novelty problem to our application, we could hone in on the virus serotype that you used.

- If you do not mind, can you please point out the serotypes and sequences that were superior and which were not?
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- Lastly, can you please honestly state to me the meaningfulness of claiming the US serotype sequences given the adaptability and mutations in virus epitopes?

Thank you.
Lambert

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Sent: Thursday, July 06, 2017 12:56 PM
To: Du, Lanying; Patel, Krishna; Jiang, Shibo; shibojiang@fudan.edu.cn
Subject: RE: Re: Conversion deadline for the PCT application

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Thank you,
Lambert

From: Du, Lanying
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To: Patel, Krishna; Jiang, Shibo; shibojiang@fudan.edu.cn
Cc: Edelmann, Lambert
Subject: Re: Re: Conversion deadline for the PCT application

Hi Lambert and Krishna,

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Thanks,
Lanying

From: Patel, Krishna
Sent: Tuesday, June 27, 2017 12:06 PM
To: Jiang, Shibo; Du, Lanying; shibojiang@fudan.edu.cn
Cc: Edelmann, Lambert
Subject: Re: Conversion deadline for the PCT application

Dear Dr. Du and Dr. Jiang,

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Sincerely,
Krishna

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Phone: 212-699-5205
Kpatel@nybc.org


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Re: NYBC659 PEDV

From: Du, Lanying <LDu@nybc.org>
To: Li, Jianrong <li.926@osu.edu>, Edelmann, Lambert <LEdelmann@nybc.org>
Cc: Shibo Jiang (姜世勃) <shibojiang@fudan.edu.cn>, Fang Li <lifang@umn.edu>
Sent: July 17, 2017 5:22:09 PM CDT
Received: July 17, 2017 5:22:18 PM CDT

Hi Lambert,

I hope Jianrong's comments will help for the clarification, and can be useful for protecting our patent application if there is a chance for refiling and addressing examiner's critiques.

Please let us know if you have any concerns.

Thanks,

Lanying

From: Li, Jianrong <li.926@osu.edu>

Sent: Monday, July 17, 2017 5:33 PM

To: Edelmann, Lambert; Du, Lanying

Cc: Shibo Jiang (姜世勃); Fang Li

Subject: RE: NYBC659 PEDV

Dear Lambert,



Jianrong

From: Edelmann, Lambert [mailto:LEdelmann@nybc.org]

Sent: Thursday, July 13, 2017 10:40 AM

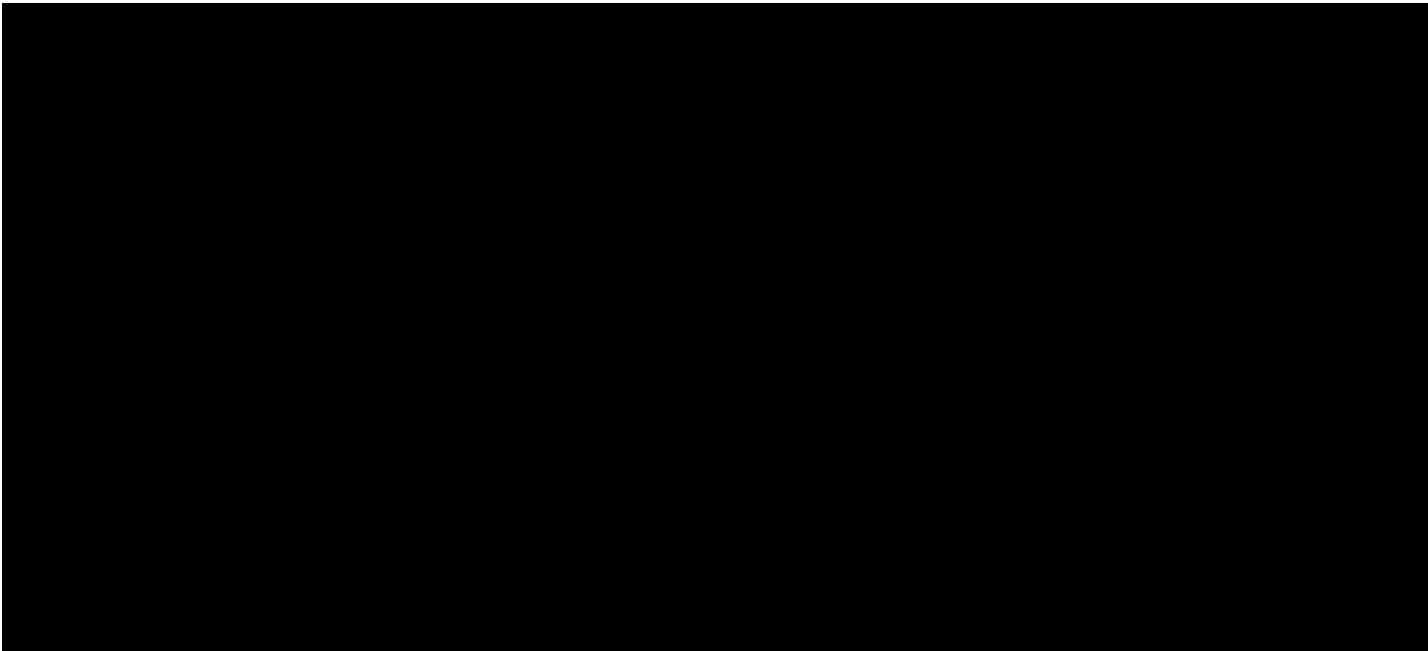
To: Du, Lanying

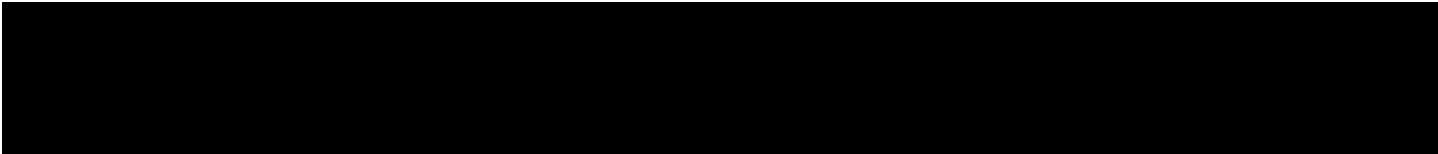
Cc: Shibo Jiang (姜世勃); Li, Jianrong; Fang Li

Subject: RE: NYBC659 PEDV

Dear Lanying,

Thank you very much for your analysis and including your co-inventors.





But I am really interested in hearing from your co-inventors as well.
Thank you very much for your comprehensive analysis.

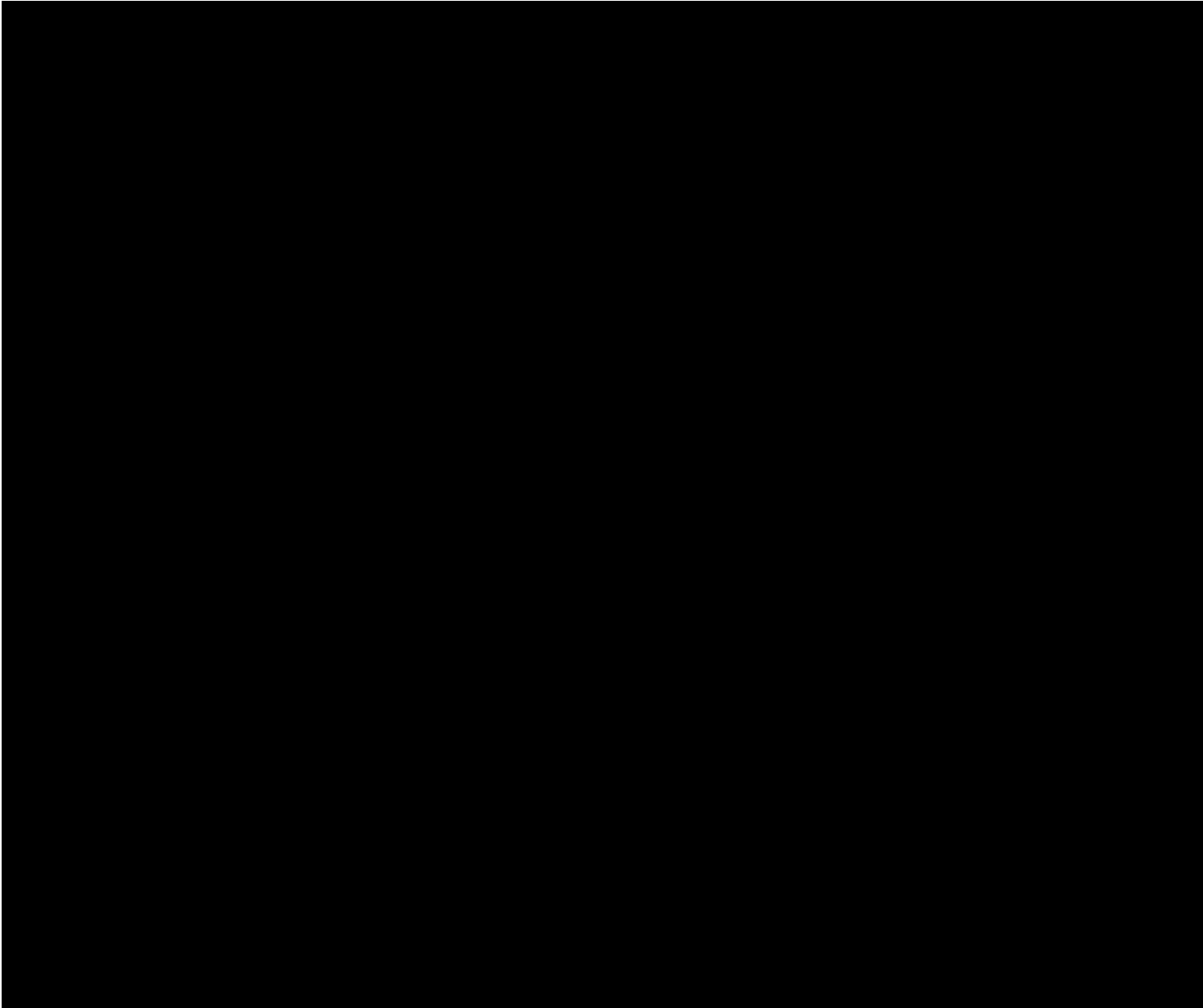
Best regards,
Lambert

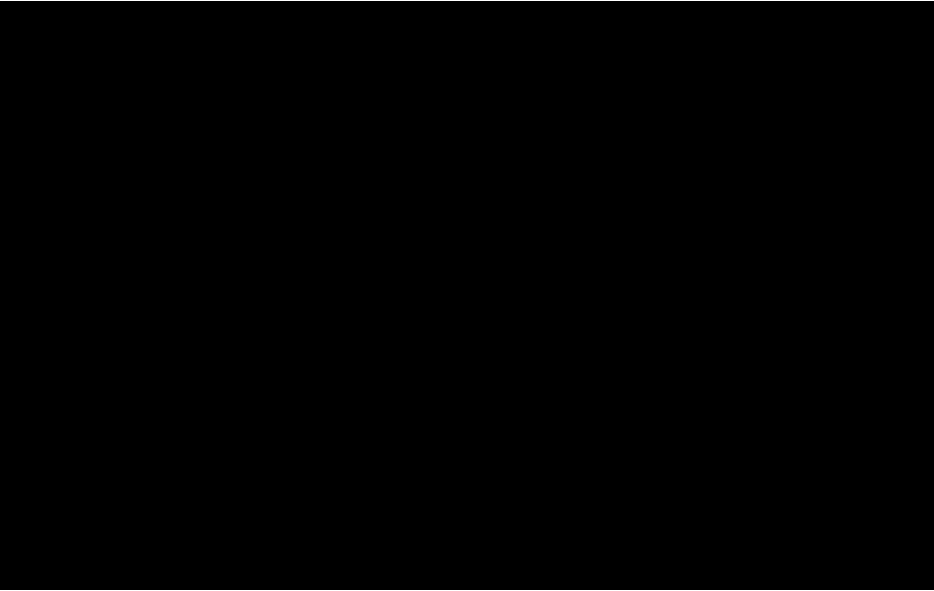
From: Du, Lanying
Sent: Wednesday, July 12, 2017 6:19 PM
To: Edelmann, Lambert
Cc: Shibo Jiang (姜世勃); Fang Li; Li, Jianrong
Subject: Re: NYBC659 PEDV

Hi Lambert,

I have cc'd our co-inventors in this email in case they have good explanations or suggestions about our application.

Thanks,
Lanying





From: Edelmann, Lambert
Sent: Wednesday, July 12, 2017 4:54 PM
To: Du, Lanying
Subject: NYBC659 PEDV

Dear Lanying,



Thanks for getting back to me,
Lambert

Lambert Edelmann PhD
Director
Scientific Business Development

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New York Blood Center

310 East 67th Street
New York, NY 10065
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RE: NYBC659 PEDV

From: Edelman, Lambert <LEdelmann@nybc.org>
To: Li, Jianrong <li.926@osu.edu>, Du, Lanying <LDu@nybc.org>
Cc: Shibo Jiang (姜世勃) <shibojiang@fudan.edu.cn>, Fang Li <lifang@umn.edu>
Sent: July 24, 2017 4:12:52 PM CDT
Received: July 24, 2017 4:13:02 PM CDT

Dear Jianrong,

Thank you for your input. [REDACTED]

Thank you,
Lambert

From: Li, Jianrong [mailto:li.926@osu.edu]
Sent: Monday, July 17, 2017 5:33 PM
To: Edelman, Lambert; Du, Lanying
Cc: Shibo Jiang (姜世勃); Fang Li
Subject: RE: NYBC659 PEDV

Dear Lambert,

[REDACTED]

Jianrong


From: Edelman, Lambert [mailto:LEdelmann@nybc.org]
Sent: Thursday, July 13, 2017 10:40 AM
To: Du, Lanying
Cc: Shibo Jiang (姜世勃); Li, Jianrong; Fang Li
Subject: RE: NYBC659 PEDV

Dear Lanying,

Thank you very much for your analysis and including your co-inventors.

[REDACTED]

[REDACTED]



But I am really interested in hearing from your co-inventors as well.
Thank you very much for your comprehensive analysis.


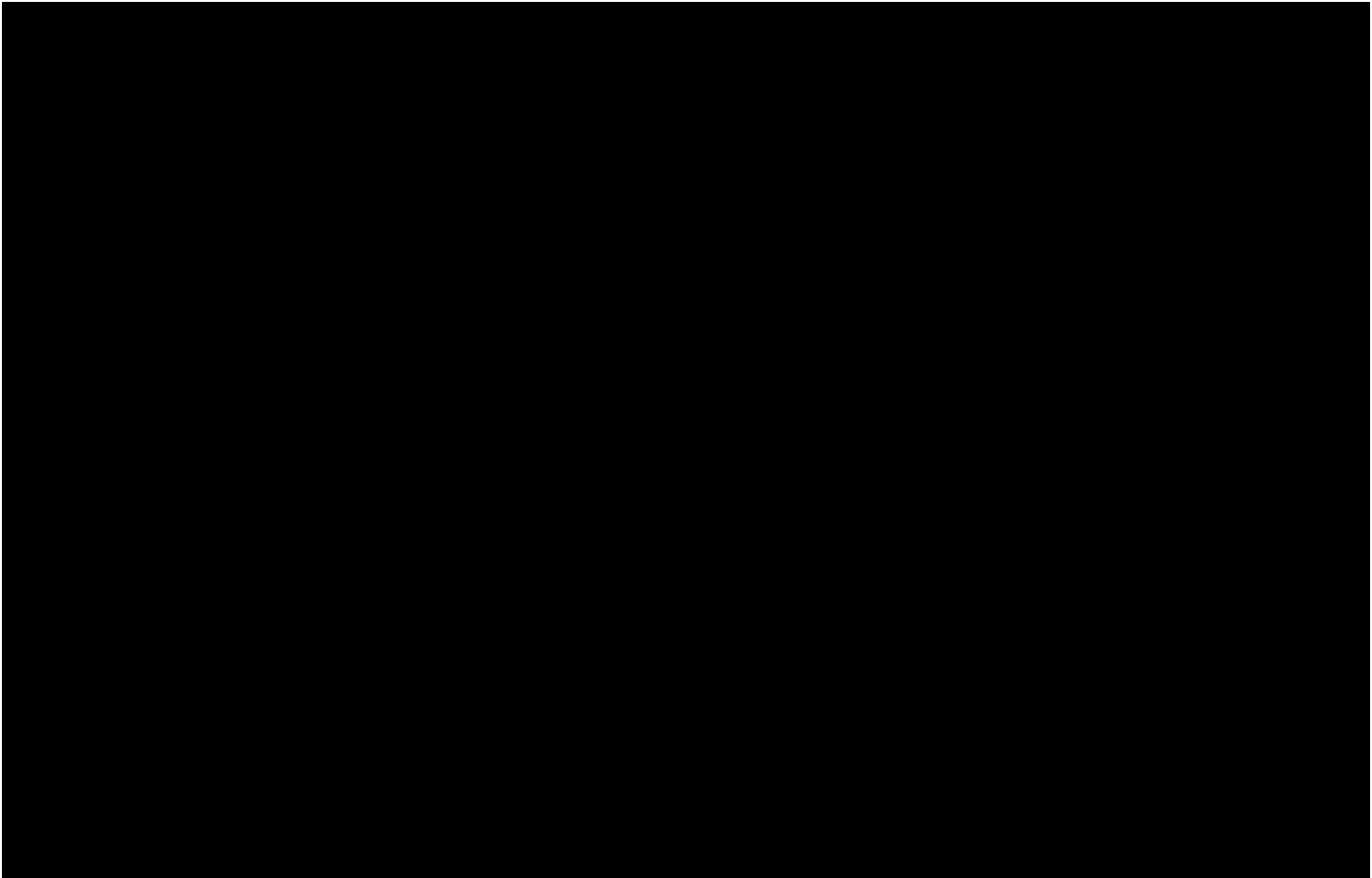
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Sent: Wednesday, July 12, 2017 6:19 PM
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Subject: Re: NYBC659 PEDV

Hi Lambert,

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Thanks,
Lanying





From: Edelmann, Lambert
Sent: Wednesday, July 12, 2017 4:54 PM
To: Du, Lanying
Subject: NYBC659 PEDV

Dear Lanying,



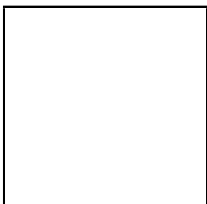
Thanks for getting back to me,
Lambert

Lambert Edelmann PhD
Director
Scientific Business Development

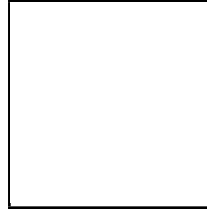
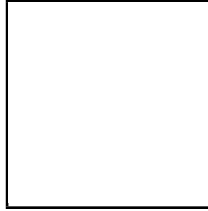
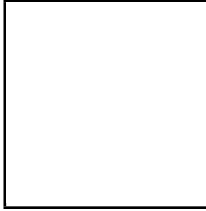
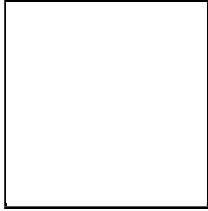
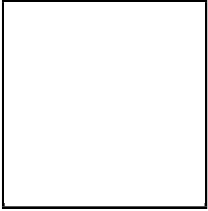
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Re: FACS raw data

From: Fang Li <lifang@umn.edu>
To: Du, Lanying <LDu@nybc.org>
Sent: July 24, 2017 7:39:09 PM CDT
Received: July 24, 2017 7:39:09 PM CDT

█ is making the figure. you don't need to.

On Mon, Jul 24, 2017 at 5:37 PM, Du, Lanying <LDu@nybc.org> wrote:

Without adding █

From: Fang Li <lifang@umn.edu>
Sent: Monday, July 24, 2017 6:33 PM
To: Du, Lanying
Subject: Re: FACS raw data

can you make a figure like the one I sent earlier?

On Mon, Jul 24, 2017 at 4:22 PM, Du, Lanying <LDu@nybc.org> wrote:

--

Fang Li, Ph.D.
Associate Professor
Department of Pharmacology
University of Minnesota Twin Cities
[612-625-6149](tel:612-625-6149), lifang@umn.edu
<http://www.msi.umn.edu/~lifang>

█
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--

Fang Li, Ph.D.
Associate Professor
Department of Pharmacology

University of Minnesota Twin Cities

612-625-6149, lifang@umn.edu

<http://www.msi.umn.edu/~lifang>

Re: FACS method and Legend

From: [REDACTED]
To: Du, Lanying <LDu@nybc.org>
Cc: Fang Li <lifang@umn.edu>, [REDACTED] Wanbo TAI
<335409787@qq.com>
Sent: July 25, 2017 6:23:39 PM CDT
Received: July 25, 2017 6:23:40 PM CDT

Thanks,
[REDACTED]

2017-07-25 18:20 GMT-05:00 Du, Lanying <LDu@nybc.org>:

See below.

Wanbo, check the name of antibodies.

Best,

Lanying


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Re: FACS method and Legend

From: Wanbo TAI <335409787@qq.com>
To: [REDACTED] Du, Lanying <LDu@nybc.org>
Cc: Fang Li <lifang@umn.edu>, [REDACTED]
Sent: July 25, 2017 7:05:43 PM CDT
Received: July 25, 2017 7:05:58 PM CDT

The antibody name is right.

发自我的iPhone

----- Original -----

From: [REDACTED]
Date: Tue, Jul 25, 2017 19:23
To: Du, Lanying <LDu@nybc.org>
Cc: Fang Li <lifang@umn.edu>, [REDACTED] Wanbo TAI <335409787@qq.com>
Subject: Re: FACS method and Legend

Thanks,

2017-07-25 18:20 GMT-05:00 Du, Lanying <LDu@nybc.org>:

See below.

Wanbo, check the name of antibodies.

Best,

Lanying


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Re: Report About The new Advances in (MERS-CoV) research.

From: Du, Lanying <LDu@nybc.org>
To: Dr. Tarek Kapiel <tarekkapiel@hotmail.com>
Cc: Shibo Jiang (姜世勃) <shibojiang@fudan.edu.cn>, Fang Li <lifang@umn.edu>
Sent: October 15, 2017 8:14:49 AM CDT
Received: October 15, 2017 8:19:10 AM CDT

Dear Dr. Kapiel,

Thanks for your email request. We have recently reported a new approach on MERS-CoV studies. We have summarized below sentences for your reference.

Feel free to let us know if you need further information.

Best regards,

Lanying

Using “neutralizing immunogenicity index” (NII) as a new tool, Du et al (*Nat Commun.* 2016;7:13473) evaluated the neutralizing immunogenicity of different epitopes on the receptor-binding domain (RBD) of Middle East respiratory syndrome (MERS) coronavirus (MERS-CoV) spike protein, and further designed an engineered vaccine with significantly enhanced efficacy against lethal MERS-CoV infection. This new approach may guide rational design of effective subunit vaccines against not only MERS-CoV but also other emerging infectious viruses.

From: Dr. Tarek Kapiel <tarekkapiel@hotmail.com>

Sent: Saturday, October 14, 2017 5:44 AM

To: Hotez, Peter Jay; 'Jerome Kim'; moorthyv@who.int; adam_cockrell@unc.edu; gambottoa@upmc.edu; brennan.klose@abviro.com; brian.walter@regeneron.com; sktseng@UTMB.EDU; christos.kyratsous@regeneron.com; dcrane@brightonbiotech.com; erik.stemmy@nih.gov; Gabriel.Defang@med.navy.mil; urban.ramstedt@abviro.com; jcummings@Novavax.com; jmaslow@genels.com; kmodjarrad@hivresearch.org; Du, Lanying; lellingsworth@Novavax.com; Mary.Kosinski@HHS.GOV; johnsonreed@niaid.nih.gov; Rick.Bright@hhs.gov; Robin.Robinson@HHS.GOV; SAndreasson@Novavax.com; thomas.luke@med.navy.mil; munstervj@niaid.nih.gov; wayne_marasco@dfci.harvard.edu; J.Farrar@wellcome.ac.uk; sarah.gilbert@ndm.ox.ac.uk; l.enjuanes@cnb.csic.es; hlashuel@qf.org.qa; malhajri1@sch.gov.qa; b.haagmans@erasmusmc.nl; albert.osterhaus@tiho-hannover.de; mmuteb@kacst.edu.sa; aabinsaeed@moh.gov.sa; azizaa@gmail.com; abdullahm.asiri@moh.gov.sa; aalnaeem@kfu.edu.sa; rajhi@kfshrc.edu.sa; askaras@NGHA.MED.SA; ahersi@ksu.edu.sa; amhashem@kau.edu.sa; arnab.pain@kaust.edu.sa; aalshamsan@ksu.edu.sa; alshammariba2@ngha.med.sa; boudjelalmo@NGHA.MED.SA; esamazhar@yahoo.com; eyamani@kacst.edu.sa; habdely@gmail.com; halrabiah@KSU.EDU.SA; hamsa3000@gmail.com; htayeb@kfshrc.edu.sa; balkhyh@hotmail.com; hassanys@hotmail.com; helriyati@germfree.com; aahershan@jazanu.edu.sa; aahershan@gmail.com; ialjuffali@gmail.com; kfaleh@ksu.edu.sa; mhemida@kfu.edu.sa; Gomaa55@gmail.com; mmozaini@kfshrc.edu.sa; mfageeh@kacst.edu.sa; mkuriji@kacst.edu.sa; drmusaad@hotmail.com; omarkasule@yahoo.com; rhalwani@ksu.edu.sa; rniazy@kacst.edu.sa; wghamdi@kacst.edu.sa; alwaneen@kacst.edu.sa; yaseenarabi@yahoo.com; haljadhey@KSU.EDU.SA; Habuelizz@ksu.edu.sa; salyahya@kacst.edu.sa; haljohi@kacst.edu.sa; aamalik@kacst.edu.sa; mnassar@kacst.edu.sa; mohsag@yahoo.com; hbatshan@moa.gov.sa; almuhsen@ksu.edu.sa; dr.alivet@live.com; ihussain@kfshrc.edu.sa; yohaly@shifthealth.com; alswailem@kacst.edu.sa; wfudah@isdb.org; asallam@isdb.org; Jean-Louis Excler; cho@genels.com; In Kyu Yoon; jinyoung09.choi@samsung.com; jiyoung.min@ip-korea.org; Manki Song; msjeong@genels.com; park@genels.com; Thomas.Hesterkamp@helmholtz-hzi.de; sutter@micro.vetmed.uni-muenchen.de; Michael.Muehlebach@pei.de; shibojiang@fudan.edu.cn; zhanglinqi@tsinghua.edu.cn; cdelvecchio@shifthealth.com; rafick.sekaly@case.edu; RWiley@shifthealth.com

Subject: Report About The new Advances in (MERS-CoV) research.

Dear respected Professors,

I am writing a report about the new research published recently entitled:

“Identification of diverse viruses in upper respiratory samples in dromedary camels from United Arab Emirates” to be published on www.scidev.net website.

<http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0184718>

http://www.natureasia.com/en/nmiddleeast/article/10.1038/nmiddleeast.2017.141?WT.ec_id=NMIDDLEEAST-20171005

It will be my pleasure to add your comment about the implications of the new approach of metagenomics and the new advances tools on the Middle East respiratory syndrome coronavirus (MERS-CoV) research.

Thank you in advance,
Best of luck,
Tarek

Tarek Kapiel, *B.Sc., M.Sc., Ph.D. (Plant Biotechnology)*

*Assistant Professor,
Biology Department,
Faculty of Arts and Science,
Al-Baha University,
Baljurashy,
Kingdom of Saudi Arabia*

*[Cairo University Scholars](#) * [About me](#) * [Linkedin](#) * [Facebook](#) * [Twitter](#) * [Academia](#)*



Dr. Tarek Kapiel

about.me/tkapiel



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"Fls and sDPP4"

From: Tseng, Chien-Te K. <sktseng@UTMB.EDU>
To: Shibo Jiang (姜世勃) <shibojiang@fudan.edu.cn>
Cc: Fang Li <lifang@umn.edu>
Sent: November 19, 2017 9:09:01 AM CST
Received: November 19, 2017 9:09:07 AM CST

Hi, Shibo,

We have recently

 and feel that you might be interested in working together.

Best,
Kent

Re: 422 spike sequence

From: Fang Li <lifang@umn.edu>
To: zlshi <zlshi@wh.iov.cn>
Sent: February 10, 2018 4:59:31 PM CST
Received: February 10, 2018 4:59:31 PM CST

Thanks, Zhengli. I will let Ralph know.

Best,
Fang

On Fri, Feb 9, 2018 at 8:09 PM, zlshi <zlshi@wh.iov.cn> wrote:

Dear Fang,

There should no problem if there is not too much overlapping with our work. I suppose that he want to

[REDACTED]
[REDACTED] We have stop here for the moment. I would encourage him to have a try.

Best regards,
Zhengli,

SHI Zhengli, Ph. D
Senior Scientist & Professor
Wuhan Institute of Virology, Chinese Academy of Sciences
44 Xiao Hong Shan
430071 Wuhan, Hubei
China
Tel & Fax: (0086) 27 87197240
Email: zlshi@wh.iov.cn

From: [Fang Li](#)
Date: 2018-02-10 01:22
To: [Zhengli Shi](#)
Subject: 422 spike sequence

Dear Zhengli,

I just talked to Ralph Baric on the phone. I mentioned to him about your recent work [REDACTED] that is currently under review at JVI. He asked whether he could get the sequence of the [REDACTED] [REDACTED] I said that I would need to check with you. Please let me know what you think.

Thanks,
Fang

--

Fang Li, Ph.D.
Associate Professor
Department of Veterinary and Biomedical Sciences
University of Minnesota Twin Cities
[612-625-6149](tel:612-625-6149), lifang@umn.edu

<http://www.msi.umn.edu/~lifang>

--

Fang Li, Ph.D.
Associate Professor
Department of Veterinary and Biomedical Sciences
University of Minnesota Twin Cities
612-625-6149, lifang@umn.edu
<http://www.msi.umn.edu/~lifang>

Re: Fw: JVI00116-18 Decision Letter

From: Fang Li <lifang@umn.edu>
To: 石正丽 <zlishi@wh.iov.cn>
Cc: [REDACTED]
Sent: February 21, 2018 8:10:52 PM CST
Received: February 21, 2018 8:10:52 PM CST

Dear Zhengli,

Yes, we have the antibodies and [REDACTED] will start testing them.

Cheers,
Fang

On Wed, Feb 21, 2018 at 7:24 PM, 石正丽 <zlishi@wh.iov.cn> wrote:

Dear Fang, [REDACTED]

Please see the following email from JVI editor. It is a very positive decision. The major comment is on the pseudovirus and we need to conduct additional experiments. I suppose you have MERS-CoV antibody and can do it easily.

[REDACTED] please address the comments appropriately, thanks.

Best regards,
Zhengli,

-----原始邮件-----

发件人:asm@msubmit.net

发送时间:2018-02-22 00:18:42 (星期四)

收件人: zlishi@wh.iov.cn

抄送:

主题: JVI00116-18 Decision Letter

Prof. Zheng-Li Shi
Wuhan Institute of Virology, Chinese Academy of Sciences
44 Xiao Hong Shan
Wuhan, Hubei 430071
China

Re: JVI00116-18 (Discovery of novel bat coronaviruses in south China that use the same receptor as MERS coronavirus)

Dear Prof. Zheng-Li Shi:

Below you will find the comments of the reviewers. Both reviewers viewed your findings as significant to the field and worthy of publication in JVI. Yet they did have several comments aimed at improving your manuscript. [REDACTED]

[REDACTED]

To submit your modified manuscript, log onto the eJP submission site at [REDACTED]. If you cannot remember your password, click the "Can't remember your password?" link and follow the instructions on the screen. Go to Author Tasks and click the appropriate manuscript title to begin the resubmission process. The information that you entered when you first submitted the paper will be displayed. Please update the information as necessary. Provide point-by-point responses to the issues raised by the reviewers in a file named "Response to Reviewers," not in your cover letter. Specify with page and line numbers where in the revised manuscript the revisions have been made. If you perform additional experiments in response to the reviewers' comments, we expect that the results of those experiments will be incorporated into the body of the manuscript and NOT submitted as supplemental data, except as allowed by the Instructions to Authors.

Please return the manuscript within 60 days; if you cannot complete the modification within this time period, please contact me. If you do not wish to modify the manuscript and prefer to submit it to another journal, please notify me of your decision immediately so that the manuscript may be formally withdrawn from consideration by Journal of Virology.

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If you are interested in providing an illustration, related to this manuscript, for the cover of JVI, contact Dr. Stacey Schultz-Cherry at Stacey.Schultz-Cherry@StJude.org for details.

Thank you for submitting your paper to JVI.

Sincerely,
Tom Gallagher
Editor, Journal of Virology

Reviewer comments:

[REDACTED]

[REDACTED]



--

Fang Li, Ph.D.
Associate Professor
Department of Veterinary and Biomedical Sciences
University of Minnesota Twin Cities
612-625-6149, lifang@umn.edu
<http://www.msi.umn.edu/~lifang>

Re: FW: New 2b spike sequence

From: Fang Li <lifang@umn.edu>
To: Baric, Ralph S <rbaric@email.unc.edu>
Sent: February 21, 2018 8:42:35 PM CST
Received: February 21, 2018 8:42:35 PM CST

Hi Ralph,

Thanks for the message. [REDACTED]

By the way, I would like to submit the protease manuscript this weekend or early next week. Do you have comments on the manuscript?

Best,
Fang

On Tue, Feb 20, 2018 at 2:17 PM, Baric, Ralph S <rbaric@email.unc.edu> wrote:

Hi Fang, Nice talking with you last week. The [REDACTED] sequence below. Let me know what you think.
ralph

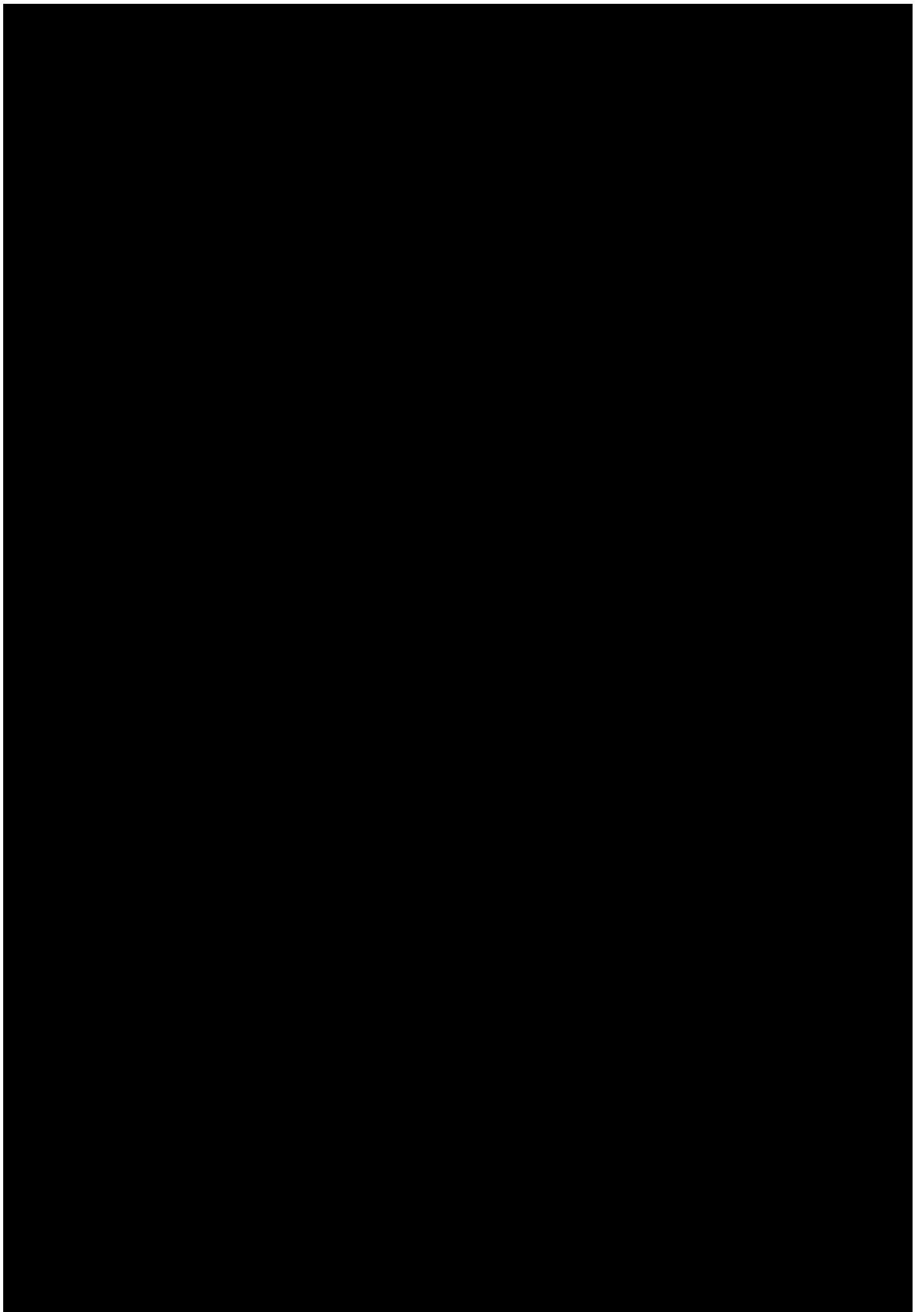
From: Anthony, Simon J. [mailto:sja2127@cumc.columbia.edu]
Sent: Monday, February 13, 2017 5:07 PM
To: Baric, Ralph S <rbaric@email.unc.edu>; Menachery, Vineet D <vineet@email.unc.edu>; Yount, Boyd L Jr <byount@email.unc.edu>
Cc: Jonna Mazet <jkmazet@ucdavis.edu>; Tracey Goldstein <tgoldstein@ucdavis.edu>; Kirsten Gilardi <kvgilardi@ucdavis.edu>
Subject: New 2b spike sequence

Dear Ralph -

Thanks again for the call today. Per our discussion, here is a new spike sequence for you to evaluate. I think you'll like this one as it is SARS-like. :o)

[REDACTED] I am therefore Cc-ing Kirsten Gilardi as she leads all field activities there for UC Davis and was responsible for the collection of these samples.

[REDACTED]



Simon J Anthony, D.Phil
Assistant Professor, Department of Epidemiology
Center for Infection and Immunity, Columbia University

[722 West 168th Street, 17th Floor](#)
NY, NY, 10032

Email: sja2127@cumc.columbia.edu

Office: [212-342-0558](tel:212-342-0558)

--

Fang Li, Ph.D.
Associate Professor
Department of Veterinary and Biomedical Sciences
University of Minnesota Twin Cities
612-625-6149, lifang@umn.edu
<http://www.msi.umn.edu/~lifang>

Re: Fw: JVI00116-18 Decision Letter

From: [REDACTED]
To: 石正丽 <zlshi@wh.iov.cn>
Cc: Fang Li <lifang@umn.edu>
Sent: February 21, 2018 11:39:42 PM CST
Received: February 21, 2018 11:39:44 PM CST

Dear Prof. Shi

Yes, I am working on the pseudovirus test and modifying the draft according to the comments. I will get them ready as soon as possible.

Best,

On Wed, Feb 21, 2018 at 7:24 PM, 石正丽 <zlshi@wh.iov.cn> wrote:

Dear Fang, [REDACTED]

Please see the following email from JVI editor. It is a very positive decision. The major comment is on the pseudovirus and we need to conduct additional experiments. I suppose you have MERS-CoV antibody and can do it easily.

[REDACTED] please address the comments appropriately, thanks.

Best regards,
Zhengli,

-----原始邮件-----

发件人:asm@msubmit.net

发送时间:2018-02-22 00:18:42 (星期四)

收件人: zlshi@wh.iov.cn

抄送:

主题: JVI00116-18 Decision Letter

Prof. Zheng-Li Shi
Wuhan Institute of Virology, Chinese Academy of Sciences
44 Xiao Hong Shan
Wuhan, Hubei 430071
China

Re: JVI00116-18 (Discovery of novel bat coronaviruses in south China that use the same receptor as MERS coronavirus)

Dear Prof. Zheng-Li Shi:

Below you will find the comments of the reviewers. Both reviewers viewed your findings as significant to the field and worthy of publication in JVI. Yet they did have several comments aimed at improving your manuscript. [REDACTED]

[REDACTED]

To submit your modified manuscript, log onto the eJP submission site at [REDACTED]. If you cannot remember your password, click the "Can't remember your password?" link and follow the instructions on the screen. Go to Author Tasks and click the appropriate manuscript title to begin the resubmission process. The information that you entered when you first submitted the paper will be displayed. Please update the information as necessary. Provide point-by-point responses to the issues raised by the reviewers in a file named "Response to Reviewers," not in your cover letter. Specify with page and line numbers where in the revised manuscript the revisions have been made. If you perform additional experiments in response to the reviewers' comments, we expect that the results of those experiments will be incorporated into the body of the manuscript and NOT submitted as supplemental data, except as allowed by the Instructions to Authors.

Please return the manuscript within 60 days; if you cannot complete the modification within this time period, please contact me. If you do not wish to modify the manuscript and prefer to submit it to another journal, please notify me of your decision immediately so that the manuscript may be formally withdrawn from consideration by Journal of Virology.

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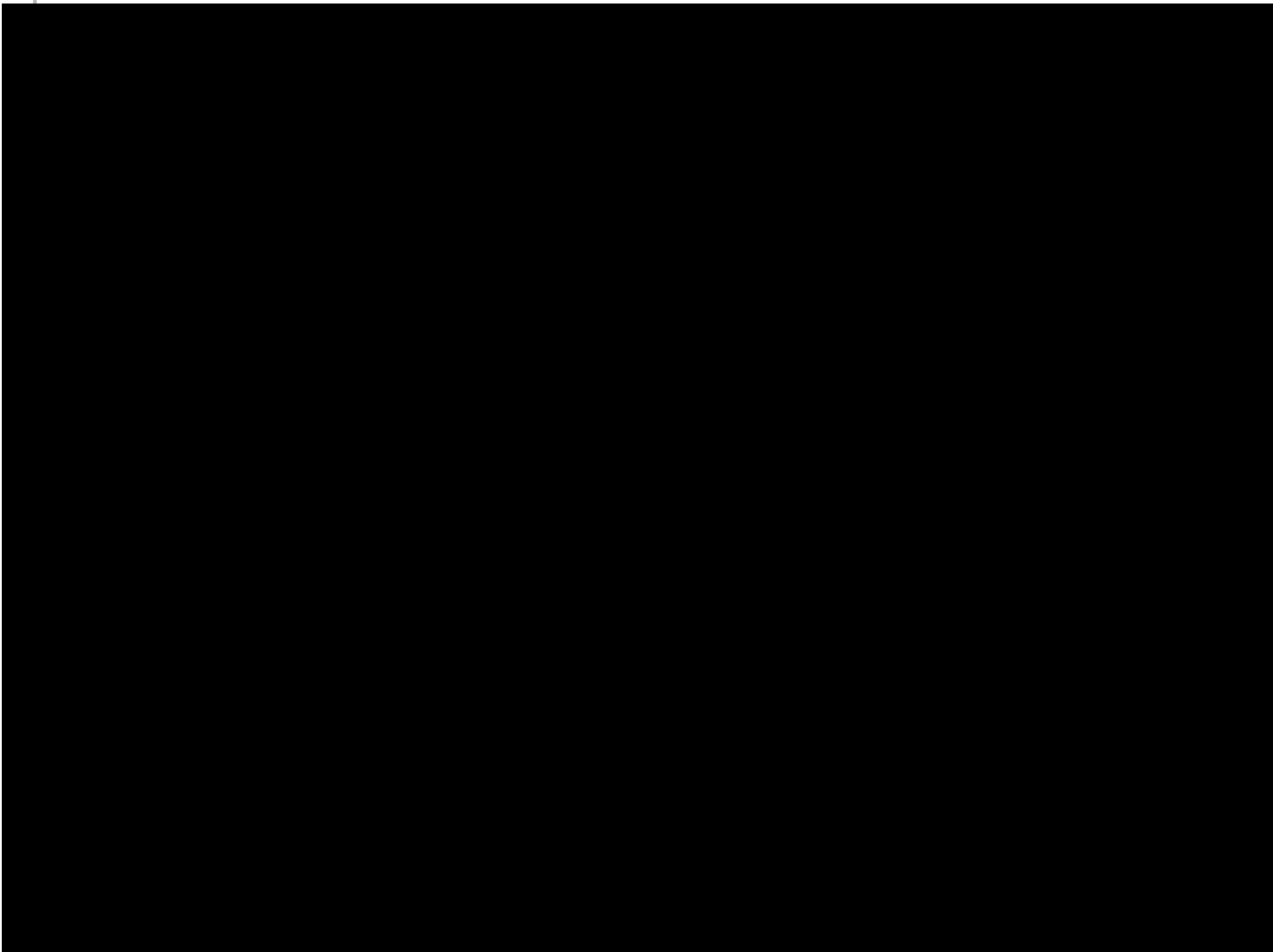
If you are interested in providing an illustration, related to this manuscript, for the cover of JVI, contact Dr. Stacey Schultz-Cherry at Stacey.Schultz-Cherry@StJude.org for details.

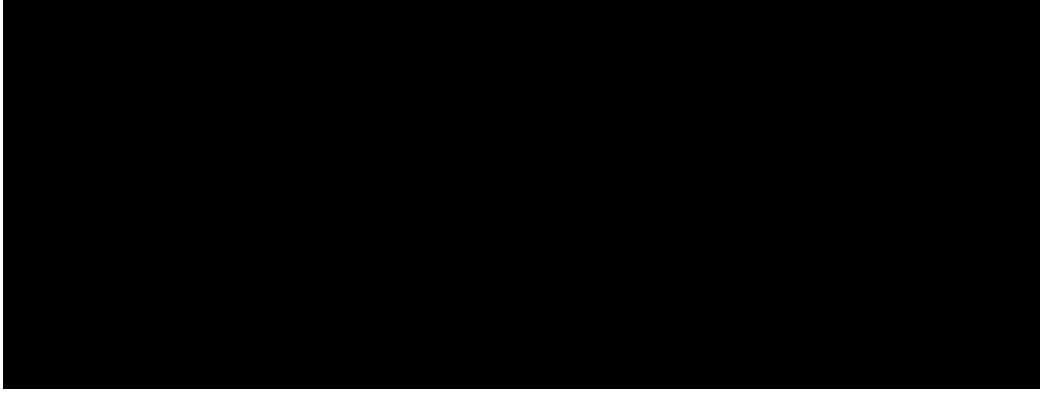
Thank you for submitting your paper to JVI.

Sincerely,
Tom Gallagher
Editor, Journal of Virology

Reviewer comments:

Reviewer #1 (Comments for the Author):





Re: Guest Editor on a Special Issue "MERS-CoV (Coronaviruses)"

From: Fang Li <lifang@umn.edu>
To: Allison Yang/MDPI AG <allison.yang@mdpi.com>
Cc: LDU@nybc.org, Liu, Shan-Lu <liu.6244@osu.edu>, Eric Freed <efreed@mail.nih.gov>, viruses@mdpi.com
Sent: March 5, 2018 1:49:56 PM CST
Received: March 5, 2018 1:49:56 PM CST

Dear Allison and Shan-Lu,

Thanks for giving Lanying and me the opportunity to guest edit this special issue on MERS coronavirus. We will try our best to make this issue reflect the cutting edge progress of the field. As the first step, we will draft the summary in the next week or so.

Best,
Fang

On Sun, Mar 4, 2018 at 11:58 PM, Allison Yang/MDPI AG <allison.yang@mdpi.com> wrote:

Dear Fang and Lanying (if I may),

We are pleased you are willing to guest edit this special issue. I would like to follow-up on Shan-Lu's email and give you a few more details about the process:

1. The first step would be to set-up the website of the special issue. In order to do that we would need a brief introduction to describe the aims and scope of the issue, a list of key words and details about the Guest Editor. Please find attached a form with the required details and some examples here:

http://www.mdpi.com/journal/viruses/special_issues/smallpox40
http://www.mdpi.com/journal/viruses/special_issues/hiv_vaccines

Please also specify the exact title and the deadline for submissions (normally we allow 6-9 months).

2. Once the website is ready, we start the promotion as described by Shan-Lu in his previous email. If you are planning to attend a conference relevant to the topic of the special issue, we can produce a flyer for the special issue and offer a discount for all the participants of that conference, in case you want to invite people to contribute. It worked well in other occasions.

All the 'nitty-gritty' part of the process will be handled by in-house editors: inviting reviewers, sending reminders, collecting review reports, sending papers for revisions, then sending revised papers back to reviewers, etc. The GE approves each submitted paper and proposed reviewers before the papers are sent out for review.

However, we are open to organize the process as you wish, if the described outline does not work for you.

Look forward to hearing from you.

Kind regards,
Allison

MDPI AG
Viruses Editorial Office
St. Alban-Anlage 66, 4052 Basel, Switzerland
Tel.: [+41 61 683 77 34](tel:+41616837734); Fax: [+41 61 302 89 18](tel:+41613028918)
E-Mail: viruses@mdpi.com
<http://www.mdpi.com/journal/viruses/>

On 3/5/2018 11:35 AM, Liu, Shan-Lu wrote:

Dear Fang and Lanying:

Thank you so much for agreeing to be the Guest Editors of the special issue of "MERS-CoV (Coronaviruses)".

Below please find some basic information. **Allison will send you more detailed information.

What Does a Guest Editor Do? Most of the work flow involved in running the special issue will be handled by the editorial office, so the work load for you would not be heavy. Below is a list of the primary responsibilities of a Guest Editor:

1. Preparing a short summary (about 150 words) and keywords to introduce this issue to authors and readers. See [here](http://www.mdpi.com/journal/viruses/special_issues) for current Special Issues (noting that many are still open and will gather further papers in the coming months);
2. Inviting leading investigators in the field to contribute articles (the /Viruses/ editorial office will also solicit some papers, in consultation with you);
3. Pre-checking new submissions before review, and later making the final decision as to whether a paper is acceptable or not after peer review and author's revision;
4. If the opportunity arises, promoting the Special Issue when attending conferences.

**

What Do You Get out of It? Our Guest Editors tend to enjoy the experience, and it will give you a sample of editing at a journal without having to make the normal full commitment. Having seen how papers are viewed at the editorial level, I have personally learned a lot about how to write and present work to help it get noticed. As Guest Editor you are able to invite up to five papers that will qualify for a waiver of the Article Processing Charges (APC). Finally, also from my current situation submitting my dossier for tenure, the exposure and experience look good to the tenure committee.

//

/Viruses/is a fully open access journal, with a current Impact Factor of 3.465. The Article Processing Charge (APC) for accepted papers is CHF 1500. For papers submitted after 1 January 2018, an APC of CHF 1600 will apply. Please feel free to let me know if you have any questions. I hope you will agree to participate in the project. I think it could be a great experience and I look forward to working with you.

**Here's How We Typically Run Our Special Issues **

Usually we set the submission deadline at 6 months past the initiation of the Special Issue (so if we initiated the special issue now, the submission deadline would be around April 2018).

The Guest Editor invites a select group of the top people in the field who may contribute a paper. The editorial office also prepares a Special Issue (SI) announcement that they email to a selected, but somewhat broader group of people active in the field. The announcement and the email list are prepared in consultation with the Guest Editor (GE). We thus receive articles from authors who were specifically invited by the GE and articles submitted in response to the SI announcement.

As you might imagine, the quality of articles that we get from direct GE invites is usually higher than that of the unsolicited articles, so we encourage GEs to invite as many of the best people as possible.

If you would prefer limiting your SI to authors you specifically invite, we will not send out a SI announcement. Ideally, we would like to have at least 10 articles per SI (some have had many more); a minimum of five is required to constitute a SI.

Because Viruses is an open-access journal, it is free for everyone and there is no subscription fee. The journal thus needs to charge an article processing charge for some of its articles. The journal allows five articles per SI to be published free of charge (including an article from the GE if he/she chooses to contribute); the remaining articles incur an article processing fee.

Shan-Lu

signature_70484252

Shan-Lu Liu, M.D., Ph.D.

Professor

Director, Viruses and Emerging Pathogens Program, Infectious Diseases Institute

Investigator, Center for Retrovirus Research

Department of Veterinary Biosciences

The Ohio State University

1900 Coffey Rd, Room 480 VMAB

Columbus, Ohio 43210

Phone: [\(614\) 292-8690](tel:(614)292-8690)

Fax: [\(614\) 292-6473](tel:(614)292-6473)

Email: liu.6244@osu.edu<<mailto:liu.6244@osu.edu>>;
shan-lu.liu@osumc.edu<<mailto:shan-lu.liu@osumc.edu>>

--

Fang Li, Ph.D.
Associate Professor
Department of Veterinary and Biomedical Sciences
University of Minnesota Twin Cities
612-625-6149, lifang@umn.edu
<http://www.msi.umn.edu/~lifang>

shipment of human and bat cathepsin L

From: Fang Li <lifang@umn.edu>
To: Ralph Baric <rbaric@email.unc.edu>, [REDACTED]
Sent: March 5, 2018 3:40:13 PM CST
Received: March 5, 2018 3:40:13 PM CST

Hi Ralph,

My [REDACTED] [REDACTED] just purified the cathepsin L from humans and bats. We can send you 0.5 mg each in the activated form. Please let [REDACTED] know your shipping address, and he can ship the proteins out this week.

Also, thanks for your comments on the protease manuscript. They are very helpful. I will try to submit it to JVI tomorrow.

Best,
Fang

--

Fang Li, Ph.D.
Associate Professor
Department of Veterinary and Biomedical Sciences
University of Minnesota Twin Cities
612-625-6149, lifang@umn.edu
<http://www.msi.umn.edu/~lifang>

RE: shipment of human and bat cathepsin L

From: Baric, Ralph S <rbaric@email.unc.edu>
To: Fang Li <lifang@umn.edu>, [REDACTED]
Cc: Dinnon, Kenneth Harold III <kdinnon@email.unc.edu>, Sims, Amy C <sims0018@email.unc.edu>
Sent: March 5, 2018 4:23:00 PM CST
Received: March 5, 2018 4:23:03 PM CST

Ralph S. Baric, Professor
University of North Carolina at Chapel Hill
Gillings School of Global Public Health
Department of Epidemiology
3304 Hooker Research Building
135 Dauer Drive
2101 McGavran-Greenberg Hall, CB #7435
Chapel Hill, NC 27599-7435
(919) 966-7430
919-966-3895

Amy, did I get this right? ralph

From: Fang Li [mailto:lifang@umn.edu]
Sent: Monday, March 5, 2018 4:40 PM
To: Baric, Ralph S <rbaric@email.unc.edu>; [REDACTED]
Subject: shipment of human and bat cathepsin L

Hi Ralph,

My [REDACTED] [REDACTED] just purified the cathepsin L from humans and bats. We can send you 0.5 mg each in the activated form. Please let [REDACTED] know your shipping address, and he can ship the proteins out this week.

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Associate Professor
Department of Veterinary and Biomedical Sciences
University of Minnesota Twin Cities
612-625-6149, lifang@umn.edu
<http://www.msi.umn.edu/~lifang>

Re: shipment of human and bat cathepsin L

From: Sims, Amy C <sims0018@email.unc.edu>
To: Baric, Ralph S <rbaric@email.unc.edu>, Fang Li <lifang@umn.edu>, [REDACTED]
Cc: Dinnon, Kenneth Harold III <kdinnon@email.unc.edu>
Sent: March 5, 2018 4:27:22 PM CST
Received: March 5, 2018 4:27:25 PM CST

Hi Fang,

Can you please use this address instead?? I am not sure what some of the phone numbers are below and Ralph has mixed at least two addresses which is sure to confuse Fedex!

Thank you very much!! Amy

Ralph Baric/Amy Sims
UNC Chapel Hill
135 Dauer Drive
3109 Hooker Research Center
Chapel Hill, NC 27599-7435
919 966 7991 Amy's Office number

Thank you very much!! Amy

From: "Baric, Ralph S" <rbaric@email.unc.edu>
Date: Monday, March 5, 2018 at 5:23 PM
To: Fang Li <lifang@umn.edu>, [REDACTED]
Cc: Kenneth Dinnon <kdinnon@email.unc.edu>, "Sims, Amy C" <sims0018@email.unc.edu>
Subject: RE: shipment of human and bat cathepsin L

Ralph S. Baric, Professor
University of North Carolina at Chapel Hill
Gillings School of Global Public Health
Department of Epidemiology
3304 Hooker Research Building
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Best,

Fang

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Fang Li, Ph.D.

Associate Professor

Department of Veterinary and Biomedical Sciences

University of Minnesota Twin Cities

612-625-6149, lifang@umn.edu

<http://www.msi.umn.edu/~lifang>

Re: Pre-submission inquiry

From: Liu, Shan-Lu <liu.6244@osu.edu>
To: Maged Gomaa Hemida <mhemida@kfu.edu.sa>
Cc: viruses@mdpi.com, Allison Yang/MDPI AG <allison.yang@mdpi.com>, Fang Li <lifang@umn.edu>, Du, Lanying <LDu@nybc.org>
Sent: March 9, 2018 3:54:48 PM CST
Received: March 9, 2018 3:54:54 PM CST

A special issue on MERC-CoV is actually coming soon. Please contact the journal and also editors of this special issue copied.

Thanks.



Shan-Lu Liu, M.D., Ph.D.
Professor
Director, Viruses and Emerging Pathogens Program
Infectious Diseases Institute
Center for Retrovirus Research
Department of Veterinary Biosciences, Microbial Infection and Immunity, and Microbiology
The Ohio State University
1900 Coffey Rd, Room 480 VMAB
Columbus, Ohio 43210
Phone: (614) 292-8690
Fax: (614) 292-6473
Email: liu.6244@osu.edu; shan-lu.liu@osumc.edu

From: Maged Gomaa Hemida <mhemida@kfu.edu.sa>
Date: Friday, March 9, 2018 at 4:48 PM
To: "Liu, Shan-Lu" <liu.6244@osu.edu>
Subject: Pre-submission inquiry

Dear Prof. Liu,

I wonder if a review article titles (Current advances in MERS-CoV/human/animal interaction) would be of interest to the Viruses journal?

Looking forward to hearing from you.

Regards,

Maged

Re: Pre-submission inquiry

From: Allison Yang/MDPI AG <allison.yang@mdpi.com>
To: Maged Gomaa Hemida <mhemida@kfu.edu.sa>
Cc: Liu, Shan-Lu <liu.6244@osu.edu>, viruses@mdpi.com, Fang Li <lifang@umn.edu>, Du, Lanying <LDu@nybc.org>
Sent: March 9, 2018 8:13:06 PM CST
Received: March 9, 2018 8:13:16 PM CST

Dear Maged,

We are pleased to know you are interested in the special issue. The website of this Special Issue will be ready in couple of days. I will contact you once the website ready and instruct you how to submit your paper in this special issue. Does that sound OK?

You could have a look at the Instructions for Authors on the following website to prepare your paper:
<http://www.mdpi.com/journal/viruses/instructions>.

Thank you again, Feel free to contact me if you have any questions.

Best wishes,
Allison

On 3/10/2018 6:24 AM, Maged Gomaa Hemida wrote:

Dear Editors,

Is it still possible to consider this article in this special issue. It is ready for submission.

Please advice

Regards

Maged

From: Liu, Shan-Lu <liu.6244@osu.edu>
Sent: March 10, 2018 12:54:48 AM
To: Maged Gomaa Hemida
Cc: viruses@mdpi.com; Allison Yang/MDPI AG; Fang Li; Du, Lanying
Subject: Re: Pre-submission inquiry

A special issue on MERC-CoV is actually coming soon. Please contact the journal and also editors of this special issue copied.

Thanks.

cid:image001.png@01D3AAF8.8AA7CB20

Shan-Lu Liu, M.D., Ph.D.

Professor

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Infectious Diseases Institute

Center for Retrovirus Research

Department of Veterinary Biosciences, Microbial Infection and Immunity,
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Phone: (614) 292-8690

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Email: liu.6244@osu.edu <mailto:liu.6244@osu.edu>; shan-lu.liu@osumc.edu
<mailto:shan-lu.liu@osumc.edu>

*From: *Maged Gomaa Hemida <mhemida@kfu.edu.sa>

*Date: *Friday, March 9, 2018 at 4:48 PM

*To: *"Liu, Shan-Lu" <liu.6244@osu.edu>

*Subject: *Pre-submission inquiry

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To: Allison Yang/MDPI AG <allison.yang@mdpi.com>
Cc: Liu, Shan-Lu <liu.6244@osu.edu>, viruses@mdpi.com, Fang Li <lifang@umn.edu>, Du, Lanying <LDu@nybc.org>
Sent: March 10, 2018 2:47:13 AM CST
Received: March 10, 2018 3:07:53 AM CST

Dear Dr. Yang,

Many thanks for your positive response. I really appreciate that.
Please keep me posted.

Regards,

Maged

From: Allison Yang/MDPI AG <allison.yang@mdpi.com>
Sent: March 10, 2018 5:13 AM
To: Maged Gomaa Hemida
Cc: Liu, Shan-Lu; viruses@mdpi.com; Fang Li; Du, Lanying
Subject: Re: Pre-submission inquiry

Dear Maged,

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Subject: Re: Pre-submission inquiry

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Phone: (614) 292-8690

Fax: (614) 292-6473

Email: liu.6244@osu.edu <mailto:liu.6244@osu.edu>; shan-lu.liu@osumc.edu
<mailto:shan-lu.liu@osumc.edu>

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Dear Prof. Liu,

I wonder if a review article titles (Current advances in MERS-CoV/human/animal interaction) would be of interest to the Viruses journal?

Looking forward to hearing from you.

Regards,

Maged

[Viruses] Special Issue "MERS-CoV " Website Is Ready

From: Allison Yang/MDPI AG <allison.yang@mdpi.com>
To: Fang Li <lifang@umn.edu>, Du, Lanying <LDu@nybc.org>
Cc: viruses@mdpi.com
Sent: March 12, 2018 10:28:30 PM CDT
Received: March 12, 2018 10:28:35 PM CDT
Attachments: MERS-CoV - planned papers.xlsx

Dear Fang, dear Lanying,

The website is ready. You can access it at
http://www.mdpi.com/journal/viruses/special_issues/MERS_CoV
Please let us know if everything looks fine.

I would like to confirm with you if you are planning to send some personal invitations to some colleagues to contribute to the Special Issue (Do you have already a list of people you would like to invite yourself?). If so, would you please fill in the document attached with their names and email addresses. You may start sending out invitations according to your own schedule. However, we kindly ask you to CC me (allison.yang@mdpi.com) and the Viruses Editorial Office (viruses@mdpi.com) in your e-mails, so that we can follow up with the contributors and assist them with the submission process.

Also, ResearchGate now offers scholars the possibility to show their new projects on their profile and this can be used to advertise projects like conferences, books or special issues.

Please see two examples here:

<https://www.researchgate.net/project/Special-Issue-Viruses-Infection-and-Apoptosis-in-Viruses>

<https://www.researchgate.net/project/I-am-Guest-Editor-for-the-special-issue-Oncolytic-Viruses-as-a-Novel-Form-of-Immunotherapy-for-Cancer-in-the-journal-Biomedicines>

Would you mind, if you have an account, adding our special issue "MERS-CoV" to your projects? This way, your network would be directly notified about it.

Thank you and I look forward to hearing from you again.

Best wishes,
Allison

On 3/10/2018 9:51 AM, Allison Yang/MDPI AG wrote:

Dear Fang, dear Lanying,

Thank you for your summary. We will proceed to setting up the website as soon as possible and let you know when it's ready.

Yes, the first step after setting up the website, is to start with the Special Issue promotion. We will appreciate it if you will have a list of people you would like to invite yourself. I will provide you

with more details once the website ready.

Have a nice weekend!

Best,
Allison

On 3/10/2018 5:39 AM, Liu, Shan-Lu wrote:

Hi Fang and Lanying,
That was great, and thanks for quickly put this together. The next step I guess to send the website to colleagues and to spread it by words.
Cheers!

Shan-Lu Liu sent from iPhone

On Mar 9, 2018, at 4:14 PM, Fang Li <lifang@umn.edu
<mailto:lifang@umn.edu>> wrote:

Dear Allison,

Please see attached the summary we drafted. If you have any questions, please let us know.

Best,
Fang

On Mon, Mar 5, 2018 at 9:35 PM, Allison Yang/MDPI AG
<allison.yang@mdpi.com <mailto:allison.yang@mdpi.com>> wrote:

Dear Fang, dear Lanying,

Thanks for your reply. I look forward to receiving your summary next week.

Please let me know if I may be of any assistance. I look forward to working with you!

Best,
Allison

On 3/6/2018 3:49 AM, Fang Li wrote:

Dear Allison and Shan-Lu,

Thanks for giving Lanying and me the opportunity to guest edit this special issue on MERS coronavirus. We will try our best to make this issue reflect the cutting edge progress of the field. As the first step,

we will draft the summary in the next week or so.

Best,
Fang

On Sun, Mar 4, 2018 at 11:58 PM, Allison Yang/MDPI AG
<allison.yang@mdpi.com <mailto:allison.yang@mdpi.com>
<mailto:allison.yang@mdpi.com <mailto:allison.yang@mdpi.com>>>
wrote:

Dear Fang and Lanying (if I may),

We are pleased you are willing to guest edit this special issue. I would like to follow-up on Shan-Lu's email and give you a few more details about the process:

1. The first step would be to set-up the website of the special issue.

In order to do that we would need a brief introduction to describe the aims and scope of the issue, a list of key words and details about the Guest Editor. Please find attached a form with the required details and some examples here:

http://www.mdpi.com/journal/viruses/special_issues/smallpox40
<http://www.mdpi.com/journal/viruses/special_issues/smallpox40>

<http://www.mdpi.com/journal/viruses/special_issues/smallpox40
<http://www.mdpi.com/journal/viruses/special_issues/smallpox40>>

http://www.mdpi.com/journal/viruses/special_issues/hiv_vaccines
<http://www.mdpi.com/journal/viruses/special_issues/hiv_vaccines>

<http://www.mdpi.com/journal/viruses/special_issues/hiv_vaccines

<http://www.mdpi.com/journal/viruses/special_issues/hiv_vaccines>>

Please also specify the exact title and the deadline for submissions (normally we allow 6-9 months).

2. Once the website is ready, we start the promotion as described by Shan-Lu in his previous email. If you are planning to attend a conference relevant to the topic of the special issue, we can produce

a flyer for the special issue and offer a discount for all the participants of that conference, in case you want to invite people to contribute. It worked well in other occasions.

All the 'nitty-gritty' part of the process will be handled by in-house editors: inviting reviewers, sending reminders, collecting review reports, sending papers for revisions, then sending revised papers back to reviewers, etc. The GE approves each submitted paper and proposed reviewers before the papers are sent out for review.

However, we are open to organize the process as you wish, if the described outline does not work for you.

Look forward to hearing from you.

Kind regards,
Allison

MDPI AG
Viruses Editorial Office
St. Alban-Anlage 66, 4052 Basel, Switzerland
Tel.: +41 61 683 77 34 <tel:%2B41%2061%20683%2077%2034>
<tel:%2B41%2061%20683%2077%2034>; Fax: +41 61
302 89 18 <tel:%2B41%2061%20302%2089%2018>
E-Mail: viruses@mdpi.com <mailto:viruses@mdpi.com>
<mailto:viruses@mdpi.com <mailto:viruses@mdpi.com>>
<http://www.mdpi.com/journal/viruses/>
<<http://www.mdpi.com/journal/viruses/>>

<<http://www.mdpi.com/journal/viruses/>>
<<http://www.mdpi.com/journal/viruses/>>>

On 3/5/2018 11:35 AM, Liu, Shan-Lu wrote:

Dear Fang and Lanying:

Thank you so much for agreeing to be the Guest Editors of the special issue of "MERS-CoV (Coronaviruses)".

Below please find some basic information. **/Allison will send

you more
detailed information.

/What Does a Guest Editor Do?/ Most of the work flow
involved in
running the special issue will be handled by the
editorial
office, so
the work load for you would not be heavy. Below is a
list of the
primary
responsibilities of a Guest Editor:

1. Preparing a short summary (about 150 words) and
keywords to
introduce
this issue to authors and readers. See

here<http://www.mdpi.com/journal/viruses/special_issues
<http://www.mdpi.com/journal/viruses/special_issues>
<http://www.mdpi.com/journal/viruses/special_issues
<http://www.mdpi.com/journal/viruses/special_issues>>> for
current
Special Issues (noting that many are still open and
will gather
further
papers in the coming months);

2. Inviting leading investigators in the field to
contribute
articles
(the /Viruses/ editorial office will also solicit some
papers, in
consultation with you);

3. Pre-checking new submissions before review, and
later making the
final decision as to whether a paper is acceptable or
not after peer
review and author's revision;

4. If the opportunity arises, promoting the Special
Issue when
attending
conferences.

/*

/What Do You Get out of It? /Our Guest Editors tend
to enjoy the
experience, and it will give you a sample of editing

at a journal
without having to make the normal full commitment.
Having seen how
papers are viewed at the editorial level, I have
personally
learned a
lot about how to write and present work to help it get
noticed.

As Guest

Editor you are able to invite up to five papers that
will
qualify for a
waiver of the Article Processing Charges (APC).
Finally, also
from my
current situation submitting my dossier for tenure,
the exposure and
experience look good to the tenure committee.

//

/Viruses/is a fully open access journal, with a
current Impact
Factor of
3.465. The Article Processing Charge (APC) for
accepted papers
is CHF
1500. For papers submitted after 1 January 2018, an
APC of CHF
1600 will
apply. Please feel free to let me know if you have any
questions. I
hope you will agree to participate in the project. I
think it
could be a
great experience and I look forward to working with you.

*Here's How We Typically Run Our Special Issues *

Usually we set the submission deadline at 6 months
past the
initiation
of the Special Issue (so if we initiated the special
issue now, the
submission deadline would be around April 2018).

The Guest Editor invites a select group of the top
people in the
field
who may contribute a paper. The editorial office also
prepares a

Special Issue (SI) announcement that they email to a selected, but somewhat broader group of people active in the field. The announcement and the email list are prepared in consultation with the Guest Editor (GE). We thus receive articles from authors who were specifically invited by the GE and articles submitted in response to the SI announcement.

As you might imagine, the quality of articles that we get from direct GE invites is usually higher than that of the unsolicited articles, so we encourage GEs to invite as many of the best people as possible.

If you would prefer limiting your SI to authors you specifically invite, we will not send out a SI announcement. Ideally, we would like to have at least 10 articles per SI (some have had many more); a minimum of five is required to constitute a SI.

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Shan-Lu

ignature_70484252

Shan-Lu Liu, M.D., Ph.D.

Professor

Director, Viruses and Emerging Pathogens Program,
Infectious
Diseases
Institute

Investigator, Center for Retrovirus Research

Department of Veterinary Biosciences

The Ohio State University

1900 Coffey Rd, Room 480 VMAB

Columbus, Ohio 43210

Phone: (614) 292-8690 <tel:%28614%29%20292-8690>
<tel:%28614%29%20292-8690>

Fax: (614) 292-6473 <tel:%28614%29%20292-6473>
<tel:%28614%29%20292-6473>

Email: liu.6244@osu.edu <mailto:liu.6244@osu.edu>
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<mailto:liu.6244@osu.edu>
<mailto:liu.6244@osu.edu <mailto:liu.6244@osu.edu>>>;
shan-lu.liu@osumc.edu <mailto:shan-lu.liu@osumc.edu>
<mailto:shan-lu.liu@osumc.edu>><mailto:shan-lu.liu@osumc.edu
<mailto:shan-lu.liu@osumc.edu>
<mailto:shan-lu.liu@osumc.edu
<mailto:shan-lu.liu@osumc.edu>>>

--

Fang Li, Ph.D.

Associate Professor

Department of Veterinary and Biomedical Sciences
University of Minnesota Twin Cities

612-625-6149 <tel:612-625-6149>, lifang@umn.edu
<mailto:lifang@umn.edu> <mailto:lifang@umn.edu
<mailto:lifang@umn.edu>>

<http://www.msi.umn.edu/~lifang>
<<http://www.msi.umn.edu/%7Elifang>
<<http://www.msi.umn.edu/%7Elifang>>>

--

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Associate Professor
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University of Minnesota Twin Cities
612-625-6149, lifang@umn.edu <mailto:lifang@umn.edu>
<http://www.msi.umn.edu/~lifang> <<http://www.msi.umn.edu/%7Elifang>>

<SI website request-MERS-CoV_draft 030918.docx>

1. MERS-CoV - planned papers.xlsx

Type: application/vnd.openxmlformats-officedocument.spreadsheetml.sheet
Size: 11 KB (12,070 bytes)

Re: Your Contribution to Special Issue "MERS-CoV "

From: Allison Yang/MDPI AG <allison.yang@mdpi.com>
To: Maged Gomaa Hemida <mhemida@kfu.edu.sa>
Cc: Liu, Shan-Lu <liu.6244@osu.edu>, viruses@mdpi.com, Fang Li <lifang@umn.edu>, Du, Lanying <LDu@nybc.org>
Sent: March 12, 2018 10:38:57 PM CDT
Received: March 12, 2018 10:39:00 PM CDT

Dear Maged,

The website of special issue "MERS-CoV" is ready. You can find all the information and submit your manuscript here:

http://www.mdpi.com/journal/viruses/special_issues/MERS_CoV

Please note that suitable manuscripts are sent to peer-review as soon as they are submitted.

For your convenience, below is a simple guide of submission:

1. Download a manuscript template and EndNote style file at:
<http://www.mdpi.com/files/word-templates/viruses-template.dot>
<http://endnote.com/downloads/style/mdpi>
2. First-time users are required to register themselves before making submissions at <http://susy.mdpi.com/>.
3. Enter your account, click "Submit Manuscript" under Submissions Menu.
4. Fill in manuscript details from Steps 1 to 5:

Journal: Viruses

Special Issue: MERS-CoV

After submission, you will receive an auto-reply email informing you that your submission is successful. Please do not hesitate to contact me if you need any assistance.

We look forward to receiving your full text.

Best wishes,

Allison

On 3/10/2018 4:47 PM, Maged Gomaa Hemida wrote:

Dear Dr. Yang,

Many thanks for your positive response. I really appreciate that. Please keep me posted.

Regards,

Maged

From: Allison Yang/MDPI AG <allison.yang@mdpi.com>

Sent: March 10, 2018 5:13 AM

To: Maged Gomaa Hemida
Cc: Liu, Shan-Lu; viruses@mdpi.com; Fang Li; Du, Lanying
Subject: Re: Pre-submission inquiry

Dear Maged,

We are pleased to know you are interested in the special issue. The website of this Special Issue will be ready in couple of days. I will contact you once the website ready and instruct you how to submit your paper in this special issue. Does that sound OK?

You could have a look at the Instructions for Authors on the following website to prepare your paper:
<http://www.mdpi.com/journal/viruses/instructions>.

Thank you again, Feel free to contact me if you have any questions.

Best wishes,
Allison

On 3/10/2018 6:24 AM, Maged Gomaa Hemida wrote:

Dear Editors,

Is it still possible to consider this article in this special issue. It is ready for submission.

Please advice

Regards

Maged

From: Liu, Shan-Lu <liu.6244@osu.edu>
Sent: March 10, 2018 12:54:48 AM
To: Maged Gomaa Hemida
Cc: viruses@mdpi.com; Allison Yang/MDPI AG; Fang Li; Du, Lanying
Subject: Re: Pre-submission inquiry

A special issue on MERC-CoV is actually coming soon. Please contact the journal and also editors of this special issue copied.

Thanks.

cid:image001.png@01D3AAF8.8AA7CB20

Shan-Lu Liu, M.D., Ph.D.

Professor

Director, Viruses and Emerging Pathogens Program

Infectious Diseases Institute

Center for Retrovirus Research

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Email: liu.6244@osu.edu <mailto:liu.6244@osu.edu>; shan-lu.liu@osumc.edu
<mailto:shan-lu.liu@osumc.edu>

*From: *Maged Gomaa Hemida <mhemida@kfu.edu.sa>

*Date: *Friday, March 9, 2018 at 4:48 PM

*To: *"Liu, Shan-Lu" <liu.6244@osu.edu>

*Subject: *Pre-submission inquiry

Dear Prof. Liu,

I wonder if a review article titles (Current advances in
MERS-CoV/human/animal interaction) would be of interest to the Viruses
journal?

Looking forward to hearing from you.

Regards,

Maged

[Viruses] Special Issue "MERS-CoV " -First paper submitted

From: Allison Yang/MDPI AG <allison.yang@mdpi.com>
To: Du, Lanying <LDu@nybc.org>, Fang Li <lifang@umn.edu>
Cc: viruses@mdpi.com
Sent: March 19, 2018 1:11:05 AM CDT
Received: March 19, 2018 1:11:10 AM CDT

Dear Fang, dear Lanying,

The first paper (viruses-288047) has been submitted to your special issue. I would like to use this opportunity to introduce you our online submission system and the process.

You may have created an account in our system Susy :
<https://susy.mdpi.com/> using your email addresses. Then you will be able to see all the manuscripts submitted to your special issue and their status using your account.

Every time we need your feedback on a paper, you will be contacted by email where you will find links leading directly to the manuscript pending your decision.

When we receive a paper, the assistant editor sends you a pre-check decision request. Then, you may check the manuscript and let us know whether it is suitable for the issue and for peer-review or not.

Then, we send you decision requests after each round of review/revisions. At the same time, you can give us some additional advice/comments in the "Notes for Editors" box. There is also a "Notes for Authors" box, where you may explain your decision directly to the authors or advise them on how to revise the paper.

If the paper needs revisions, please let us know if we should go for minor or major revisions. Please note that we usually allow 2 rounds of revisions maximum and 5 days for minor revisions and 10 days for major revisions. Of course we grant extension (up to 2 months) if additional experiments are required by the reviewers. If all the collected reports are positive and the revisions asked by the reviewers really minor, we may send the paper and the reports directly to the authors. Then, we contact you to make a final decision on the revised paper.

Regarding the reviewers, you can suggest reviewers at the pre-check stage. If you don't, the assistant editor will do a search and invite suitable experts. We remind them if necessary and we send you a decision request once enough reports are collected.

Once you accept a paper, it's final, the authors are not allowed to make changes anymore (except minor edits, format/typos). Our finalization process includes 4 steps and is usually completed in 2-5 days:

- formatting by our in-house layout editors
- copy-editing by our in-house English editors. Please note that the

English editors correct mistakes but they don't rewrite the papers. If the English should be improved, we usually ask the authors to have the paper edited by a native speaker before acceptance.

- Proofreading by the authors
- Production and publication online.

During the process, we regularly update the authors on the status of their paper. We also send them decision notifications, revision requests and reminders when necessary.

I hope that helps, feel free to contact me at any time if you have questions.

Best wishes,
Allison

On 3/14/2018 1:35 PM, Allison Yang/MDPI AG wrote:

Dear Fang, dear Lanying,

Thanks for your reply. We are pleased to know you will share the list with us and send out personal invitations.

For your convenience, I am attaching you a template for the invitation, of course it is up to you if you want to use the template, or a personalized message.

Thank you, just let me know if I may be of any assistance.

Best,
Allison

On 3/14/2018 1:33 AM, Du, Lanying wrote:

Dear Allison,

Thanks for the information.

Yes, we have a list of experts in the MERS-CoV field who might be able to contribute a research paper or a review article to this special issue. We are sorting out the list and will share with you once it is ready.

Sure, we will CC you and the Viruses Editorial Office if we send out personal invitations.

Best regards,
Lanying

-----Original Message-----

From: Allison Yang/MDPI AG [mailto:allison.yang@mdpi.com]

Sent: Monday, March 12, 2018 11:29 PM
To: Fang Li; Du, Lanying
Cc: viruses@mdpi.com
Subject: [Viruses] Special Issue "MERS-CoV " Website Is Ready

Dear Fang, dear Lanying,

The website is ready. You can access it at
http://www.mdpi.com/journal/viruses/special_issues/MERS_CoV
Please let us know if everything looks fine.

I would like to confirm with you if you are planning to send some personal invitations to some colleagues to contribute to the Special Issue (Do you have already a list of people you would like to invite yourself?). If so, would you please fill in the document attached with their names and email addresses. You may start sending out invitations according to your own schedule. However, we kindly ask you to CC me (allison.yang@mdpi.com) and the Viruses Editorial Office (viruses@mdpi.com) in your e-mails, so that we can follow up with the contributors and assist them with the submission process.

Also, ResearchGate now offers scholars the possibility to show their new projects on their profile and this can be used to advertise projects like conferences, books or special issues.

Please see two examples here:

<https://www.researchgate.net/project/Special-Issue-Viruses-Infection-and-Apoptosis-in-Viruses>

<https://www.researchgate.net/project/I-am-Guest-Editor-for-the-special-issue-Oncolytic-Viruses-as-a-Novel-Form-of-Immunotherapy-for-Cancer-in-the-journal-Biomedicines>

Would you mind, if you have an account, adding our special issue "MERS-CoV" to your projects? This way, your network would be directly notified about it.

Thank you and I look forward to hearing from you again.

Best wishes,
Allison

On 3/10/2018 9:51 AM, Allison Yang/MDPI AG wrote:

Dear Fang, dear Lanying,

Thank you for your summary. We will proceed to setting up the website as soon as possible and let you know when it's ready.

Yes, the first step after setting up the website, is to start with the Special Issue promotion. We will appreciate it if you will have a list of people you would like to invite yourself. I will provide you with more details once the website ready.

Have a nice weekend!

Best,
Allison

On 3/10/2018 5:39 AM, Liu, Shan-Lu wrote:

Hi Fang and Lanying,
That was great, and thanks for quickly put this together. The next step I guess to send the website to colleagues and to spread it by words.
Cheers!

Shan-Lu Liu sent from iPhone

On Mar 9, 2018, at 4:14 PM, Fang Li <lifang@umn.edu <mailto:lifang@umn.edu>> wrote:

Dear Allison,

Please see attached the summary we drafted. If you have any questions, please let us know.

Best,
Fang

On Mon, Mar 5, 2018 at 9:35 PM, Allison Yang/MDPI AG <allison.yang@mdpi.com <mailto:allison.yang@mdpi.com>> wrote:

Dear Fang, dear Lanying,

Thanks for your reply. I look forward to receiving your summary next week.

Please let me know if I may be of any assistance. I look forward to working with you!

Best,
Allison

On 3/6/2018 3:49 AM, Fang Li wrote:

Dear Allison and Shan-Lu,

Thanks for giving Lanying and me the opportunity to guest edit this special issue on MERS coronavirus. We will try our best to make this issue reflect the cutting edge progress of the field. As the

first step,
we will draft the summary in the next week or so.

Best,
Fang

On Sun, Mar 4, 2018 at 11:58 PM, Allison Yang/MDPI AG
<allison.yang@mdpi.com <mailto:allison.yang@mdpi.com>
<mailto:allison.yang@mdpi.com
<mailto:allison.yang@mdpi.com>>>
wrote:

Dear Fang and Lanying (if I may),

We are pleased you are willing to guest edit this special issue. I would like to follow-up on Shan-Lu's email and give you a few more details about the process:

1. The first step would be to set-up the website of the special issue.

In order to do that we would need a brief introduction to describe the aims and scope of the issue, a list of key words and details about the Guest Editor. Please find attached a form with the required details and some examples here:

http://www.mdpi.com/journal/viruses/special_issues/smallpox40

<http://www.mdpi.com/journal/viruses/special_issues/smallpox40>

<http://www.mdpi.com/journal/viruses/special_issues/smallpox40

<http://www.mdpi.com/journal/viruses/special_issues/smallpox40>>

http://www.mdpi.com/journal/viruses/special_issues/hiv_vaccines

<http://www.mdpi.com/journal/viruses/special_issues/hiv_vaccines>

<http://www.mdpi.com/journal/viruses/special_issues/hiv_vaccines

<http://www.mdpi.com/journal/viruses/special_issues/hiv_vaccines>>

Please also specify the exact title and the deadline for submissions (normally we allow 6-9 months).

2. Once the website is ready, we start the promotion as described by

Shan-Lu in his previous email. If you are planning to attend a conference relevant to the topic of the special issue, we can produce a flyer for the special issue and offer a discount for all the participants of that conference, in case you want to invite people to contribute. It worked well in other occasions.

All the 'nitty-gritty' part of the process will be handled by in-house editors: inviting reviewers, sending reminders, collecting review reports, sending papers for revisions, then sending revised papers back to reviewers, etc. The GE approves each submitted paper and proposed reviewers before the papers are sent out for review.

However, we are open to organize the process as you wish, if the described outline does not work for you.

Look forward to hearing from you.

Kind regards,
Allison

MDPI AG
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Tel.: +41 61 683 77 34 <tel:%2B41%2061%20683%2077%2034>
<tel:%2B41%2061%20683%2077%2034>; Fax: +41 61
302 89 18 <tel:%2B41%2061%20302%2089%2018>
E-Mail: viruses@mdpi.com <mailto:viruses@mdpi.com>
<mailto:viruses@mdpi.com <mailto:viruses@mdpi.com>>
<http://www.mdpi.com/journal/viruses/>
<<http://www.mdpi.com/journal/viruses/>>

<<http://www.mdpi.com/journal/viruses/>>
<<http://www.mdpi.com/journal/viruses/>>>

On 3/5/2018 11:35 AM, Liu, Shan-Lu wrote:

Dear Fang and Lanying:

Thank you so much for agreeing to be the Guest Editors

of the
special
issue of "MERS-CoV (Coronaviruses)".

Below please find some basic information. ****Allison will send you more detailed information.*

/What Does a Guest Editor Do?/ Most of the work flow involved in running the special issue will be handled by the editorial office, so the work load for you would not be heavy. Below is a list of the primary responsibilities of a Guest Editor:

1. Preparing a short summary (about 150 words) and keywords to introduce this issue to authors and readers. See

here<http://www.mdpi.com/journal/viruses/special_issues>
<http://www.mdpi.com/journal/viruses/special_issues>
<http://www.mdpi.com/journal/viruses/special_issues>
<http://www.mdpi.com/journal/viruses/special_issues>>> for current Special Issues (noting that many are still open and will gather further papers in the coming months);

2. Inviting leading investigators in the field to contribute articles (the /Viruses/ editorial office will also solicit some papers, in consultation with you);

3. Pre-checking new submissions before review, and later making the final decision as to whether a paper is acceptable or not after peer review and author's revision;

4. If the opportunity arises, promoting the Special Issue when

attending
conferences.

//

*/What Do You Get out of It? /*Our Guest Editors tend to enjoy the experience, and it will give you a sample of editing at a journal without having to make the normal full commitment. Having seen how papers are viewed at the editorial level, I have personally learned a lot about how to write and present work to help it get noticed.

As Guest Editor you are able to invite up to five papers that will qualify for a waiver of the Article Processing Charges (APC). Finally, also from my current situation submitting my dossier for tenure, the exposure and experience look good to the tenure committee.

//

/Viruses/is a fully open access journal, with a current Impact Factor of 3.465. The Article Processing Charge (APC) for accepted papers is CHF 1500. For papers submitted after 1 January 2018, an APC of CHF 1600 will apply. Please feel free to let me know if you have any questions. I hope you will agree to participate in the project. I think it could be a great experience and I look forward to working with you.

*Here's How We Typically Run Our Special Issues *

Usually we set the submission deadline at 6 months

past the initiation of the Special Issue (so if we initiated the special issue now, the submission deadline would be around April 2018).

The Guest Editor invites a select group of the top people in the field who may contribute a paper. The editorial office also prepares a Special Issue (SI) announcement that they email to a selected, but somewhat broader group of people active in the field. The announcement and the email list are prepared in consultation with the Guest Editor (GE). We thus receive articles from authors who were specifically invited by the GE and articles submitted in response to the SI announcement.

As you might imagine, the quality of articles that we get from direct GE invites is usually higher than that of the unsolicited articles, so we encourage GEs to invite as many of the best people as possible.

If you would prefer limiting your SI to authors you specifically invite, we will not send out a SI announcement. Ideally, we would like to have at least 10 articles per SI (some have had many more); a minimum of five is required to constitute a SI.

Because Viruses is an open-access journal, it is

free for
everyone and
there is no subscription fee. The journal thus needs
to charge an
article processing charge for some of its articles.
The journal
allows
five articles per SI to be published free of charge
(including an
article from the GE if he/she chooses to contribute);
the remaining
articles incur an article processing fee.

Shan-Lu

signature_70484252

Shan-Lu Liu, M.D., Ph.D.

Professor

Director, Viruses and Emerging Pathogens Program,
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Fax: (614) 292-6473 <tel:%28614%29%20292-6473>
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<http://www.msi.umn.edu/~lifang>
<<http://www.msi.umn.edu/%7Elifang>>
<<http://www.msi.umn.edu/%7Elifang>>>

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<<http://www.msi.umn.edu/%7Elifang>>

<SI website request-MERS-CoV_draft 030918.docx>

[New York Blood Center]<<http://www.nybloodcenter.org>>
LIFESAVING INNOVATION SINCE 1964
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Center] <<https://www.linkedin.com/company/new-york-blood-center>>
Donate Blood<<http://www.nybloodcenter.org/donate-blood/>> |
Volunteer<<http://nybloodcenter.org/support-us/volunteer-nybc/>> |
Support NYBC<<http://nybloodcenter.org/support-us/financial-contribution/>>

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Re: RE: Article specifications for Nature Reviews Microbiology

From: zlshi <zlshi@wh.iov.cn>
To: Francis, Georgia <georgia.francis@nature.com>
Cc: ursula.hofer1 <Ursula.Hofer1@nature.com>, 崔杰 <jjecui@wh.iov.cn>, lifang <lifang@umn.edu>
Sent: March 20, 2018 8:36:22 PM CDT
Received: March 20, 2018 8:36:37 PM CDT

Dear Georgia,

Thank you for your reminding. We will submit the first draft by 19th April.

Best regards,
Zhengli,

SHI Zhengli, Ph. D
Senior Scientist & Professor
Wuhan Institute of Virology, Chinese Academy of Sciences
44 Xiao Hong Shan
430071 Wuhan, Hubei
China
Tel & Fax: (0086) 27 87197240
Email: zlshi@wh.iov.cn

From: [Francis, Georgia](#)
Date: 2018-03-20 19:15
To: zlshi@wh.iov.cn
CC: [Hofer, Ursula](#)
Subject: RE: Article specifications for Nature Reviews Microbiology

Dear Zhengli,

I hope you are well? I am just emailing to find out how things are progressing with the article that you are kindly preparing for Nature Reviews Microbiology, and to see whether a submission by 19TH April is still feasible?

As a reminder, please use the link below to submit your draft when it is ready to our online manuscript tracking system: <http://mts-nrmicro.nature.com/cgi-bin/main.plex?el=A3Z2DZv4A7Yqv1J3A9ftdzYIRsNsXwT4mN7zUqfUoAZ>

I look forward to hearing from you.

Best wishes,

Georgia

Georgia Francis

Senior Editorial Assistant | **Nature Reviews** | BioPharma Dealmakers

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From: Hofer, Ursula

Sent: 20 December 2017 08:28

To: zlshi

Cc: Francis, Georgia

Subject: Re: Article specifications for Nature Reviews Microbiology

Dear Zhengli,

Both your suggested co-authors and the amended submission date for the first full draft of April 19 are fine. Georgia, can you update the deadline?

Thanks,

Ursula

From: zlshi <zlshi@wh.iov.cn>

Sent: Wednesday, December 20, 2017 2:35 AM

To: Hofer, Ursula

Subject: Re: Article specifications for Nature Reviews Microbiology

Hofer

Thanks for your information.

For the related subject of the review article, the most recent publication by my group was in 2015 at the *Virology Journal* (please see attached article).

Regarding the submission deadline, may I ask two months of extension (19 April 2018). My colleagues and I will work on our grant applications before the middle March.

For authorship, may I invite two experts in the field to write this article? They are: Prof. Fang Li from Minnesota University, who have been working on coronavirus interspecies transmission and structural biology for a very long time; Prof. Jie Cui who joined our Institute two year ago and is an expert on virus evolution. I believe they will have substantial contributions to the article and provide soem new intepretation and perspective on evolution and molelcular interspecies infection mechanism on the two pathogenic coronaviruses.

Looking forward to work with you.

Best regards,

Zhengli,

SHI Zhengli, Ph. D
Senior Scientist & Professor
Wuhan Institute of Virology, Chinese Academy of Sciences
44 Xiao Hong Shan
430071 Wuhan, Hubei
China
Tel & Fax: (0086) 27 87197240
Email: zlshi@wh.iov.cn

From: ursula.hofer1

Date: 2017-12-18 23:49

To: zlshi

Subject: Article specifications for Nature Reviews Microbiology

Dear Dr. Shi,

Manuscript number: NRMICRO-17-293S

Title: Origin and evolution of pathogenic coronaviruses

Submission date: 19 February 2018

Many thanks for agreeing to write a Progress article for Nature Reviews Microbiology.

The guidelines for authors, which contain all the information you need regarding the formatting of the article, can be found here: <http://www.nature.com/reviews/pdf/progress-1s.pdf> Please read these guidelines carefully before beginning to write.

The key specifications for this article are as follows:

- *Length 2,500 words plus 80 references maximum
- *The article may contain a maximum of three display items (figure, table or box)
- *Full article to be submitted by 19 February 2018

Please let me know if this deadline is feasible — we can be flexible and are happy to work with you around your schedule and other obligations.

Once a complete manuscript is submitted, I will provide feedback on the structure and flow of the text if necessary. (If the first submission, complete with display items, is in good shape, we might be able to skip this step.) After you revise the manuscript, I will send it for peer review. If the referees recommend publication, we will ask you to revise the article according to their suggestions. I will then edit the revised article for scientific clarity and readability and have the figures redrawn by our in-house art editor. Once accepted, the article will be passed to our copy editor to be edited for grammar and house style. Overall, your manuscript will go through several rounds of revision, which will result in a highly polished article.

In addition to the information in the guidelines for authors, there are a few points I'd be grateful if you could bear in mind:

- Please could you let me know if you have just written, or have agreed to write, an article on this or a related topic. We aim to avoid unnecessary overlap with other articles and to maximize the impact of the Nature Reviews article. In addition, the Nature Reviews journals use CrossCheck (for details, see the guidelines for authors); the journals will not knowingly publish an article containing text copied from previously published work, including your own work and work published in a language other than English.

- I'd be grateful if you could keep the total number of authors as low as possible. This helps to maximize the impact of our articles, as many readers express a preference for articles that provide them with the overview and opinions of someone who is a leader in the field. If you do wish to work with one or more co-authors, I'd be grateful if you could let me know their names and affiliations as soon as possible. Any other writing assistance should be acknowledged in the article.

- In the interests of transparency, the Nature Reviews journals require authors of Progress articles to declare any competing interests. A detailed explanation of the policy can be

found here: http://www.nature.com/authors/editorial_policies/competing.html. This information, alongside authorship contributions, is collected electronically as part of the submission process. We also require authors to complete paper forms to transfer copyright for articles.

Please don't hesitate to get in touch if you have any problems or questions. I'm really looking forward to working with you on this article.

Best wishes,
Ursula

Ursula Hofer, MD PhD
Chief Editor, Nature Reviews Microbiology
4 Crinan Street
London
N1 9XW
e-mail: ursula.hofer1@nature.com
tel: +44 (0)20 7014 6648
<http://www.nature.com/nrmicro>

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Re: Fw: Article specifications for Nature Reviews Microbiology

From: Jie Cui <jiecui@wh.iov.cn>
To: zlshi@wh.iov.cn
Cc: lifang <lifang@umn.edu>
Sent: December 19, 2017 3:11:59 AM CST
Received: December 19, 2017 3:12:19 AM CST

Dear Prof. Shi,

Many thanks for inviting me. I'm happy to contribute and ok with the timeline.

All the best,

Jie

-----原始邮件-----

发件人: "zlshi@wh.iov.cn" <zlshi@wh.iov.cn>

发送时间: 2017-12-19 15:31:45 (星期二)

收件人: lifang <lifang@umn.edu>, jiecui <jiecui@wh.iov.cn>

抄送:

主题: Fw: Article specifications for Nature Reviews Microbiology

Dear Fang and Jie,

I got an invitation from the Nature Review Microbiology (see the following email). Based on your expertise, I would like to invite you to be coauthors for this article. Please let me if you are interested and if we need to extend the deadline of the submission.

Best regards,

Zhengli,

zlshi@wh.iov.cn

From: ursula.hofer1

Date: 2017-12-18 23:49

To: zlshi

Subject: Article specifications for Nature Reviews Microbiology

Dear Dr. Shi,

Manuscript number: NRMICRO-17-293S

Title: Origin and evolution of pathogenic coronaviruses

Submission date: 19 February 2018

Many thanks for agreeing to write a Progress article for Nature Reviews Microbiology.

The guidelines for authors, which contain all the information you need regarding the formatting of the article, can be found here: <http://www.nature.com/reviews/pdf/progress-1s.pdf> Please read these guidelines carefully before beginning to write.

The key specifications for this article are as follows:

- *Length 2,500 words plus 80 references maximum
- *The article may contain a maximum of three display items (figure, table or box)
- *Full article to be submitted by 19 February 2018

Please let me know if this deadline is feasible — we can be flexible and are happy to work with you around your schedule and other obligations.

Once a complete manuscript is submitted, I will provide feedback on the structure and flow of the text if necessary. (If the first submission, complete with display items, is in good shape, we might be able to skip this step.) After you revise the manuscript, I will send it for peer review. If the referees recommend publication, we will ask you to revise the article according to their suggestions. I will then edit the revised article for scientific clarity and readability and have the figures redrawn by our in-house art editor. Once accepted, the article will be passed to our copy editor to be edited for grammar and house style. Overall, your manuscript will go through several rounds of revision, which will result in a highly polished article.

In addition to the information in the guidelines for authors, there are a few points I'd be grateful if you could bear in mind:

- Please could you let me know if you have just written, or have agreed to write, an article on this or a related topic. We aim to avoid unnecessary overlap with other articles and to maximize the impact of the Nature Reviews article. In addition, the Nature Reviews journals use CrossCheck (for details, see the guidelines for authors); the journals will not knowingly publish an article containing text copied from previously published work, including your own work and work published in a language other than English.
- I'd be grateful if you could keep the total number of authors as low as possible. This helps to maximize the impact of our articles, as many readers express a preference for articles that provide them with the overview and opinions of someone who is a leader in the field. If you do wish to work with one or more co-authors, I'd be grateful if you could let me know their names and affiliations as soon as possible. Any other writing assistance should be acknowledged in the article.

- In the interests of transparency, the Nature Reviews journals require authors of Progress articles to declare any competing interests. A detailed explanation of the policy can be found here: http://www.nature.com/authors/editorial_policies/competing.html. This information, alongside authorship contributions, is collected electronically as part of the submission process. We also require authors to complete paper forms to transfer copyright for articles.

Please don't hesitate to get in touch if you have any problems or questions. I'm really looking forward to working with you on this article.

Best wishes,
Ursula

Ursula Hofer, MD PhD
Chief Editor, Nature Reviews Microbiology
4 Crinan Street
London
N1 9XW
e-mail: ursula.hofer1@nature.com
tel: +44 (0)20 7014 6648
<http://www.nature.com/nrmicro>

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identifiers to help disambiguate research contributions.

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Details of the confidentiality and pre-publicity policy may be found here

<http://www.nature.com/authors/policies/confidentiality.html>

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Dr. Jie Cui (PI, Prof.)

Virus Bioinformatics Group

Wuhan Institute of Virology, CAS

Tel: +86 (27)87199895

ORCID ID: <http://orcid.org/0000-0001-8176-9951>

Re: Re: Fw: Article specifications for Nature Reviews Microbiology

From: 石正丽 <zlshi@wh.iov.cn>
To: Fang Li <lifang@umn.edu>, jiecui <jiecui@wh.iov.cn>
Sent: December 19, 2017 6:23:12 PM CST
Received: December 19, 2017 6:23:25 PM CST

Dear Fang and Jie,

Thank you very much for your agreeing to work on this article. I have the same problem for proposal preparation. I'll ask the editor two months of extension.

Best regards,

Zhengli,

-----原始邮件-----

发件人:"Fang Li" <lifang@umn.edu>
发送时间:2017-12-20 04:41:16 (星期三)
收件人: "zlshi@wh.iov.cn" <zlshi@wh.iov.cn>
抄送: jiecui <jiecui@wh.iov.cn>
主题: Re: Fw: Article specifications for Nature Reviews Microbiology

Dear Zhengli,

Thanks for your offer to include me in this review. Yes, I would be happy to participate in the writing.

I will work on an grant application for the early February deadline. It would be better if we could request the review deadline to be postponed by one or two months.

Happy holidays!
Fang

On Tue, Dec 19, 2017 at 1:31 AM, zlshi@wh.iov.cn <zlshi@wh.iov.cn> wrote:

Dear Fang and Jie,

I got an invitation from the Nature Review Microbiology (see the following email). Based on your expertise, I would like to invite you to be coauthors for this article. Please let me if you are interested and if we need to extend the deadline of the submission.

Best regards,

Zhengli,

zlshi@wh.iov.cn

From: ursula.hofer1
Date: 2017-12-18 23:49
To: zlshi
Subject: Article specifications for Nature Reviews Microbiology

Dear Dr. Shi,

Manuscript number: NRMICRO-17-293S

Title: Origin and evolution of pathogenic coronaviruses

Submission date: 19 February 2018

Many thanks for agreeing to write a Progress article for Nature Reviews Microbiology.

The guidelines for authors, which contain all the information you need regarding the formatting of the article, can be found here: <http://www.nature.com/reviews/pdf/progress-ls.pdf> Please read these guidelines carefully before beginning to write.

The key specifications for this article are as follows:

*Length 2,500 words plus 80 references maximum

*The article may contain a maximum of three display items (figure, table or box)

*Full article to be submitted by 19 February 2018

Please let me know if this deadline is feasible — we can be flexible and are happy to work with you around your schedule and other obligations.

Once a complete manuscript is submitted, I will provide feedback on the structure and flow of the text if necessary. (If the first submission, complete with display items, is in good shape, we might be able to skip this step.) After you revise the manuscript, I will send it for peer review. If the referees recommend publication, we will ask you to revise the article according to their suggestions. I will then edit the revised article for scientific clarity and readability and have the figures redrawn by our in-house art editor. Once accepted, the article will be passed to our copy editor to be edited for grammar and house style. Overall, your manuscript will go through several rounds of revision, which will result in a highly polished article.

In addition to the information in the guidelines for authors, there are a few points I'd be grateful if you could bear in mind:

- Please could you let me know if you have just written, or have agreed to write, an article on this or a related topic. We aim to avoid unnecessary overlap with other articles and to maximize the impact of the Nature Reviews article. In addition, the Nature Reviews journals use CrossCheck (for details, see the guidelines for authors); the journals will not knowingly publish an article containing text copied from previously published work, including your own work and work published in a language other than English.

- I'd be grateful if you could keep the total number of authors as low as possible. This helps to maximize the impact of our articles, as many readers express a preference for articles that provide them with the overview and opinions of someone who is a leader in the field. If you do wish to work with one or more co-authors, I'd be grateful if you could let me know their names and affiliations as soon as possible. Any other writing assistance should be acknowledged in the article.

- In the interests of transparency, the Nature Reviews journals require authors of Progress articles to declare any competing interests. A detailed explanation of the policy can be found here: http://www.nature.com/authors/editorial_policies/competing.html. This information, alongside authorship contributions, is collected electronically as part of the submission process. We also require authors to complete paper forms to transfer copyright for articles.

Please don't hesitate to get in touch if you have any problems or questions. I'm really looking

forward to working with you on this article.

Best wishes,
Ursula

Ursula Hofer, MD PhD
Chief Editor, Nature Reviews Microbiology
[4 Crinan Street](#)
[London](#)
[N1 9XW](#)
[e-mail:ursula.hofer1@nature.com](mailto:ursula.hofer1@nature.com)
tel: [+44 \(0\)20 7014 6648](tel:+44(0)2070146648)
<http://www.nature.com/nrmicro>

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P.S. In the future, you can access your account using the link above or by logging in at <http://mts-nrmicro.nature.com/cgi-bin/main.plex?el=A7Z2CgflA3Yqv2J3A9ftdom5yDwkkaY5gJdL0X1KqAZ>. To obtain your login details, please click on the 'Forgot my login details' link and provide your e-mail address.

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In addition, Springer Nature encourages all authors and referees to associate an Open Researcher and Contributor Identifier (ORCID) to their account. ORCID is a community-based initiative that provides an open, non-proprietary and transparent registry of unique identifiers to help disambiguate research contributions.

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Details of the confidentiality and pre-publicity policy may be found here <http://www.nature.com/authors/policies/confidentiality.html>

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--

Fang Li, Ph.D.
Associate Professor
Department of Veterinary and Biomedical Sciences
University of Minnesota Twin Cities
612-625-6149, lifang@umn.edu

<http://www.msi.umn.edu/~lifang>

Progress Report for UNC led R01 summary for Year 3 and budget for Year 4

From: Sims, Amy C <sims0018@email.unc.edu>
To: Lynn Weber <weber117@umn.edu>, Fang Li <lifang@umn.edu>, Moore, Victoria L <victoria_moore@unc.edu>, Caldwell, Chandra <ccaldwel@email.unc.edu>
Cc: Baric, Ralph S <rbaric@email.unc.edu>
Sent: January 9, 2018 4:50:11 PM CST
Received: January 9, 2018 4:50:22 PM CST
Attachments: 2590-fp7_all personnel report.docx, LOI for Subcontractors.doc, Fang Li Yr3 EGMS Budget 477439 on 1-17-17.pdf

All,

UNC will need the following information for the R01 AI110700 Progress Report by **February 1, 2018**.

Please send the required documents to Victoria Moore and Chandra Caldwell cc'd above.

Thank you in advance! Please let me know if you have any questions. Best wishes, Amy

From the University of Minnesota

- other support for Fang Li
- complete the **attached personnel report (**please include eRA username for key personnel, GRAs and postdocs)**
- budget for \$372,400 (amount includes both direct and indirect costs). In case it is useful I attached the budget information submitted last year.
- budget justification
- ****Please note that UNC now requires a specific templated Letter of Intent (LOI) to be completed by subcontractors and we have included the template in this email.**

Amy Sims, Ph.D.
Research Associate Professor
UNC Chapel Hill
Office phone: 919-966-7991
Email: sims0018@ad.unc.edu

1. 2590-fp7_all personnel report.docx

Type: application/vnd.openxmlformats-officedocument.wordprocessingml.document
Size: 40 KB (41,474 bytes)

2. LOI for Subcontractors.doc

Type: application/vnd.ms-word
Size: 26 KB (27,136 bytes)

3. Fang Li Yr3 EGMS Budget 477439 on 1-17-17.pdf

Type: application/pdf
Size: 557 KB (570,819 bytes)

Program Director/Principal Investigator (Last, First, Middle):

ALL PERSONNEL REPORT

GRANT NUMBER

Place this form at the end of the signed original copy of the application. Do not duplicate.

Always list the PD/PI(s). In addition, list all other personnel who participated in the project during the current budget period for at least one person month or more, regardless of the source of compensation (a person month equals approximately 160 hours or 8.3% of annualized effort). Use the following abbreviated categories for describing Role on Project:

- PD/PI*
- Co-Investigator
- Faculty
- Postdoctoral (scholar, fellow, or other postdoctoral position)*
- Technician
- Staff Scientist (doctoral level)
- Statistician
- Graduate Student (research assistant)
- Non-student Research Assistant
- Undergraduate Student
- High School Student
- Consultant
- Other (please specify)

If personnel are supported by a Reentry or Diversity Supplement please indicate such after the Role on Project, using the following abbreviations: RS - Reentry Supplement; DS - Diversity Supplement.

*Commons ID required for any personnel holding this Role on Project and for all individuals supported by a Reentry or Diversity Supplement. The Commons ID will be required in the future for all individuals with a graduate student, or undergraduate role. The Commons ID is strongly encouraged, but not required, for all other Project Personnel.

Use Cal (calendar), Acad, or Summer to enter months devoted to project.

| Commons ID* | Name | Degree(s) | SSN (last 4 digits) | Role on Project | DoB (MM /YY) | Cal | Acad | Summer |
|-------------|------|-----------|---------------------|-----------------|--------------|-----|------|--------|
| | | | | | | | | |

Sample Outgoing Subcontractor Commitment Letter

Instructions: Please provide this letter as a template/guideline to other entities participating as subcontracts under UNC-CH's prime award. Have the subcontractor/organization fill in the blank areas and those areas marked in ***BOLD ITALICS***.

Organization Letterhead
Organization Name
Organization Address

Date

The University of North Carolina at Chapel Hill (UNC-CH)
Department Address

Reference: ***Response to solicitation/RFP/RFA number _____, entitled _____, dated _____***

Dear _____,

This letter confirms that the appropriate program and administrative personnel at ***Organization*** have reviewed the above referenced Solicitation/RFP/RFA and are committed to enter into a subcontract with The University of North Carolina at Chapel Hill (UNC-CH) for the performance period of _____ to _____. The work to be performed by ***Organization*** _____ does _____ does not include _____ animal and/or _____ human research subjects. The UNC-CH Principal Investigator on this proposal is _____. ***Organization*** _____ does _____ does not maintain an active and enforced conflict of interest policy meeting the requirements of 42 CFR Part 50, Subpart F and 45 CFR Part 94.

The ***Organization's*** budget, budget justification and scope of work are provided as separate enclosures to this letter and the DUNS number for the organization is _____. The estimated cost of the proposed subcontract will not exceed \$ _____ and includes appropriate direct and indirect costs.

Furthermore, by submission of this commitment letter ***Organization*** and its Principal Investigator (PI) certify (1) that the information submitted within the application is true, complete and accurate to the best of the ***Organization's*** and PI's knowledge; (2) that any false, fictitious, or fraudulent statements or claims may subject the ***Organization*** and PI to criminal, civil, or administrative penalties; and (3) that the PI agrees to accept responsibility for the scientific conduct of the project and to provide the required progress reports if an award is made as a result of UNC-CH's application.

If you have any questions, please contact the undersigned at _____.

Sincerely,

Signature of Authorized Organization Official

Signature of Principal Investigator

Enclosed:
Budget, Budget Justification, Scope of Work

Program Director/Principal Investigator (Last, First, Middle):

| | | | |
|---|------|---------|--------------|
| DETAILED BUDGET FOR NEXT BUDGET PERIOD – DIRECT COSTS ONLY | FROM | THROUGH | GRANT NUMBER |
|---|------|---------|--------------|

List PERSONNEL (*Applicant organization only*)

Use Cal, Acad, or Summer to Enter Months Devoted to Project

Enter Dollar Amounts Requested (*omit cents*) for Salary Requested and Fringe Benefits

| NAME | ROLE ON PROJECT | Cal. Mnth | Acad. Mnth | Summer Mnth | SALARY REQUESTED | FRINGE BENEFITS | TOTALS |
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SUBTOTALS

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CONSULTANT COSTS

EQUIPMENT (*Itemize*)

SUPPLIES (*Itemize by category*)

TRAVEL

INPATIENT CARE COSTS

OUTPATIENT CARE COSTS

ALTERATIONS AND RENOVATIONS (*Itemize by category*)

OTHER EXPENSES (*Itemize by category*)

SUBTOTAL DIRECT COSTS FOR NEXT BUDGET PERIOD

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| \$ | |
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CONSORTIUM/CONTRACTUAL COSTS

DIRECT COSTS

CONSORTIUM/CONTRACTUAL COSTS

FACILITIES AND ADMINISTRATIVE COSTS

TOTAL DIRECT COSTS FOR NEXT BUDGET PERIOD (*Item 8a, Face Page*)

| | |
|----|--|
| \$ | |
|----|--|

Program Director/Principal Investigator (Last, First, Middle):

Program Director/Principal Investigator (Last, First, Middle):

| | |
|-----------------------------|---------------------|
| BUDGET JUSTIFICATION | GRANT NUMBER |
|-----------------------------|---------------------|

Provide a detailed budget justification for those line items and amounts that represent a significant change from that previously recommended. Use continuation pages if necessary.

| | | |
|------------------------------|-------------|----------------|
| CURRENT BUDGET PERIOD | FROM | THROUGH |
|------------------------------|-------------|----------------|

Explain any estimated unobligated balance (including prior year carryover) that is greater than 25% of the current year's total budget.

Program Director/Principal Investigator (Last, First, Middle):

Re: Progress Report for UNC led R01 summary for Year 3 and budget for Year 4

From: Sims, Amy C <sims0018@email.unc.edu>
To: Fang Li <lifang@umn.edu>
Cc: Lynn Weber <weber117@umn.edu>, Moore, Victoria L <victoria_moore@unc.edu>, Caldwell, Chandra <ccaldwel@email.unc.edu>, Baric, Ralph S <rbaric@email.unc.edu>, Anne Mockovak <a-mock@umn.edu>, Dawn Foster <fosterd@umn.edu>
Sent: January 9, 2018 9:01:54 PM CST
Received: January 9, 2018 9:02:00 PM CST

Hi Fang,

Thank you for letting me know. I appreciate it.

Dawn and Anne,

Please let me know if you have any questions. I have a copy of all of the documents submitted by UMN last year if you would like them.

Thank you. Amy

Sent from my iPhone

On Jan 9, 2018, at 9:04 PM, Fang Li <lifang@umn.edu> wrote:

Hi Amy,

Thanks for your message. I recently switched to another department at the University of Minnesota. Lynn is no longer my grant manager.

I am CC'ing my new grant managers Dawn and Anne here.

Best,
Fang

On Tue, Jan 9, 2018 at 4:50 PM, Sims, Amy C <sims0018@email.unc.edu> wrote:

All,

UNC will need the following information for the R01 AI110700 Progress Report by **February 1, 2018**.

Please send the required documents to Victoria Moore and Chandra Caldwell cc'd above.

Thank you in advance! Please let me know if you have any questions. Best wishes, Amy

From the University of Minnesota

-other support for Fang Li

-complete the **attached personnel report** (**please include eRA username for key personnel, GRAs and postdocs)

-budget for \$372,400 (amount includes both direct and indirect costs). In case it is useful I attached the budget information submitted last year.

-budget justification

-Please note that UNC now requires a specific templated Letter of Intent (LOI) to be completed by subcontractors and we have included the template in this email.**

Amy Sims, Ph.D.

Research Associate Professor

UNC Chapel Hill

Office phone: [919-966-7991](tel:919-966-7991)

Email: sims0018@ad.unc.edu

--

Fang Li, Ph.D.

Associate Professor

Department of Veterinary and Biomedical Sciences

University of Minnesota Twin Cities

612-625-6149, lifang@umn.edu

<http://www.msi.umn.edu/~lifang>

Re: The DPP4-binding MERs-CoV was published by the HKU group

From: [REDACTED]
To: Fang Li <lifang@umn.edu>
Cc: zlshi <zlshi@wh.iov.cn>
Sent: January 19, 2018 2:30:38 PM CST
Received: January 19, 2018 2:30:42 PM CST

All documents submitted. Waiting for the final check from the first corresponding author as required.

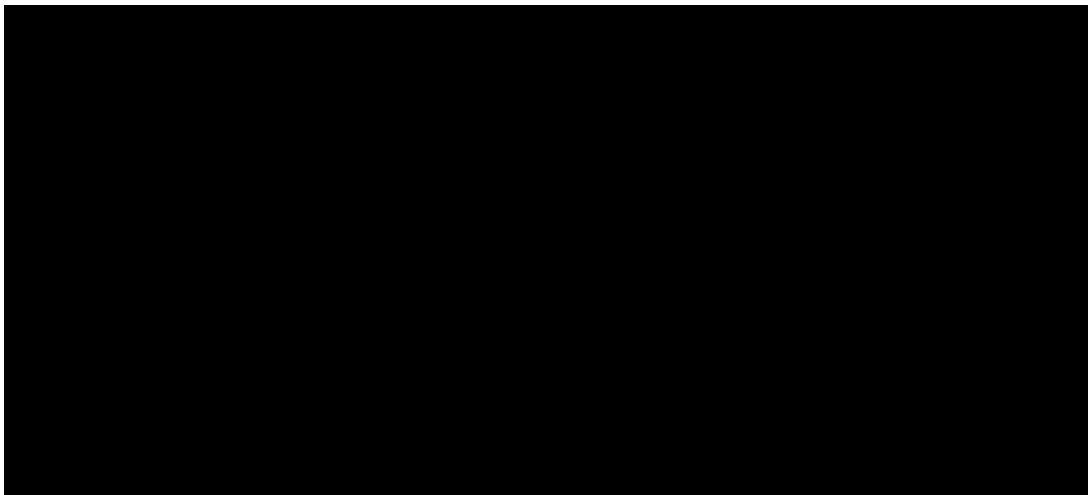
2018年1月19日 上午11:20, "Fang Li" <lifang@umn.edu>写道:
please submit your manuscript to JVI today!

On Fri, Jan 19, 2018 at 11:16 AM, [REDACTED] > wrote:
Dear Dr. Shi and Dr. Li

I would like to inform you that the DPP4-binding MERs-CoV was published by HKU group on *The Journal of Infectious Diseases*

<https://academic.oup.com/jid/advance-article/doi/10.1093/infdis/jiy018/4810771>

Best,



--

Fang Li, Ph.D.
Associate Professor
Department of Veterinary and Biomedical Sciences
University of Minnesota Twin Cities
[612-625-6149](tel:612-625-6149), lifang@umn.edu
<http://www.msi.umn.edu/~lifang>

RE: new manuscript

From: Baric, Ralph S <rbaric@email.unc.edu>
To: Fang Li <lifang@umn.edu>
Cc: Baric, Toni C <antoinette_baric@med.unc.edu>
Sent: February 7, 2018 7:50:42 AM CST
Received: February 7, 2018 7:50:45 AM CST

Hi Fang, great to hear from you and I hope your doing well. I'd like to talk with you and toni can set up a time. Am [REDACTED] Looks like an interesting paper. we also have some updates to discuss. I'll put some slides together as well. Talk with you soon. ralph

From: Fang Li [mailto:lifang@umn.edu]
Sent: Tuesday, February 6, 2018 9:18 PM
To: Baric, Ralph S <rbaric@email.unc.edu>
Subject: new manuscript

Dear Ralph,

Hope you are doing well. Please see attached a new manuscript on which you are a co-author. I would appreciate it if you could get your comments back to me in two weeks. I will be happy to talk on the phone about this work and some other progresses on coronaviruses.

Best,
Fang

--

Fang Li, Ph.D.
Associate Professor
Department of Veterinary and Biomedical Sciences
University of Minnesota Twin Cities
612-625-6149, lifang@umn.edu
<http://www.msi.umn.edu/~lifang>

Re: new manuscript

From: Fang Li <lifang@umn.edu>
To: Baric, Toni C <antoinette_baric@med.unc.edu>
Cc: Baric, Ralph S <rbaric@email.unc.edu>
Sent: February 8, 2018 10:42:14 AM CST
Received: February 8, 2018 10:42:14 AM CST

Great. Talk to Ralph then. Thanks.

On Thu, Feb 8, 2018 at 10:01 AM, Baric, Toni C <antoinette_baric@med.unc.edu> wrote:

Hi Fang,

Yes it would. Please call [REDACTED]

Thank you

Toni

From: Fang Li [mailto:lifang@umn.edu]
Sent: Thursday, February 08, 2018 11:01 AM
To: Baric, Toni C <antoinette_baric@med.unc.edu>
Cc: Baric, Ralph S <rbaric@email.unc.edu>
Subject: Re: new manuscript

Hi Toni,

Would 11 am of your time work for Ralph?

Thanks,

Fang

On Thu, Feb 8, 2018 at 9:55 AM, Baric, Toni C <antoinette_baric@med.unc.edu> wrote:

Dear Fang,

Ralph is available Friday morning. What time works for you?

Best regards
Toni

From: Fang Li [mailto:lifang@umn.edu]
Sent: Thursday, February 08, 2018 10:37 AM
To: Baric, Ralph S <rbaric@email.unc.edu>
Cc: Baric, Toni C <antoinette_baric@med.unc.edu>
Subject: Re: new manuscript

Hi Ralph,

Hope you are [REDACTED] It would be great to talk about progresses, plans, and future grant applications. I made some changes to the discussion part of the manuscript, which is being attached again (the other parts remain unchanged).

Hi Toni,

I will be available on Friday morning and also most of next week. Please let me know what would be a good time for Ralph for the phone conversation.

Best,

Fang

On Wed, Feb 7, 2018 at 7:50 AM, Baric, Ralph S <rbaric@email.unc.edu> wrote:

Hi Fang, great to hear from you and I hope your doing well. I'd like to talk with you and toni can set up a time. Am [REDACTED] Looks like an interesting paper. we also have some updates to discuss. I'll put some slides together as well. Talk with you soon. ralph

From: Fang Li [mailto:lifang@umn.edu]
Sent: Tuesday, February 6, 2018 9:18 PM
To: Baric, Ralph S <rbaric@email.unc.edu>
Subject: new manuscript

Dear Ralph,

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Best,

Fang

--

Fang Li, Ph.D.
Associate Professor
Department of Veterinary and Biomedical Sciences
University of Minnesota Twin Cities
[612-625-6149](tel:612-625-6149), lifang@umn.edu
<http://www.msi.umn.edu/~lifang>

Re: [Viruses] Special Issue "MERS-CoV " Invitation Templates

From: Fang Li <lifang@umn.edu>
To: Du, Lanying <LDu@nybc.org>
Sent: March 28, 2018 1:36:52 PM CDT
Received: March 28, 2018 1:36:52 PM CDT

我是不是要贡献一篇文章这个问题，容我想几天吧。现在先假设我要贡献一篇吧。

On Wed, Mar 28, 2018 at 11:07 AM, Du, Lanying <LDu@nybc.org> wrote:

The journal allows five articles per SI to be published free of charge (including an article from the GE if he/she chooses to contribute); the remaining articles incur an article processing fee.

We may waive processing fee for Erik if you agrees to contribute. So, I will remove below highlighted sentence in the invitation letter to him: "*Viruses* is an Open Access journal and indexed by Web of Science, PubMed and other databases. **It will charge a modest processing fee to publish your manuscript**".

In this case, we will have 3 more articles that can be free of charge. We will decide which three could be free of charge.

From: Fang Li [mailto:lifang@umn.edu]
Sent: Wednesday, March 28, 2018 10:14 AM
To: Du, Lanying

Subject: Re: [Viruses] Special Issue "MERS-CoV " Invitation Templates

And Bart h。 that is all

On Wed, Mar 28, 2018 at 9:12 AM Fang Li <lifang@umn.edu> wrote:

Also Vince m.

On Wed, Mar 28, 2018 at 9:11 AM Fang Li <lifang@umn.edu> wrote:

i will take care of Ralph, gf GAO, Susan baker, Gary Whittaker, Tom Gallagher, David V.

On Wed, Mar 28, 2018 at 9:08 AM Fang Li <lifang@umn.edu> wrote:

just send to your friends。 i will send to my friends。

On Wed, Mar 28, 2018 at 8:49 AM Du, Lanying <LDu@nybc.org> wrote:

I will send out invitations to the listed authors shortly.

Sent from my iPhone

> On Mar 27, 2018, at 11:34 PM, Allison Yang/MDPI <allison.yang@mdpi.com> wrote:

>

> Dear Lanying, dear Fang,

>

> Thanks for your list. It looks good. We will appreciate it if you could

> send them personal invitations. I am also pleased to know you will

> contribute to this special issue.

>

> Please copy me/the journal if you are sending any personal invitations

> (I would follow-up if people are interested). Feel free to let me know

> if I may be of any assistance.

>

> Finally, I attach an image and a flyer that you may use in

> presentation(s) if you like.

>

> Thank you,

> Allison

>

>> On 3/28/2018 11:06 AM, Du, Lanying wrote:

>> Dear Allison,

>>

>> We have summarized a list of experts in the MERS-CoV field who might be able to contribute to this special issue (attached). Please let us know whether we need to send out invitations to these authors.

>>

>>

>>>

>>> By the way, I plan to contribute a paper to this special issue. I have put my name on the list.

>>>

>>> Best regards,

>>>

>>> Lanying

>>>

>>>

>>> From: Allison Yang/MDPI AG <allison.yang@mdpi.com>

>>> Sent: Wednesday, March 14, 2018 1:35 AM

>>> To: Du, Lanying; Fang Li

>>> Cc: viruses@mdpi.com

>>> Subject: Re: [Viruses] Special Issue "MERS-CoV " Invitation Templates

>>>

>>> Dear Fang, dear Lanying,

>>>

>>> Thanks for your reply. We are pleased to know you will share the list

>>> with us and send out personal invitations.

>>>

>>> For your convenience, I am attaching you a template for the

>>> invitation, of course it is up to you if you want to use the template,

>> or a personalized message.
>>
>> Thank you, just let me know if I may be of any assistance.
>>
>> Best,
>> Allison
>>
>>> On 3/14/2018 1:33 AM, Du, Lanying wrote:
>>> Dear Allison,
>>>
>>> Thanks for the information.
>>>
>>> Yes, we have a list of experts in the MERS-CoV field who might be able to contribute a research paper or a review article to this special issue. We are sorting out the list and will share with you once it is ready.
>>>
>>> Sure, we will CC you and the Viruses Editorial Office if we send out personal invitations.
>>>
>>> Best regards,
>>> Lanying
>>>
>>>
>>> -----Original Message-----
>>> From: Allison Yang/MDPI AG [mailto:allison.yang@mdpi.com]
>>> Sent: Monday, March 12, 2018 11:29 PM
>>> To: Fang Li; Du, Lanying
>>> Cc: viruses@mdpi.com
>>> Subject: [Viruses] Special Issue "MERS-CoV " Website Is Ready
>>>
>>> Dear Fang, dear Lanying,
>>>
>>> The website is ready. You can access it at
http://www.mdpi.com/journal/viruses/special_issues/MERS_CoV
>>> Please let us know if everything looks fine.
>>>
>>> I would like to confirm with you if you are planning to send some personal invitations to some colleagues to contribute to the Special Issue (Do you have already a list of people you would like to invite yourself?). If so, would you please fill in the document attached with their names and email addresses. You may start sending out invitations according to your own schedule. However, we kindly ask you to CC me
>>> (allison.yang@mdpi.com) and the Viruses Editorial Office
>>> (viruses@mdpi.com) in your e-mails, so that we can follow up with the contributors and assist them with the submission process.
>>>
>>> Also, ResearchGate now offers scholars the possibility to show their new projects on their profile and this can be used to advertise projects like conferences, books or special issues.
>>> Please see two examples here:
>>> <https://www.researchgate.net/project/Special-Issue-Viruses-Infection-and-Apoptosis-in-Viruses>
>>> <https://www.researchgate.net/project/I-am-Guest-Editor-for-the-special-issue-Oncolytic-Viruses-as-a-Novel-Form-of-Immunotherapy-for-Cancer-in-the-journal-Biomedicines>
>>> Would you mind, if you have an account, adding our special issue "MERS-CoV" to your projects? This way, your network would be directly notified about it.
>>>
>>> Thank you and I look forward to hearing from you again.

>>>

>>> Best wishes,

>>> Allison

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>>>> On 3/10/2018 9:51 AM, Allison Yang/MDPI AG wrote:

>>>> Dear Fang, dear Lanying,

>>>>

>>>> Thank you for your summary. We will proceed to setting up the website

>>>> as soon as possible and let you know when it's ready.

>>>>

>>>> Yes, the first step after setting up the website, is to start with the

>>>> Special Issue promotion. We will appreciate it if you will have a list

>>>> of people you would like to invite yourself. I will provide you with

>>>> more details once the website ready.

>>>>

>>>> Have a nice weekend!

>>>>

>>>> Best,

>>>> Allison

>>>>

>>>>> On 3/10/2018 5:39 AM, Liu, Shan-Lu wrote:

>>>>> Hi Fang and Lanying,

>>>>> That was great, and thanks for quickly put this together. The next

>>>>> step I guess to send the website to colleagues and to spread it by words.

>>>>> Cheers!

>>>>>

>>>>> Shan-Lu Liu sent from iPhone

>>>>>

>>>>>

>>>>> On Mar 9, 2018, at 4:14 PM, Fang Li <lifang@umn.edu

>>>>> <<mailto:lifang@umn.edu>>> wrote:

>>>>>

>>>>>> Dear Allison,

>>>>>>

>>>>>> Please see attached the summary we drafted. If you have any

>>>>>> questions, please let us know.

>>>>>>

>>>>>> Best,

>>>>>> Fang

>>>>>>

>>>>>> On Mon, Mar 5, 2018 at 9:35 PM, Allison Yang/MDPI AG

>>>>>> <allison.yang@mdpi.com <<mailto:allison.yang@mdpi.com>>> wrote:

>>>>>>

>>>>>>> Dear Fang, dear Lanying,

>>>>>>>

>>>>>>> Thanks for your reply. I look forward to receiving your summary

>>>>>>> next week.

>>>>>>>

>>>>>>> Please let me know if I may be of any assistance. I look forward to

>>>>>>> working with you!

>>>>>>>

>>>>>>> Best,

>>>>>>> Allison

>>>>>>>

>>>>>>> On 3/6/2018 3:49 AM, Fang Li wrote:

>>>>> submissions
>>>>> (normally we allow 6-9 months).
>>>>>
>>>>> 2. Once the website is ready, we start the promotion as
>>>>> described by
>>>>> Shan-Lu in his previous email. If you are planning to
>>>>> attend a
>>>>> conference relevant to the topic of the special issue, we
>>>>> can produce
>>>>> a flyer for the special issue and offer a discount for
>>>>> all the
>>>>> participants of that conference, in case you want to
>>>>> invite people to
>>>>> contribute. It worked well in other occasions.
>>>>>
>>>>> All the 'nitty-gritty' part of the process will be handled
>>>>> by in-house
>>>>> editors: inviting reviewers, sending reminders, collecting
>>>>> review
>>>>> reports, sending papers for revisions, then sending
>>>>> revised papers
>>>>> back to reviewers, etc. The GE approves each submitted
>>>>> paper and
>>>>> proposed reviewers before the papers are sent out for
>>>>> review.
>>>>>
>>>>> However, we are open to organize the process as you wish,
>>>>> if the
>>>>> described outline does not work for you.
>>>>>
>>>>> Look forward to hearing from you.
>>>>>
>>>>> Kind regards,
>>>>> Allison
>>>>>
>>>>> MDPI AG
>>>>> Viruses Editorial Office
>>>>> [St. Alban-Anlage 66, 4052 Basel, Switzerland](mailto:viruses@mdpi.com)
>>>>> Tel.: [+41 61 683 77 34](tel:+41616837734) <[tel:%2B41%2061%20683%2077%2034](tel:+41616837734)>
>>>>> <[tel:%2B41%2061%20683%2077%2034](tel:+41616837734)>; Fax: +41 61
>>>>> 302 89 18 <[tel:%2B41%2061%20302%2089%2018](tel:+41616837734)>
>>>>> E-Mail: viruses@mdpi.com <<mailto:viruses@mdpi.com>>
>>>>> <<mailto:viruses@mdpi.com> <<mailto:viruses@mdpi.com>>>
>>>>> <http://www.mdpi.com/journal/viruses/>
>>>>> <<http://www.mdpi.com/journal/viruses/>>
>>>>>
>>>>> <<http://www.mdpi.com/journal/viruses/>
>>>>> <<http://www.mdpi.com/journal/viruses/>>>
>>>>>
>>>>> On 3/5/2018 11:35 AM, Liu, Shan-Lu wrote:
>>>>>
>>>>> Dear Fang and Lanying:
>>>>>
>>>>> Thank you so much for agreeing to be the Guest Editors
>>>>> of the

>>>>> special
>>>>> issue of "MERS-CoV (Coronaviruses)".
>>>>>
>>>>> Below please find some basic information. **Allison
>>>>> will send
>>>>> you more
>>>>> detailed information.
>>>>>
>>>>> */What Does a Guest Editor Do?/* Most of the work flow
>>>>> involved in
>>>>> running the special issue will be handled by the
>>>>> editorial
>>>>> office, so
>>>>> the work load for you would not be heavy. Below is a
>>>>> list of the
>>>>> primary
>>>>> responsibilities of a Guest Editor:
>>>>>
>>>>> 1. Preparing a short summary (about 150 words) and
>>>>> keywords to
>>>>> introduce
>>>>> this issue to authors and readers. See
>>>>>
>>>>> here<http://www.mdpi.com/journal/viruses/special_issues
>>>>> <http://www.mdpi.com/journal/viruses/special_issues>
>>>>> <http://www.mdpi.com/journal/viruses/special_issues
>>>>> <http://www.mdpi.com/journal/viruses/special_issues>>> for
>>>>> current
>>>>> Special Issues (noting that many are still open and
>>>>> will gather
>>>>> further
>>>>> papers in the coming months);
>>>>>
>>>>> 2. Inviting leading investigators in the field to
>>>>> contribute
>>>>> articles
>>>>> (the /Viruses/ editorial office will also solicit some
>>>>> papers, in
>>>>> consultation with you);
>>>>>
>>>>> 3. Pre-checking new submissions before review, and
>>>>> later making the
>>>>> final decision as to whether a paper is acceptable or
>>>>> not after peer
>>>>> review and author's revision;
>>>>>
>>>>> 4. If the opportunity arises, promoting the Special
>>>>> Issue when
>>>>> attending
>>>>> conferences.
>>>>>
>>>>> **
>>>>>
>>>>> */What Do You Get out of It? /*Our Guest Editors tend
>>>>> to enjoy the

>>>>>> experience, and it will give you a sample of editing
>>>>>> at a journal
>>>>>> without having to make the normal full commitment.
>>>>>> Having seen how
>>>>>> papers are viewed at the editorial level, I have
>>>>>> personally
>>>>>> learned a
>>>>>> lot about how to write and present work to help it get
>>>>>> noticed.
>>>>>> As Guest
>>>>>> Editor you are able to invite up to five papers that
>>>>>> will
>>>>>> qualify for a
>>>>>> waiver of the Article Processing Charges (APC).
>>>>>> Finally, also
>>>>>> from my
>>>>>> current situation submitting my dossier for tenure,
>>>>>> the exposure and
>>>>>> experience look good to the tenure committee.
>>>>>> //

>>>>>> /Viruses/is a fully open access journal, with a
>>>>>> current Impact
>>>>>> Factor of
>>>>>> 3.465. The Article Processing Charge (APC) for
>>>>>> accepted papers
>>>>>> is CHF
>>>>>> 1500. For papers submitted after 1 January 2018, an
>>>>>> APC of CHF
>>>>>> 1600 will
>>>>>> apply. Please feel free to let me know if you have any
>>>>>> questions. I
>>>>>> hope you will agree to participate in the project. I
>>>>>> think it
>>>>>> could be a
>>>>>> great experience and I look forward to working with you.

>>>>>> *Here's How We Typically Run Our Special Issues *

>>>>>> Usually we set the submission deadline at 6 months
>>>>>> past the
>>>>>> initiation
>>>>>> of the Special Issue (so if we initiated the special
>>>>>> issue now, the
>>>>>> submission deadline would be around April 2018).

>>>>>> The Guest Editor invites a select group of the top
>>>>>> people in the
>>>>>> field
>>>>>> who may contribute a paper. The editorial office also
>>>>>> prepares a
>>>>>> Special
>>>>>> Issue (SI) announcement that they email to a selected,
>>>>>> but somewhat

>>>>>> broader group of people active in the field. The
>>>>>> announcement
>>>>>> and the
>>>>>> email list are prepared in consultation with the Guest
>>>>>> Editor
>>>>>> (GE). We
>>>>>> thus receive articles from authors who were
>>>>>> specifically invited
>>>>>> by the
>>>>>> GE and articles submitted in response to the SI
>>>>>> announcement.

>>>>>> As you might imagine, the quality of articles that we
>>>>>> get from
>>>>>> direct GE
>>>>>> invites is usually higher than that of the unsolicited
>>>>>> articles,
>>>>>> so we
>>>>>> encourage GEs to invite as many of the best people as
>>>>>> possible.

>>>>>> If you would prefer limiting your SI to authors you
>>>>>> specifically
>>>>>> invite,
>>>>>> we will not send out a SI announcement. Ideally, we
>>>>>> would like
>>>>>> to have
>>>>>> at least 10 articles per SI (some have had many more);
>>>>>> a minimum
>>>>>> of five
>>>>>> is required to constitute a SI.

>>>>>> Because Viruses is an open-access journal, it is
>>>>>> free for
>>>>>> everyone and
>>>>>> there is no subscription fee. The journal thus needs
>>>>>> to charge an
>>>>>> article processing charge for some of its articles.
>>>>>> The journal
>>>>>> allows
>>>>>> five articles per SI to be published free of charge
>>>>>> (including an
>>>>>> article from the GE if he/she chooses to contribute);
>>>>>> the remaining
>>>>>> articles incur an article processing fee.

>>>>>> Shan-Lu
>>>>>>
>>>>>> ignature_70484252
>>>>>>
>>>>>> Shan-Lu Liu, M.D., Ph.D.
>>>>>>
>>>>>> Professor
>>>>>>
>>>>>> Director, Viruses and Emerging Pathogens Program,

>>>>> Infectious
>>>>> Diseases
>>>>> Institute

>>>>> Investigator, Center for Retrovirus Research
>>>>>
>>>>> Department of Veterinary Biosciences
>>>>>
>>>>> The Ohio State University
>>>>>
>>>>> [1900 Coffey Rd, Room 480](#) VMAB
>>>>>
>>>>> Columbus, Ohio 43210

>>>>> Phone: [\(614\) 292-8690](tel:614-292-8690) <<tel:%28614%29%20292-8690>>
>>>>> <<tel:%28614%29%20292-8690>>

>>>>> Fax: [\(614\) 292-6473](tel:614-292-6473) <<tel:%28614%29%20292-6473>>
>>>>> <<tel:%28614%29%20292-6473>>

>>>>> Email: liu.6244@osu.edu <<mailto:liu.6244@osu.edu>>
>>>>> <<mailto:liu.6244@osu.edu>>
>>>>> <<mailto:liu.6244@osu.edu>>><<mailto:liu.6244@osu.edu>>
>>>>> <<mailto:liu.6244@osu.edu>>
>>>>> <<mailto:liu.6244@osu.edu> <<mailto:liu.6244@osu.edu>>>>>;
>>>>> shan-lu.liu@osumc.edu <<mailto:shan-lu.liu@osumc.edu>>
>>>>> <<mailto:shan-lu.liu@osumc.edu>>
>>>>> <<mailto:shan-lu.liu@osumc.edu>>><<mailto:shan-lu.liu@osumc.edu>>
>>>>> <<mailto:shan-lu.liu@osumc.edu>>
>>>>> <<mailto:shan-lu.liu@osumc.edu>>
>>>>> <<mailto:shan-lu.liu@osumc.edu>>>>>

>>>>> --
>>>>> *****
>>>>> Fang Li, Ph.D.
>>>>> Associate Professor
>>>>> Department of Veterinary and Biomedical Sciences
>>>>> University of Minnesota Twin Cities
>>>>> [612-625-6149](tel:612-625-6149) <<tel:612-625-6149>>, lifang@umn.edu
>>>>> <<mailto:lifang@umn.edu>> <<mailto:lifang@umn.edu>>
>>>>> <<mailto:lifang@umn.edu>>>
>>>>> <http://www.msi.umn.edu/~lifang>
>>>>> <<http://www.msi.umn.edu/%7Elifang>>
>>>>> <<http://www.msi.umn.edu/%7Elifang>>>
>>>>> *****

>>>>> --
>>>>> *****

>>>>> Fang Li, Ph.D.
>>>>> Associate Professor
>>>>> Department of Veterinary and Biomedical Sciences University of
>>>>> Minnesota Twin Cities [612-625-6149](tel:612-625-6149), lifang@umn.edu
>>>>> <<mailto:lifang@umn.edu>> <http://www.msi.umn.edu/~lifang>
>>>>> <<http://www.msi.umn.edu/%7Elifang>>
>>>>> *****
>>>>> <SI website request-MERS-CoV_draft 030918.docx>
>>>>
>>>
>>> [New York Blood Center]<<http://www.nybloodcenter.org>>
>>> LIFESAVING INNOVATION SINCE 1964
>>> [New York Blood Center]<<https://www.facebook.com/newyorkbloodcenter>> [New York
Blood Center] <<https://twitter.com/NYBloodCenter>> [New York Blood Center]
<<https://instagram.com/newyorkbloodcenter/>> [New York Blood Center]
<<https://www.youtube.com/user/NewYorkBloodCenter>> [New York Blood Center]
<<https://www.linkedin.com/company/new-york-blood-center>>
>>> Donate Blood<<http://www.nybloodcenter.org/donate-blood/>> |
Volunteer<<http://nybloodcenter.org/support-us/volunteer-nybc/>> | Support
NYBC<<http://nybloodcenter.org/support-us/financial-contribution/>>
>>>
>>> This email transmission and any documents, files or previous email messages attached to it
may contain information that is confidential or legally privileged. If you are not the intended
recipient or a person responsible for delivering this transmission to the intended recipient, you
are hereby notified that you must not read this transmission and that any disclosure, copying,
printing, distribution or use of this transmission is strictly prohibited. If you have received this
transmission in error, please immediately notify the sender by telephone or return email and
delete the original transmission and its attachments without reading or saving in any manner.
>>>
>>>
>>>
> <MERS-CoV.png>
> <MERS-CoV-flyer.png>

--

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Department of Veterinary and Biomedical Sciences
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[612-625-6149](tel:612-625-6149), lifang@umn.edu

<http://www.msi.umn.edu/~lifang>

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[612-625-6149](tel:612-625-6149), lifang@umn.edu
<http://www.msi.umn.edu/~lifang>

Re: [Viruses] Special Issue "MERS-CoV " Invitation

From: Allison Yang/MDPI <allison.yang@mdpi.com>
To: Du, Lanying <LDu@nybc.org>, Fang Li <lifang@umn.edu>
Cc: viruses@mdpi.com
Sent: March 28, 2018 11:11:58 PM CDT
Received: March 28, 2018 11:12:04 PM CDT

Dear Lanying, dear Fang,

Thank you for having sent the invitations and for the information, I will follow-up and keep a record of the authors who accept/decline the invitation.

Thank you.

Best,
Allison

On 3/28/2018 11:33 AM, Allison Yang/MDPI wrote:

Dear Lanying, dear Fang,

Thanks for your list. It looks good. We will appreciate it if you could send them personal invitations. I am also pleased to know you will contribute to this special issue.

Please copy me/the journal if you are sending any personal invitations (I would follow-up if people are interested). Feel free to let me know if I may be of any assistance.

Finally, I attach an image and a flyer that you may use in presentation(s) if you like.

Thank you,
Allison

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Dear Allison,

We have summarized a list of experts in the MERS-CoV field who might be able to contribute to this special issue (attached). Please let us know whether we need to send out invitations to these authors.

By the way, I plan to contribute a paper to this special issue. I have put my name on the list.

Best regards,

Lanying

From: Allison Yang/MDPI AG <allison.yang@mdpi.com>
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Subject: Re: [Viruses] Special Issue "MERS-CoV " Invitation Templates

Dear Fang, dear Lanying,

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Dear Allison,

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Sure, we will CC you and the Viruses Editorial Office if we send out personal invitations.

Best regards,
Lanying

-----Original Message-----

From: Allison Yang/MDPI AG [mailto:allison.yang@mdpi.com]
Sent: Monday, March 12, 2018 11:29 PM
To: Fang Li; Du, Lanying
Cc: viruses@mdpi.com
Subject: [Viruses] Special Issue "MERS-CoV " Website Is Ready

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The website is ready. You can access it at
http://www.mdpi.com/journal/viruses/special_issues/MERS_CoV
Please let us know if everything looks fine.

I would like to confirm with you if you are planning to send some personal invitations to some colleagues to contribute to the Special Issue (Do you have already a list of people you would like to invite yourself?). If so, would you please fill in the document attached with their names and email addresses. You may start sending out invitations according to your own schedule. However, we kindly ask you to CC me (allison.yang@mdpi.com) and the Viruses Editorial Office (viruses@mdpi.com) in your e-mails, so that we can follow up with the contributors and assist them with the submission process.

Also, ResearchGate now offers scholars the possibility to show their new projects on their profile and this can be used to advertise projects like conferences, books or special issues.

Please see two examples here:

<https://www.researchgate.net/project/Special-Issue-Viruses-Infection-and-Apoptosis-in-Viruses>

<https://www.researchgate.net/project/I-am-Guest-Editor-for-the-special-issue-Oncolytic-Viruses-as-a-Novel-Form-of-Immunotherapy-for-Cancer-in-the-journal-Biomedicines>

Would you mind, if you have an account, adding our special issue "MERS-CoV" to your projects? This way, your network would be directly notified about it.

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Best wishes,
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Have a nice weekend!

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Cheers!

Shan-Lu Liu sent from iPhone

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Dear Fang, dear Lanying,

Thanks for your reply. I look forward to receiving your summary next week.

Please let me know if I may be of any assistance. I look forward to working with you!

Best,
Allison

On 3/6/2018 3:49 AM, Fang Li wrote:

Dear Allison and Shan-Lu,

Thanks for giving Lanying and me the opportunity to guest edit this special issue on MERS coronavirus. We will try our best to make this issue reflect the cutting edge progress of the field. As the first step, we will draft the summary in the next week or so.

Best,
Fang

On Sun, Mar 4, 2018 at 11:58 PM, Allison Yang/MDPI AG <allison.yang@mdpi.com <mailto:allison.yang@mdpi.com>

<mailto:allison.yang@mdpi.com
<mailto:allison.yang@mdpi.com>>>
wrote:

Dear Fang and Lanying (if I may),

We are pleased you are willing to guest edit this special issue. I would like to follow-up on Shan-Lu's email and give you a few more details about the process:

1. The first step would be to set-up the website of the special issue.

In order to do that we would need a brief introduction to describe the aims and scope of the issue, a list of key words and details about the Guest Editor. Please find attached a form with the required details and some examples here:

http://www.mdpi.com/journal/viruses/special_issues/smallpox40

<http://www.mdpi.com/journal/viruses/special_issues/smallpox40>

<http://www.mdpi.com/journal/viruses/special_issues/smallpox40

<[>>](http://www.mdpi.com/journal/viruses/special_issues/smallpox40)

http://www.mdpi.com/journal/viruses/special_issues/hiv_vaccines

<http://www.mdpi.com/journal/viruses/special_issues/hiv_vaccines>

<http://www.mdpi.com/journal/viruses/special_issues/hiv_vaccines

<[>>](http://www.mdpi.com/journal/viruses/special_issues/hiv_vaccines)

Please also specify the exact title and the deadline for submissions (normally we allow 6-9 months).

2. Once the website is ready, we start the promotion as described by Shan-Lu in his previous email. If you are planning to attend a conference relevant to the topic of the special issue, we can produce

a flyer for the special issue and offer a discount for all the participants of that conference, in case you want to invite people to contribute. It worked well in other occasions.

All the 'nitty-gritty' part of the process will be handled by in-house editors: inviting reviewers, sending reminders, collecting review reports, sending papers for revisions, then sending revised papers back to reviewers, etc. The GE approves each submitted paper and proposed reviewers before the papers are sent out for review.

However, we are open to organize the process as you wish, if the described outline does not work for you.

Look forward to hearing from you.

Kind regards,
Allison

MDPI AG
Viruses Editorial Office
St. Alban-Anlage 66, 4052 Basel, Switzerland
Tel.: +41 61 683 77 34 <tel:%2B41%2061%20683%2077%2034>
<tel:%2B41%2061%20683%2077%2034>; Fax: +41 61
302 89 18 <tel:%2B41%2061%20302%2089%2018>
E-Mail: viruses@mdpi.com <mailto:viruses@mdpi.com>
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<<http://www.mdpi.com/journal/viruses/>>
<<http://www.mdpi.com/journal/viruses/>>>

On 3/5/2018 11:35 AM, Liu, Shan-Lu wrote:

Dear Fang and Lanying:

Thank you so much for agreeing to be the Guest Editors of the special

issue of "MERS-CoV (Coronaviruses)".

Below please find some basic information.

//Allison

will send

you more

detailed information.

/What Does a Guest Editor Do?/ Most of the

work flow

involved in

running the special issue will be handled by the

editorial

office, so

the work load for you would not be heavy. Below

is a

list of the

primary

responsibilities of a Guest Editor:

1. Preparing a short summary (about 150 words) and

keywords to

introduce

this issue to authors and readers. See

here<http://www.mdpi.com/journal/viruses/special_issues

<http://www.mdpi.com/journal/viruses/special_issues>

<http://www.mdpi.com/journal/viruses/special_issues

<http://www.mdpi.com/journal/viruses/special_issues>> for

current

Special Issues (noting that many are still open and

will gather

further

papers in the coming months);

2. Inviting leading investigators in the field to

contribute

articles

(the /Viruses/ editorial office will also

solicit some

papers, in

consultation with you);

3. Pre-checking new submissions before review, and

later making the

final decision as to whether a paper is

acceptable or

not after peer

review and author's revision;

4. If the opportunity arises, promoting the Special

Issue when
attending
conferences.

*/**

*/What Do You Get out of It? /*Our Guest Editors
tend
to enjoy the
experience, and it will give you a sample of
editing
at a journal
without having to make the normal full commitment.
Having seen how
papers are viewed at the editorial level, I have
personally
learned a
lot about how to write and present work to help
it get
noticed.

As Guest

Editor you are able to invite up to five papers
that
will
qualify for a
waiver of the Article Processing Charges (APC).
Finally, also
from my
current situation submitting my dossier for tenure,
the exposure and
experience look good to the tenure committee.

//

/Viruses/is a fully open access journal, with a
current Impact
Factor of
3.465. The Article Processing Charge (APC) for
accepted papers
is CHF
1500. For papers submitted after 1 January 2018, an
APC of CHF
1600 will
apply. Please feel free to let me know if you
have any
questions. I
hope you will agree to participate in the
project. I
think it
could be a
great experience and I look forward to working

with you.

**Here's How We Typically Run Our Special Issues **

Usually we set the submission deadline at 6 months past the initiation of the Special Issue (so if we initiated the special issue now, the submission deadline would be around April 2018).

The Guest Editor invites a select group of the top people in the field who may contribute a paper. The editorial office also prepares a Special Issue (SI) announcement that they email to a selected, but somewhat broader group of people active in the field. The announcement and the email list are prepared in consultation with the Guest Editor (GE). We thus receive articles from authors who were specifically invited by the GE and articles submitted in response to the SI announcement.

As you might imagine, the quality of articles that we get from direct GE invites is usually higher than that of the unsolicited articles, so we encourage GEs to invite as many of the best people as possible.

If you would prefer limiting your SI to authors you specifically invite, we will not send out a SI announcement. Ideally, we

would like
to have
at least 10 articles per SI (some have had many
more);
a minimum
of five
is required to constitute a SI.

Because Viruses is an open-access journal, it is
free for
everyone and
there is no subscription fee. The journal thus
needs
to charge an
article processing charge for some of its articles.
The journal
allows
five articles per SI to be published free of charge
(including an
article from the GE if he/she chooses to
contribute);
the remaining
articles incur an article processing fee.

Shan-Lu

ignature_70484252

Shan-Lu Liu, M.D., Ph.D.

Professor

Director, Viruses and Emerging Pathogens Program,
Infectious
Diseases
Institute

Investigator, Center for Retrovirus Research

Department of Veterinary Biosciences

The Ohio State University

1900 Coffey Rd, Room 480 VMAB

Columbus, Ohio 43210

Phone: (614) 292-8690 <tel:%28614%29%20292-8690>
<tel:%28614%29%20292-8690>

Fax: (614) 292-6473 <tel:%28614%29%20292-6473>

<tel:%28614%29%20292-6473>

Email: liu.6244@osu.edu <mailto:liu.6244@osu.edu>
<mailto:liu.6244@osu.edu
<mailto:liu.6244@osu.edu>><mailto:liu.6244@osu.edu
<mailto:liu.6244@osu.edu>
<mailto:liu.6244@osu.edu
<mailto:liu.6244@osu.edu>>>;
shan-lu.liu@osumc.edu <mailto:shan-lu.liu@osumc.edu>
<mailto:shan-lu.liu@osumc.edu

<mailto:shan-lu.liu@osumc.edu>><mailto:shan-lu.liu@osumc.edu
<mailto:shan-lu.liu@osumc.edu>
<mailto:shan-lu.liu@osumc.edu
<mailto:shan-lu.liu@osumc.edu>>>

--

Fang Li, Ph.D.
Associate Professor
Department of Veterinary and Biomedical Sciences
University of Minnesota Twin Cities
612-625-6149 <tel:612-625-6149>, lifang@umn.edu
<mailto:lifang@umn.edu> <mailto:lifang@umn.edu
<mailto:lifang@umn.edu>>
<http://www.msi.umn.edu/~lifang>
<<http://www.msi.umn.edu/%7Elifang>
<<http://www.msi.umn.edu/%7Elifang>>>

--

Fang Li, Ph.D.
Associate Professor
Department of Veterinary and Biomedical Sciences University of
Minnesota Twin Cities 612-625-6149, lifang@umn.edu
<mailto:lifang@umn.edu> <http://www.msi.umn.edu/~lifang>
<<http://www.msi.umn.edu/%7Elifang>>

<SI website request-MERS-CoV_draft 030918.docx>

[New York Blood Center]<<http://www.nybloodcenter.org>>
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Center]<<https://www.facebook.com/newyorkbloodcenter>> [New York
Blood Center] <<https://twitter.com/NYBloodCenter>> [New York Blood
Center] <<https://instagram.com/newyorkbloodcenter/>> [New York
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[New York Blood Center]
<<https://www.linkedin.com/company/new-york-blood-center>>
Donate Blood<<http://www.nybloodcenter.org/donate-blood/>> |

Volunteer<<http://nybloodcenter.org/support-us/volunteer-nybc/>> |

Support

NYBC<<http://nybloodcenter.org/support-us/financial-contribution/>>

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Re: NRM review article

From: Jie Cui <jiecui@wh.iov.cn>
To: zlshi <zlshi@wh.iov.cn>
Cc: lifang <lifang@umn.edu>
Sent: April 3, 2018 5:27:52 AM CDT
Received: April 3, 2018 5:28:01 AM CDT

Dear Prof. Shi,

Pls find attached my edits of the outline. Given the large data used to generate the phylogenetic trees, I would roughly need two weeks to finalize the figs and tabs and writings of my sections.

All the best,

Jie

--

Prof. Jie Cui
Principal Investigator
Virus Bioinformatics Group
Wuhan Institute of Virology, CAS
Tel: +86 (27)87199895
ORCID ID: <http://orcid.org/0000-0001-8176-9951>

-----原始邮件-----

发件人:zlshi <zlshi@wh.iov.cn>

发送时间:2018-04-03 11:18:16 (星期二)

收件人: "崔杰" <jiecui@wh.iov.cn>, lifang <lifang@umn.edu>

抄送:

主题: NRM review article

Dear Jie, Fang,

Thank you again for your willing to particiapte in writing the review article. I'm sorry to send you the outline late. I've asked the journal give me two weeks of extention.

Can you please see attached outline of the manuscript. Please feel free to give me your any suggestions regarding the title and contents of the manuscript. I suggest you one each section, I'll be appreciated if you can help for other sections.

And also, please let me know the appropriate date for your sending me back your assigned section.

Looking forward to your suggestions.

Best regards,

Zhengli,

SHI Zhengli, Ph. D

Senior Scientist & Professor

Wuhan Institute of Virology, Chinese Academy of Sciences

44 Xiao Hong Shan

430071 Wuhan, Hubei

China

Tel & Fax: (0086) 27 87197240

Email: zshi@wh.iov.cn

Re: Re: NRM review article

From: zlschi <zlschi@wh.iov.cn>
To: 崔杰 <jiecui@wh.iov.cn>
Cc: lifang <lifang@umn.edu>
Sent: April 3, 2018 7:51:25 AM CDT
Received: April 3, 2018 7:51:40 AM CDT

Thanks.

SHI Zhengli, Ph. D
Senior Scientist & Professor
Wuhan Institute of Virology, Chinese Academy of Sciences
44 Xiao Hong Shan
430071 Wuhan, Hubei
China
Tel & Fax: (0086) 27 87197240
Email: zlschi@wh.iov.cn

From: [Jie Cui](#)
Date: 2018-04-03 18:27
To: [zlschi](#)
CC: [lifang](#)
Subject: Re: NRM review article

Dear Prof. Shi,

Pls find attached my edits of the outline. Given the large data used to generate the phylogenetic trees, I would roughly need two weeks to finalize the figs and tabs and writings of my sections.

All the best,

Jie

--

Prof. Jie Cui
Principal Investigator
Virus Bioinformatics Group
Wuhan Institute of Virology, CAS
Tel: +86 (27)87199895
ORCID ID: <http://orcid.org/0000-0001-8176-9951>

-----原始邮件-----

发件人: zlschi <zlschi@wh.iov.cn>

发送时间: 2018-04-03 11:18:16 (星期二)

收件人: "崔杰" <jiecui@wh.iov.cn>, lifang <lifang@umn.edu>

抄送:

主题: NRM review article

Dear Jie, Fang,

Thank you again for your willing to participate in writing the review article. I'm sorry to send you the outline late. I've asked the journal give me two weeks of extension.

Can you please see attached outline of the manuscript. Please feel free to give me your any suggestions regarding the title and contents of the manuscript. I suggest you one each section, I'll be appreciated if you can help for other sections.

And also, please let me know the appropriate date for your sending me back your assigned section.

Looking forward to your suggestions.

Best regards,

Zhengli,

SHI Zhengli, Ph. D

Senior Scientist & Professor

Wuhan Institute of Virology, Chinese Academy of Sciences

44 Xiao Hong Shan

430071 Wuhan, Hubei

China

Tel & Fax: (0086) 27 87197240

Email: zshi@wh.iov.cn

Re: NRM review article

From: Fang Li <lifang@umn.edu>
To: zlshi <zlshi@wh.iov.cn>
Cc: 崔杰 <jiecui@wh.iov.cn>
Sent: April 3, 2018 10:33:12 AM CDT
Received: April 3, 2018 10:33:12 AM CDT

Looks good to me. Thanks.

On Mon, Apr 2, 2018 at 10:18 PM, zlshi <zlshi@wh.iov.cn> wrote:
Dear Jie, Fang,

Thank you again for your willing to participate in writing the review article. I'm sorry to send you the outline late. I've asked the journal give me two weeks of extension.

Can you please see attached outline of the manuscript. Please feel free to give me your any suggestions regarding the title and contents of the manuscript. I suggest you one each section, I'll be appreciated if you can help for other sections.

And also, please let me know the appropriate date for your sending me back your assigned section.

Looking forward to your suggestions.

Best regards,
Zhengli,

SHI Zhengli, Ph. D
Senior Scientist & Professor
Wuhan Institute of Virology, Chinese Academy of Sciences
44 Xiao Hong Shan
430071 Wuhan, Hubei
China
Tel & Fax: (0086) 27 87197240
Email: zlshi@wh.iov.cn

--

Fang Li, Ph.D.
Associate Professor
Department of Veterinary and Biomedical Sciences
University of Minnesota Twin Cities
612-625-6149, lifang@umn.edu
<http://www.msi.umn.edu/~lifang>

Re: Fw: JVI00116-18R1 Decision Letter

From: Fang Li <lifang@umn.edu>
To: 石正丽 <zlshi@wh.iov.cn>
Cc: [REDACTED]
Sent: April 3, 2018 9:42:57 PM CDT

good job! cheers!

On Tue, Apr 3, 2018 at 7:48 PM 石正丽 <zlshi@wh.iov.cn> wrote:
Congratulation!

-----原始邮件-----

发件人:asm@msubmit.net
发送时间:2018-04-04 04:44:51 (星期三)
收件人: zlshi@wh.iov.cn
抄送:
主题: JVI00116-18R1 Decision Letter

Prof. Zheng-Li Shi
Wuhan Institute of Virology, Chinese Academy of Sciences
44 Xiao Hong Shan
Wuhan, Hubei 430071
China

Re: JVI00116-18R1 (Discovery of novel bat coronaviruses in south China that use the same receptor as MERS coronavirus)

Dear Prof. Zheng-Li Shi:

Your manuscript has been accepted, and I am forwarding it to the ASM Journals Department for publication. If your submission included supplemental material to be considered for publication, my decision regarding each supplemental file may be found at the bottom of this letter. For your reference, ASM Journals' address is given below. Before it can be scheduled for publication, your manuscript must be checked by the ASM production editor to make sure that all elements meet the technical requirements for publication. Julie Nachman, the production editor for Journal of Virology, will contact you if anything needs to be revised before copyediting and production can begin. Otherwise, you will be notified when your proofs are ready to be viewed.

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If you are interested in providing an illustration, related to this manuscript, for the cover of JVI, contact Dr. Stacey Schultz-Cherry at Stacey.Schultz-Cherry@StJude.org for details.

PLEASE NOTE: For its primary-research journals, ASM posts online PDF versions of manuscripts that have been peer reviewed and accepted but not yet copyedited. This feature is called "JVI Accepts" and is accessible from the Journals website. The manuscripts are published online as soon as possible after acceptance, on a weekly basis, before the copyedited, typeset versions are published. They are posted "As Is" (i.e., as submitted by the authors at the modification stage), and corrections/changes are NOT accepted. Accordingly, there may be differences between the JVI Accepts version and the final, typeset version. The manuscripts remain listed on the JVI Accepts page until the final, typeset versions are published, at which point they are removed from the JVI Accepts page. Any supplemental material intended, and accepted, for publication is not posted until publication of the final, typeset article.

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Embargo policy: a press release may be issued as soon as the accepted manuscript is published on the JVI Accepts page. To be notified as soon as your manuscript is published, please sign up for e-Alerts at <http://journals.asm.org/cgi/alerts/etoc>.

IMPORTANT NOTICE: Effective April 2008, the NIH initiated a policy requiring that all investigators funded by the NIH either submit or have submitted for them to the National Library of Medicine's PubMed Central an electronic version of their final peer-reviewed manuscripts upon acceptance for publication, to be made publicly available no later than 12 months after the official date of publication. Authors of ASM journal articles are automatically in compliance with this policy and need take no action themselves. For the past several years, the ASM has deposited in PubMed Central all publications from all ASM journals. Further, all primary ASM literature is made available to everyone, free, 6 months after publication through PubMed Central, HighWire, and international PubMed Central-like repositories. By having initiated these policies, the ASM is in full compliance with NIH policy.

Thank you for submitting your paper to JVI.

Sincerely,
Tom Gallagher
Editor, Journal of Virology

Journals Department
American Society for Microbiology
[1752 N St., NW](#)
[Washington, DC 20036](#)
E-mail: jnachman@asmusa.org
Phone: 1-202-942-9337
Fax: 1-202-942-9355

--

Fang Li, Ph.D.
Associate Professor
Department of Veterinary and Biomedical Sciences
University of Minnesota Twin Cities
612-625-6149, lifang@umn.edu
<http://www.msi.umn.edu/~lifang>

Re: Accession numbers in JVI00116-18

From: [REDACTED]
To: Esplin, Karen <kesplin@asmusa.org>
Cc: zlshi <zlshi@wh.iov.cn>, Fang Li <lifang@umn.edu>
Sent: April 4, 2018 7:55:04 PM CDT
Received: April 4, 2018 7:55:05 PM CDT

Dear Karen,

We have requested GenBank to release the sequences MG021451 and MG021452 as soon as possible. We will let you know once it is released, or we get the feedback about the new release date from GenBank. Thank you very much!

Best regards,

On Wed, Apr 4, 2018 at 12:49 PM, Esplin, Karen <kesplin@asmusa.org> wrote:

RE: Discovery of novel bat coronaviruses in south China that use the same receptor as MERS coronavirus (JVI00116-18)

Dear Prof. Shi,

ASM policy requires that all accession numbers in an article be publicly available before the article is posted online. Please request that GenBank accession numbers MG021451 and MG021452 be released as soon as possible, and please let me know the expected release date. I must hold your manuscript at least until a release date has been set.

Regards,

Karen Esplin

Assistant Production Editor

Journal of Virology

American Society for Microbiology

[1752 N Street, NW](#)

[Washington, DC 20036](#)

Phone: 202-942-9235

--
[REDACTED]

[REDACTED]

RE: Accession numbers in JVI00116-18

From: Esplin, Karen <kesplin@asmusa.org>
To: [REDACTED]
Cc: zlshi <zlshi@wh.iov.cn>, Fang Li <lifang@umn.edu>
Sent: April 5, 2018 9:30:20 AM CDT
Received: April 5, 2018 9:30:23 AM CDT

Thanks.

From: [REDACTED]
Sent: Wednesday, April 04, 2018 8:55 PM
To: Esplin, Karen
Cc: zlshi; Fang Li
Subject: Re: Accession numbers in JVI00116-18

Dear Karen,

We have requested GenBank to release the sequences MG021451 and MG021452 as soon as possible. We will let you know once it is released, or we get the feedback about the new release date from GenBank. Thank you very much!

Best regards,

On Wed, Apr 4, 2018 at 12:49 PM, Esplin, Karen <kesplin@asmusa.org> wrote:
RE: Discovery of novel bat coronaviruses in south China that use the same receptor as MERS coronavirus (JVI00116-18)

Dear Prof. Shi,

ASM policy requires that all accession numbers in an article be publicly available before the article is posted online. Please request that GenBank accession numbers MG021451 and MG021452 be released as soon as possible, and please let me know the expected release date. I must hold your manuscript at least until a release date has been set.

Regards,

Karen Esplin
Assistant Production Editor
Journal of Virology
American Society for Microbiology
1752 N Street, NW
Washington, DC 20036
Phone: 202-942-9235

--
[REDACTED]



RE: request of submission extension for Article specifications for Nature Reviews Microbiology

From: Francis, Georgia <georgia.francis@nature.com>
To: zlshi <zlshi@wh.iov.cn>
Cc: Hofer, Ursula <Ursula.Hofer1@nature.com>, 崔杰 <jiecui@wh.iov.cn>, lifang <lifang@umn.edu>
Sent: April 9, 2018 3:49:33 AM CDT
Received: April 9, 2018 3:49:38 AM CDT

Dear Zhengli,

Many thanks for your email and please accept my apologies for the slight delay in responding to you. Of course, a two week extension is fine and we are happy for you to submit your manuscript by the end of the month.

If you have any questions in the meantime, please do not hesitate to let either myself or Dr. Hofer know.

With best wishes,

Georgia

Georgia Francis
Senior Editorial Assistant
Nature Reviews | BioPharma Dealmakers
Nature Research

4 Crinan Street London N1 9XW
T: +44 207 0144294
E: georgia.francis@nature.com
nature.com

Visitor address: Porters Gate Reception, Wharfdale Road, London, UK

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From: zlshi [mailto:zlshi@wh.iov.cn]

Sent: 03 April 2018 02:18

To: Francis, Georgia

Cc: Hofer, Ursula; 崔杰; lifang

Subject: request of submission extension for Article specifications for Nature Reviews Microbiology

Dear Georgia,

In view of recent coming tasks, I'm afraid we can't submit the article by 19th April. Can we ask two week of extension and submit it by the end of this month?

Best regards,
Zhengli,

SHI Zhengli, Ph. D
Senior Scientist & Professor
Wuhan Institute of Virology, Chinese Academy of Sciences
44 Xiao Hong Shan

430071 Wuhan, Hubei
China
Tel & Fax: (0086) 27 87197240
Email: zlshi@wh.iov.cn

From: [Francis, Georgia](#)
Date: 2018-03-20 19:15
To: zlshi@wh.iov.cn
CC: [Hofer, Ursula](#)
Subject: RE: Article specifications for Nature Reviews Microbiology
Dear Zhengli,

I hope you are well? I am just emailing to find out how things are progressing with the article that you are kindly preparing for Nature Reviews Microbiology, and to see whether a submission by 19TH April is still feasible?

As a reminder, please use the link below to submit your draft when it is ready to our online manuscript tracking system: <http://mts-nrmicro.nature.com/cgi-bin/main.plex?el=A3Z2DZv4A7Yqv1J3A9ftdzYIRsNsXwT4mN7zUqfUoAZ>

I look forward to hearing from you.

Best wishes,

Georgia

Georgia Francis
Senior Editorial Assistant | **Nature Reviews** | BioPharma Dealmakers
Nature Research

4 Crinan Street London N1 9XW
T: +44 207 0144294
E: georgia.francis@nature.com
nature.com

Visitor address: Porters Gate Reception, Wharfdale Road, London, UK

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From: Hofer, Ursula
Sent: 20 December 2017 08:28
To: zlshi
Cc: Francis, Georgia
Subject: Re: Article specifications for Nature Reviews Microbiology

Dear Zhengli,

Both your suggested co-authors and the amended submission date for the first full draft of April 19 are fine. Georgia, can you update the deadline?

Thanks,
Ursula

From: zlshi <zlshi@wh.iov.cn>
Sent: Wednesday, December 20, 2017 2:35 AM
To: Hofer, Ursula
Subject: Re: Article specifications for Nature Reviews Microbiology

Hofer

Thanks for your information.

For the related subject of the review article, the most recent publication by my group was in 2015 at the *Virology Journal* (please see attached article).

Regarding the submission deadline, may I ask two months of extension (19 April 2018). My colleagues and I will work on our grant applications before the middle March.

For authorship, may I invite two experts in the field to write this article? They are: Prof. Fang Li from Minnesota University, who have been working on coronavirus interspecies transmission and structural biology for a very long time; Prof. Jie Cui who joined our Institute two year ago and is an expert on virus evolution. I believe they will have substantial contributions to the article and provide soem new intepretation and perspective on evolution and molelcular interspecies infection mechanism on the two pathogenic coronaviruses.

Looking forward to work with you.

Best regards,

Zhengli,

SHI Zhengli, Ph. D
Senior Scientist & Professor
Wuhan Institute of Virology, Chinese Academy of Sciences
44 Xiao Hong Shan
430071 Wuhan, Hubei
China
Tel & Fax: (0086) 27 87197240
Email: zlshi@wh.iov.cn

From: ursula.hofer1
Date: 2017-12-18 23:49
To: zlshi
Subject: Article specifications for Nature Reviews Microbiology

Dear Dr. Shi,

Manuscript number: NRMICRO-17-293S
Title: Origin and evolution of pathogenic coronaviruses
Submission date: 19 February 2018

Many thanks for agreeing to write a Progress article for Nature Reviews Microbiology.

The guidelines for authors, which contain all the information you need regarding the formatting of the article, can be found here: <http://www.nature.com/reviews/pdf/progress->

[ls.pdf](#) Please read these guidelines carefully before beginning to write.

The key specifications for this article are as follows:

- *Length 2,500 words plus 80 references maximum
- *The article may contain a maximum of three display items (figure, table or box)
- *Full article to be submitted by 19 February 2018

Please let me know if this deadline is feasible — we can be flexible and are happy to work with you around your schedule and other obligations.

Once a complete manuscript is submitted, I will provide feedback on the structure and flow of the text if necessary. (If the first submission, complete with display items, is in good shape, we might be able to skip this step.) After you revise the manuscript, I will send it for peer review. If the referees recommend publication, we will ask you to revise the article according to their suggestions. I will then edit the revised article for scientific clarity and readability and have the figures redrawn by our in-house art editor. Once accepted, the article will be passed to our copy editor to be edited for grammar and house style. Overall, your manuscript will go through several rounds of revision, which will result in a highly polished article.

In addition to the information in the guidelines for authors, there are a few points I'd be grateful if you could bear in mind:

- Please could you let me know if you have just written, or have agreed to write, an article on this or a related topic. We aim to avoid unnecessary overlap with other articles and to maximize the impact of the Nature Reviews article. In addition, the Nature Reviews journals use CrossCheck (for details, see the guidelines for authors); the journals will not knowingly publish an article containing text copied from previously published work, including your own work and work published in a language other than English.

- I'd be grateful if you could keep the total number of authors as low as possible. This helps to maximize the impact of our articles, as many readers express a preference for articles that provide them with the overview and opinions of someone who is a leader in the field. If you do wish to work with one or more co-authors, I'd be grateful if you could let me know their names and affiliations as soon as possible. Any other writing assistance should be acknowledged in the article.

- In the interests of transparency, the Nature Reviews journals require authors of Progress articles to declare any competing interests. A detailed explanation of the policy can be found here: http://www.nature.com/authors/editorial_policies/competing.html. This information, alongside authorship contributions, is collected electronically as part of the submission process. We also require authors to complete paper forms to transfer copyright for articles.

Please don't hesitate to get in touch if you have any problems or questions. I'm really looking forward to working with you on this article.

Best wishes,
Ursula

Ursula Hofer, MD PhD
Chief Editor, Nature Reviews Microbiology
4 Crinan Street
London
N1 9XW
e-mail:ursula.hofer1@nature.com
tel: +44 (0)20 7014 6648
<http://www.nature.com/nrmicro>

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If you have other accounts in Nature Research journals, you will be prompted to link your multiple accounts after you log in. By linking your accounts, you can create a single sign-on, view the status of all your manuscript submissions and reviews, access usage statistics for your published articles and download a record of your refereeing activity for the Nature journals.

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Re: RE: request of submission extention for Article specifications for Nature Reviews Microbiology

From: zlshi <zlshi@wh.iov.cn>
To: Francis, Georgia <georgia.francis@nature.com>
Cc: ursula.hofer1 <Ursula.Hofer1@nature.com>, 崔杰 <jiecui@wh.iov.cn>, lifang <lifang@umn.edu>
Sent: April 10, 2018 2:55:13 AM CDT
Received: April 10, 2018 2:55:27 AM CDT

Dear Grogia,

Thank you for your reply. I attach an outline of our review which will focus on SARS and SARS-related coronaviruses. Please let me know if you have any suggestions.

Best regards,
Zhengli,

SHI Zhengli, Ph. D
Senior Scientist & Professor
Wuhan Institute of Virology, Chinese Academy of Sciences
44 Xiao Hong Shan
430071 Wuhan, Hubei
China
Tel & Fax: (0086) 27 87197240
Email: zlshi@wh.iov.cn

From: [Francis, Georgia](#)
Date: 2018-04-09 16:49
To: [zlshi](#)
CC: [Hofer, Ursula](#); [崔杰](#); [lifang](#)
Subject: RE: request of submission extention for Article specifications for Nature Reviews Microbiology

Dear Zhengli,

Many thanks for your email and please accept my apologies for the slight delay in responding to you. Of course, a two week extension is fine and we are happy for you to submit your manuscript by the end of the month.

If you have any questions in the meantime, please do not hesitate to let either myself or Dr. Hofer know.

With best wishes,

Georgia

Georgia Francis

Senior Editorial Assistant
Nature Reviews | BioPharma Dealmakers
Nature Research

4 Crinan Street London N1 9XW
T: +44 207 0144294
E: georgia.francis@nature.com
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Visitor address: Porters Gate Reception, Wharfdale Road, London, UK

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From: zlshi [mailto:zlshi@wh.iov.cn]
Sent: 03 April 2018 02:18
To: Francis, Georgia
Cc: Hofer, Ursula; 崔杰; lifang
Subject: request of submission extention for Article specifications for Nature Reviews Microbiology

Dear Georgia,

In view of recent coming tasks, I'm afraid we can't submit the article by 19th April. Can we ask two week of extention and submit it by the end of this month?

Best regards,
Zhengli,

SHI Zhengli, Ph. D
Senior Scientist & Professor
Wuhan Institute of Virology, Chinese Academy of Sciences
44 Xiao Hong Shan
430071 Wuhan, Hubei
China
Tel & Fax: (0086) 27 87197240
Email: zlshi@wh.iov.cn

From: [Francis, Georgia](#)

Date: 2018-03-20 19:15

To: zlshi@wh.iov.cn

CC: [Hofer, Ursula](#)

Subject: RE: Article specifications for Nature Reviews Microbiology

Dear Zhengli,

I hope you are well? I am just emailing to find out how things are progressing with the article that you are kindly preparing for Nature Reviews Microbiology, and to see whether a submission by 19TH April is still feasible?

As a reminder, please use the link below to submit your draft when it is ready to our online manuscript tracking system: <http://mts-nrmicro.nature.com/cgi-bin/main.plex?el=A3Z2DZv4A7Yqv1J3A9ftdzYIRsNsXwT4mN7zUqfUoAZ>

I look forward to hearing from you.

Best wishes,

Georgia

Georgia Francis

Senior Editorial Assistant | **Nature Reviews** | BioPharma Dealmakers

Nature Research

4 Crinan Street London N1 9XW

T: +44 207 0144294

E: georgia.francis@nature.com

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From: Hofer, Ursula

Sent: 20 December 2017 08:28

To: zlshi
Cc: Francis, Georgia
Subject: Re: Article specifications for Nature Reviews Microbiology

Dear Zhengli,

Both your suggested co-authors and the amended submission date for the first full draft of April 19 are fine. Georgia, can you update the deadline?

Thanks,
Ursula

From: zlshi <zlshi@wh.iov.cn>
Sent: Wednesday, December 20, 2017 2:35 AM
To: Hofer, Ursula
Subject: Re: Article specifications for Nature Reviews Microbiology

Hofer

Thanks for your information.

For the related subject of the review article, the most recent publication by my group was in 2015 at the *Virology Journal* (please see attached article).

Regarding the submission deadline, may I ask two months of extension (19 April 2018). My colleagues and I will work on our grant applications before the middle March.

For authorship, may I invite two experts in the field to write this article? They are: Prof. Fang Li from Minnesota University, who have been working on coronavirus interspecies transmission and structural biology for a very long time; Prof. Jie Cui who joined our Institute two year ago and is an expert on virus evolution. I believe they will have substantial contributions to the article and provide soem new intepretation and perspective on evolution and mololecular interspecies infection mechanism on the two pathogenic coronaviruses.

Looking forward to work with you.

Best regards,

Zhengli,

SHI Zhengli, Ph. D
Senior Scientist & Professor
Wuhan Institute of Virology, Chinese Academy of Sciences
44 Xiao Hong Shan
430071 Wuhan, Hubei
China
Tel & Fax: (0086) 27 87197240
Email: zlshi@wh.iov.cn

From: ursula.hofer1
Date: 2017-12-18 23:49
To: zlshi
Subject: Article specifications for Nature Reviews Microbiology

Dear Dr. Shi,

Manuscript number: NRMICRO-17-293S
Title: Origin and evolution of pathogenic coronaviruses
Submission date: 19 February 2018

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<http://www.nature.com/reviews/pdf/progress-ls.pdf> Please read these guidelines carefully before beginning to write.

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- *Full article to be submitted by 19 February 2018

Please let me know if this deadline is feasible — we can be flexible and are happy to work with you around your schedule and other obligations.

Once a complete manuscript is submitted, I will provide feedback on the structure and flow of the text if necessary. (If the first submission, complete with display items, is in good shape, we might be able to skip this step.) After you revise the manuscript, I will send it for peer review. If the referees recommend publication, we will ask you to revise the article according to their suggestions. I will then edit the

revised article for scientific clarity and readability and have the figures redrawn by our in-house art editor. Once accepted, the article will be passed to our copy editor to be edited for grammar and house style. Overall, your manuscript will go through several rounds of revision, which will result in a highly polished article.

In addition to the information in the guidelines for authors, there are a few points I'd be grateful if you could bear in mind:

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- I'd be grateful if you could keep the total number of authors as low as possible. This helps to maximize the impact of our articles, as many readers express a preference for articles that provide them with the overview and opinions of someone who is a leader in the field. If you do wish to work with one or more co-authors, I'd be grateful if you could let me know their names and affiliations as soon as possible. Any other writing assistance should be acknowledged in the article.

- In the interests of transparency, the Nature Reviews journals require authors of Progress articles to declare any competing interests. A detailed explanation of the policy can be found here: http://www.nature.com/authors/editorial_policies/competing.html. This information, alongside authorship contributions, is collected electronically as part of the submission process. We also require authors to complete paper forms to transfer copyright for articles.

Please don't hesitate to get in touch if you have any problems or questions. I'm really looking forward to working with you on this article.

Best wishes,
Ursula

Ursula Hofer, MD PhD
Chief Editor, Nature Reviews Microbiology
4 Crinan Street
London

N1 9XW

e-mail:ursula.hofer1@nature.com

tel: +44 (0)20 7014 6648

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NRM review

From: zlshi <zlshi@wh.iov.cn>
To: lifang <lifang@umn.edu>, 崔杰 <jiecui@wh.iov.cn>
Sent: April 20, 2018 8:23:45 AM CDT
Received: April 20, 2018 8:24:00 AM CDT

Dear Fang and Jie,

Can you please send me the section assigned to you by next Wednesday (April 25). I'll integrate the contents of three and send you back for review by the end of next week. The first draft is expected to submit on May 1st.

Thank you,

Best regards,
Zhengli,

SHI Zhengli, Ph. D
Senior Scientist & Professor
Wuhan Institute of Virology, Chinese Academy of Sciences
44 Xiao Hong Shan
430071 Wuhan, Hubei
China
Tel & Fax: (0086) 27 87197240
Email: zlshi@wh.iov.cn

Re: Re: NRM review and Ab transportaion

From: zlshi <zlshi@wh.iov.cn>
To: lifang <lifang@umn.edu>
Cc: [REDACTED] <chine.lcm@163.com>
Sent: April 23, 2018 12:41:01 AM CDT
Received: April 23, 2018 12:41:12 AM CDT

Dear Fang,

Thank you for your contribution to the review and suggestion for antibody shipment.

The meeting in October, sorry for missing the information.

Best regards,
Zhengli,

SHI Zhengli, Ph. D
Senior Scientist & Professor
Wuhan Institute of Virology, Chinese Academy of Sciences
44 Xiao Hong Shan
430071 Wuhan, Hubei
China
Tel & Fax: (0086) 27 87197240
Email: zlshi@wh.iov.cn

From: [Fang Li](#)
Date: 2018-04-23 13:30
To: [zlshi](#)
CC: [REDACTED]
Subject: Re: NRM review and Ab transportaion

Dear Zhengli,

Yes, I am working on the review and should be able to send you a draft in 2 or 3 days.

[REDACTED]

Which month is the meeting?

Thanks,
Fang

On Sun, Apr 22, 2018 at 8:56 PM, zlshi <zlshi@wh.iov.cn> wrote:

Dear Fang,

I trust you are preparing the NRM review article.

I would like to ask you a favor to [REDACTED]
[REDACTED] and are expected
to be brought back to China [REDACTED].

[REDACTED]

Third issue, our Institute will host a biennial meeting on emerging viral diseases from 20-22nd.
We will be happy to invite you to participate in this meeting at your available time.

Best regards,
Zhengli,

SHI Zhengli, Ph. D
Senior Scientist & Professor
Wuhan Institute of Virology, Chinese Academy of Sciences
44 Xiao Hong Shan
430071 Wuhan, Hubei
China
Tel & Fax: (0086) 27 87197240
Email: zlshi@wh.iov.cn

--

Fang Li, Ph.D.
Associate Professor
Department of Veterinary and Biomedical Sciences
University of Minnesota Twin Cities
612-625-6149, lifang@umn.edu
<http://www.msi.umn.edu/~lifang>

Re: Re: NRM review

From: zlshi@wh.iov.cn
To: lifang <lifang@umn.edu>
Sent: April 25, 2018 9:55:05 AM CDT
Received: April 25, 2018 9:55:21 AM CDT

Thanks.

zlshi@wh.iov.cn

From: [Fang Li](#)
Date: 2018-04-25 12:11
To: [zlshi](#)
Subject: Re: NRM review

Dear Zhengli,

Please see attached the figure. I am finishing up the text part. Will send it to you tomorrow.

Thanks,
Fang

On Fri, Apr 20, 2018 at 8:23 AM, zlshi <zlshi@wh.iov.cn> wrote:

Dear Fang and Jie,

Can you please send me the section assigned to you by next Wednesday (April 25). I'll integrate the contents of three and send you back for review by the end of next week. The first draft is expected to submit on May 1st.

Thank you,

Best regards,
Zhengli,

SHI Zhengli, Ph. D
Senior Scientist & Professor
Wuhan Institute of Virology, Chinese Academy of Sciences
44 Xiao Hong Shan
430071 Wuhan, Hubei
China
Tel & Fax: (0086) 27 87197240
Email: zlshi@wh.iov.cn

--

Fang Li, Ph.D.
Associate Professor
Department of Veterinary and Biomedical Sciences
University of Minnesota Twin Cities
612-625-6149, lifang@umn.edu
<http://www.msi.umn.edu/~lifang>

Re: SARS manuscript

From: 石正丽 <zlshi@wh.iov.cn>
To: Fang Li <lifang@umn.edu>
Sent: April 25, 2018 7:38:06 PM CDT
Received: April 25, 2018 7:38:20 PM CDT

Dear Fang,

Thank you for your contribution. I'll let you know when further modification is needed.

Best regards,
Zhengli,

-----原始邮件-----

发件人:"Fang Li" <lifang@umn.edu>
发送时间:2018-04-26 07:05:07 (星期四)
收件人: "Zhengli Shi" <zlshi@wh.iov.cn>
抄送:
主题: SARS manuscript

Dear Zhengli,

Please see attached my portion of the SARS manuscript and also a figure. If you would like me to make changes to the text or figure, please free feel to let me know.

Thanks,
Fang

--

Fang Li, Ph.D.
Associate Professor
Department of Veterinary and Biomedical Sciences
University of Minnesota Twin Cities
612-625-6149, lifang@umn.edu
<http://www.msi.umn.edu/~lifang>

Re: SARS manuscript

From: zlshi <zlshi@wh.iov.cn>
To: lifang <lifang@umn.edu>
Sent: April 25, 2018 9:39:52 PM CDT
Received: April 25, 2018 9:40:03 PM CDT

Dear Fang,

I've read your manuscript and it's very good. Thank you!

There two modifications I would suggest:

[REDACTED]

Thanks,

Best regards,

Zhengli,

SHI Zhengli, Ph. D
Senior Scientist & Professor
Wuhan Institute of Virology, Chinese Academy of Sciences
44 Xiao Hong Shan
430071 Wuhan, Hubei
China
Tel & Fax: (0086) 27 87197240
Email: zlshi@wh.iov.cn

From: [Fang Li](#)
Date: 2018-04-26 07:05
To: [Zhengli Shi](#)
Subject: SARS manuscript

Dear Zhengli,

Please see attached my portion of the SARS manuscript and also a figure. If you would like me to make changes to the text or figure, please free feel to let me know.

Thanks,

Fang

--

Fang Li, Ph.D.

Associate Professor

Department of Veterinary and Biomedical Sciences

University of Minnesota Twin Cities

612-625-6149, lifang@umn.edu

<http://www.msi.umn.edu/~lifang>

Re: SARS manuscript

From: zlshi <zlshi@wh.iov.cn>
To: lifang <lifang@umn.edu>
Sent: April 25, 2018 10:28:28 PM CDT
Received: April 25, 2018 10:28:40 PM CDT

One more question, where is the information of [REDACTED]?

SHI Zhengli, Ph. D
Senior Scientist & Professor
Wuhan Institute of Virology, Chinese Academy of Sciences
44 Xiao Hong Shan
430071 Wuhan, Hubei
China
Tel & Fax: (0086) 27 87197240
Email: zlshi@wh.iov.cn

From: [Fang Li](#)
Date: 2018-04-26 07:05
To: [Zhengli Shi](#)
Subject: SARS manuscript

Dear Zhengli,

Please see attached my portion of the SARS manuscript and also a figure. If you would like me to make changes to the text or figure, please free feel to let me know.

Thanks,
Fang

--

Fang Li, Ph.D.
Associate Professor
Department of Veterinary and Biomedical Sciences
University of Minnesota Twin Cities
612-625-6149, lifang@umn.edu
<http://www.msi.umn.edu/~lifang>

Re: [Viruses] Special Issue "MERS-CoV " -Special Issue Announcement

From: Du, Lanying <LDu@nybc.org>
To: Allison Yang/MDPI <allison.yang@mdpi.com>
Cc: viruses@mdpi.com, Fang Li <lifang@umn.edu>
Sent: May 1, 2018 4:36:28 PM CDT
Received: May 1, 2018 4:36:35 PM CDT

Hi Allison,

I have not received any replies from the people invited on April 21. You could send out a reminder.

I agree with Fang on the selection of more potential contributors. I have spoken to some other researchers in the field about this special issue (not yet sending out invitations). They expressed interest, but cannot decide now (I will check with them later). In the meantime, we will try to send out more invitations to the people in the field.

Best regards,

Lanying

From: Fang Li <lifang@umn.edu>

Sent: Tuesday, May 01, 2018 11:59 AM

To: Allison Yang/MDPI

Cc: Du, Lanying; viruses@mdpi.com

Subject: Re: [Viruses] Special Issue "MERS-CoV " -Special Issue Announcement

Dear Allison,

I myself am considering submitting a manuscript. I will let you know my final decision later.

I have notified you of all of the replies directed towards me only from the previous invitees.

I feel that the general list is long, many of the published work have low quality, and hence the quality of the submissions may not be guaranteed if many of these researchers submit their work. If that happens, probably many of the submissions will not be peer reviewed as it is not easy to find so many qualified reviewers or ask the same reviewers over and over again. Would that be ok with the journal?

So the question is what is the goal of the journal for this special issue: are 10 high quality papers enough for the issue? Besides, we can probably get a few more submissions if we try harder with targeted researchers.

Best,
Fang

On Tue, May 1, 2018 at 4:07 AM, Allison Yang/MDPI <allison.yang@mdpi.com> wrote:

Dear Lanying, dear Fang,

Thanks for having sent more invitations. Up to now, we have 9 planned papers in this issue. May I ask if you have received any replies from the people who you invited on 21 April? I could send a gentle reminder to them in case they missed the emails.

Also, I could send a general announcement from the editorial office if you agree. You can find attached a list of people who recently published in the field. Please feel free to add/remove names from the list if you like.

Thank you, I am looking forward to hearing from you soon.

Best,
Allison

--

Fang Li, Ph.D.
Associate Professor
Department of Veterinary and Biomedical Sciences
University of Minnesota Twin Cities
612-625-6149, lifang@umn.edu
<http://www.msi.umn.edu/~lifang>



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Re: [Viruses] Special Issue "MERS-CoV " -Special Issue Announcement

From: Allison Yang/MDPI <allison.yang@mdpi.com>
To: Du, Lanying <LDu@nybc.org>, Fang Li <lifang@umn.edu>
Cc: viruses@mdpi.com
Sent: May 1, 2018 8:32:41 PM CDT
Received: May 1, 2018 8:32:46 PM CDT

Dear Lanying, dear Fang,

Thanks for your reply. First, I am very grateful that you have spoken to some people in this field and Fang will also consider to submit.

I agree with you on the selection of high quality papers for this special issue (SI). Our aim is to get more papers of high quality in this issue. We like to have at least 10 articles per SI, and some have had many more. To that purpose, each general submission to the SI will be approved by our guest editors before sending out for peer review. And it would be great if you could send out more invitations to the targeted researchers.

Thanks again for your hard work to get more contributions. Please let me know if I may be of any assistance (for example, preparing another list of potential researchers).

Best,
Allison

On 5/2/2018 5:36 AM, Du, Lanying wrote:

Hi Allison,

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Best regards,

Lanying

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Sent: Tuesday, May 01, 2018 11:59 AM
To: Allison Yang/MDPI
Cc: Du, Lanying; viruses@mdpi.com
Subject: Re: [Viruses] Special Issue "MERS-CoV " -Special Issue

Announcement

Dear Allison,

I myself am considering submitting a manuscript. I will let you know my final decision later.

I have notified you of all of the replies directed towards me only from the previous invitees.

I feel that the general list is long, many of the published work have low quality, and hence the quality of the submissions may not be guaranteed if many of these researchers submit their work. If that happens, probably many of the submissions will not be peer reviewed as it is not easy to find so many qualified reviewers or ask the same reviewers over and over again. Would that be ok with the journal?

So the question is what is the goal of the journal for this special issue: are 10 high quality papers enough for the issue? Besides, we can probably get a few more submissions if we try harder with targeted researchers.

Best,
Fang

On Tue, May 1, 2018 at 4:07 AM, Allison Yang/MDPI <allison.yang@mdpi.com <mailto:allison.yang@mdpi.com>> wrote:

Dear Lanying, dear Fang,

Thanks for having sent more invitations. Up to now, we have 9 planned papers in this issue. May I ask if you have received any replies from the people who you invited on 21 April? I could send a gentle reminder to them in case they missed the emails.

Also, I could send a general announcement from the editorial office if you agree. You can find attached a list of people who recently published in the field. Please feel free to add/remove names from the list if you like.

Thank you, I am looking forward to hearing from you soon.

Best,
Allison

--

Fang Li, Ph.D.
Associate Professor
Department of Veterinary and Biomedical Sciences
University of Minnesota Twin Cities
612-625-6149, lifang@umn.edu <mailto:lifang@umn.edu>

<http://www.msi.umn.edu/~lifang> <<http://www.msi.umn.edu/%7Elifang>>

New York Blood Center <<http://www.nybloodcenter.org>>

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New York Blood Center <<https://www.facebook.com/newyorkbloodcenter>> New

York Blood Center <<https://twitter.com/NYBloodCenter>> New York Blood

Center <<https://instagram.com/newyorkbloodcenter/>> New York Blood Center

<<https://www.youtube.com/user/NewYorkBloodCenter>> New York Blood Center

<<https://www.linkedin.com/company/new-york-blood-center>>

Donate Blood <<http://www.nybloodcenter.org/donate-blood/>> | Volunteer

<<http://nybloodcenter.org/support-us/volunteer-nybc/>> | Support NYBC

<<http://nybloodcenter.org/support-us/financial-contribution/>>

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Award notice

From: Du, Lanying <LDu@nybc.org>
To: Fang Li <lifang@umn.edu>, Perlman, Stanley <stanley-perlman@uiowa.edu>, Jiang Zhu (jiang@scripps.edu) <jiang@scripps.edu>
Cc: Shibo Jiang (姜世勃) <shibojiang@fudan.edu.cn>
Sent: May 21, 2018 9:27:29 PM CDT
Received: May 21, 2018 9:27:40 PM CDT
Attachments: NIH_NOA_1R01AI139092-01.PDF

Hi all,

Our R01 has been funded, starting from today. The attached is the award notice.

Our grant manager Theresa will contact you soon for subaward agreements.

Congratulations!

Lanying



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1. NIH_NOA_1R01AI139092-01.PDF

Type: application/pdf
Size: 112 KB (115,506 bytes)



RESEARCH
Department of Health and Human Services
National Institutes of Health

Notice of Award

Federal Award Date: 05/21/2018



NATIONAL INSTITUTE OF ALLERGY AND INFECTIOUS DISEASES

Grant Number: 1R01AI139092-01

FAIN: R01AI139092

Principal Investigator(s):

Lanying Du, PHD

Project Title: Structure-based design of coronavirus subunit vaccines

Mr. Greene, Barry A., MPA
Executive Director
310 East 67 Street
New York, NY 100656275

Award e-mailed to: researchadmin@nybloodcenter.org

Period Of Performance:

Budget Period: 05/21/2018 – 04/30/2019

Project Period: 05/21/2018 – 04/30/2023

Dear Business Official:

The National Institutes of Health hereby awards a grant in the amount of \$911,083 (see “Award Calculation” in Section I and “Terms and Conditions” in Section III) to NEW YORK BLOOD CENTER in support of the above referenced project. This award is pursuant to the authority of 42 USC 241 42 CFR 52 and is subject to the requirements of this statute and regulation and of other referenced, incorporated or attached terms and conditions.

Acceptance of this award including the “Terms and Conditions” is acknowledged by the grantee when funds are drawn down or otherwise obtained from the grant payment system.

Each publication, press release, or other document about research supported by an NIH award must include an acknowledgment of NIH award support and a disclaimer such as “Research reported in this publication was supported by the National Institute Of Allergy And Infectious Diseases of the National Institutes of Health under Award Number R01AI139092. The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health.” Prior to issuing a press release concerning the outcome of this research, please notify the NIH awarding IC in advance to allow for coordination.

Award recipients must promote objectivity in research by establishing standards that provide a reasonable expectation that the design, conduct and reporting of research funded under NIH awards will be free from bias resulting from an Investigator’s Financial Conflict of Interest (FCOI), in accordance with the 2011 revised regulation at 42 CFR Part 50 Subpart F. The Institution shall submit all FCOI reports to the NIH through the eRA Commons FCOI Module. The regulation does not apply to Phase I Small Business Innovative Research (SBIR) and Small Business Technology Transfer (STTR) awards. Consult the NIH website <http://grants.nih.gov/grants/policy/coi/> for a link to the regulation and additional important information.

If you have any questions about this award, please contact the individual(s) referenced in Section IV.

Sincerely yours,

Chernay L. Mason
Grants Management Officer
NATIONAL INSTITUTE OF ALLERGY AND INFECTIOUS DISEASES

Additional information follows

SECTION I – AWARD DATA – 1R01AI139092-01**Award Calculation (U.S. Dollars)**

| | |
|--|-----------|
| Salaries and Wages | \$82,628 |
| Fringe Benefits | \$27,268 |
| Personnel Costs (Subtotal) | \$109,896 |
| Materials & Supplies | \$16,000 |
| Travel | \$3,000 |
| Other | \$30,000 |
| Subawards/Consortium/Contractual Costs | \$569,748 |

| | |
|---|------------------|
| Federal Direct Costs | \$728,644 |
| Federal F&A Costs | \$182,439 |
| Approved Budget | \$911,083 |
| Total Amount of Federal Funds Obligated (Federal Share) | \$911,083 |
| TOTAL FEDERAL AWARD AMOUNT | \$911,083 |

AMOUNT OF THIS ACTION (FEDERAL SHARE) \$911,083

| SUMMARY TOTALS FOR ALL YEARS | | |
|------------------------------|------------|-------------------|
| YR | THIS AWARD | CUMULATIVE TOTALS |
| 1 | \$911,083 | \$911,083 |
| 2 | \$845,133 | \$845,133 |
| 3 | \$839,218 | \$839,218 |
| 4 | \$831,474 | \$831,474 |
| 5 | \$825,463 | \$825,463 |

Recommended future year total cost support, subject to the availability of funds and satisfactory progress of the project

Fiscal Information:

CFDA Name: Allergy and Infectious Diseases Research
CFDA Number: 93.855
EIN: 1131949477A1
Document Number: RAI139092A
PMS Account Type: P (Subaccount)
Fiscal Year: 2018

| IC | CAN | 2018 | 2019 | 2020 | 2021 | 2022 |
|----|---------|-----------|-----------|-----------|-----------|-----------|
| AI | 8472364 | \$911,083 | \$845,133 | \$839,218 | \$831,474 | \$825,463 |

Recommended future year total cost support, subject to the availability of funds and satisfactory progress of the project

NIH Administrative Data:

PCC: M51C B / **OC:** 414A / **Released:** MASONC 05/15/2018
Award Processed: 05/21/2018 12:04:20 AM

SECTION II – PAYMENT/HOTLINE INFORMATION – 1R01AI139092-01

For payment and HHS Office of Inspector General Hotline information, see the NIH Home Page at <http://grants.nih.gov/grants/policy/awardconditions.htm>

SECTION III – TERMS AND CONDITIONS – 1R01AI139092-01

This award is based on the application submitted to, and as approved by, NIH on the above-titled project and is subject to the terms and conditions incorporated either directly or by reference in the following:

- a. The grant program legislation and program regulation cited in this Notice of Award.
- b. Conditions on activities and expenditure of funds in other statutory requirements, such as those included in appropriations acts.

- c. 45 CFR Part 75.
- d. National Policy Requirements and all other requirements described in the NIH Grants Policy Statement, including addenda in effect as of the beginning date of the budget period.
- e. Federal Award Performance Goals: As required by the periodic report in the RPPR or in the final progress report when applicable.
- f. This award notice, INCLUDING THE TERMS AND CONDITIONS CITED BELOW.

(See NIH Home Page at <http://grants.nih.gov/grants/policy/awardconditions.htm> for certain references cited above.)

Research and Development (R&D): All awards issued by the National Institutes of Health (NIH) meet the definition of "Research and Development" at 45 CFR Part§ 75.2. As such, auditees should identify NIH awards as part of the R&D cluster on the Schedule of Expenditures of Federal Awards (SEFA). The auditor should test NIH awards for compliance as instructed in Part V, Clusters of Programs. NIH recognizes that some awards may have another classification for purposes of indirect costs. The auditor is not required to report the disconnect (i.e., the award is classified as R&D for Federal Audit Requirement purposes but non-research for indirect cost rate purposes), unless the auditee is charging indirect costs at a rate other than the rate(s) specified in the award document(s).

An unobligated balance may be carried over into the next budget period without Grants Management Officer prior approval.

This grant is subject to Streamlined Noncompeting Award Procedures (SNAP).

This award is subject to the requirements of 2 CFR Part 25 for institutions to receive a Dun & Bradstreet Universal Numbering System (DUNS) number and maintain an active registration in the System for Award Management (SAM). Should a consortium/subaward be issued under this award, a DUNS requirement must be included. See <http://grants.nih.gov/grants/policy/awardconditions.htm> for the full NIH award term implementing this requirement and other additional information.

This award has been assigned the Federal Award Identification Number (FAIN) R01AI139092. Recipients must document the assigned FAIN on each consortium/subaward issued under this award.

Based on the project period start date of this project, this award is likely subject to the Transparency Act subaward and executive compensation reporting requirement of 2 CFR Part 170. There are conditions that may exclude this award; see <http://grants.nih.gov/grants/policy/awardconditions.htm> for additional award applicability information.

In accordance with P.L. 110-161, compliance with the NIH Public Access Policy is now mandatory. For more information, see NOT-OD-08-033 and the Public Access website: <http://publicaccess.nih.gov/>.

In accordance with the regulatory requirements provided at 45 CFR 75.113 and Appendix XII to 45 CFR Part 75, recipients that have currently active Federal grants, cooperative agreements, and procurement contracts with cumulative total value greater than \$10,000,000 must report and maintain information in the System for Award Management (SAM) about civil, criminal, and administrative proceedings in connection with the award or performance of a Federal award that reached final disposition within the most recent five-year period. The recipient must also make semiannual disclosures regarding such proceedings. Proceedings information will be made publicly available in the designated integrity and performance system (currently the Federal Awardee Performance and Integrity Information System (FAPIIS)). Full reporting requirements and procedures are found in Appendix XII to 45 CFR Part 75. This term does not apply to NIH fellowships.

Treatment of Program Income:
Additional Costs

SECTION IV – AI Special Terms and Conditions – 1R01AI139092-01

Clinical Trial Indicator: No

This award does not support any NIH-defined Clinical Trials. See the NIH Grants Policy Statement Section 1.2 for NIH definition of Clinical Trial.

This Notice of Award (NoA) includes funds for activity with **University of Minnesota** in the amount of **\$184,600** (\$120,000 direct costs + \$64,600 F&A costs).

This Notice of Award (NoA) includes funds for activity with **Scripps Research Institute** in the amount of **\$232,200** (\$120,000 direct costs + \$112,200 F&A costs).

This Notice of Award (NoA) includes funds for activity with **University of Iowa** in the amount of **\$152,948** (\$100,294 direct costs + \$52,654 F&A costs).

In accordance with the NIAID Financial Management Plan, NIAID does not provide funds for inflationary increases. Committed future year (s) funding was adjusted accordingly. See: <https://www.niaid.nih.gov/grants-contracts/financial-management-plan>.

The Research Performance Progress Report (RPPR), Section G.9 (Foreign component), includes reporting requirements for all research performed outside of the United States. Research conducted at the following site(s) must be reported in your RPPR:

Beijing Institute of Microbiology and Epidemiology, China

This award may include collaborations with and/or between foreign organizations. Please be advised that short term travel visa expenses are an allowable expense on this grant, if justified as critical and necessary for the conduct of the project.

The budget period anniversary start date for future year(s) will be **May 1**.

Select Agents:

Awardee of a project that at any time involves a restricted experiment with a select agent, is responsible for notifying and receiving prior approval from the NIAID. Please be advised that changes in the use of a Select Agent will be considered a change in scope and require NIH awarding office prior approval. The approval is necessary for new select agent experiments as well as changes in on-going experiments that would require change in the biosafety plan and/or biosafety containment level. An approval to conduct a restricted experiment granted to an individual cannot be assumed an approval to other individuals who conduct the same restricted experiment as defined in the Select Agents Regulation 42 CFR Part 73, Section 13.b (<http://www.selectagents.gov/Regulations.html>).

Highly Pathogenic Agent:

NIAID defines a Highly Pathogenic Agent as an infectious Agent or Toxin that may warrant a biocontainment safety level of BSL3 or higher according to the current edition of the CDC/NIH Biosafety in Microbiological and Biomedical Laboratories (BMBL) (<http://www.cdc.gov/OD/ohs/biosfty/bmb15/bmb15toc.htm>). Research funded under this grant must adhere to the BMBL, including using the BMBL-recommended biocontainment level at a minimum. If your Institutional Biosafety Committee (or equivalent body) or designated institutional biosafety official recommend a higher biocontainment level, the highest recommended containment level must be used.

When submitting future Progress Reports indicate at the beginning of the report:

If no research with a Highly Pathogenic Agent or Select Agent has been performed or is planned to be performed under this grant.

If your IBC or equivalent body or official has determined, for example, by conducting a risk assessment, that the work being planned or performed under this grant may be conducted at a biocontainment safety level that is lower than BSL3.

If the work involves Select Agents and/or Highly Pathogenic Agents, also address the following points:

Any changes in the use of the Agent(s) or Toxin(s) including its restricted experiments that have resulted in a change in the required biocontainment level, and any resultant change in location, if applicable, as determined by your IBC or equivalent body or official.

If work with a new or additional Agent(s)/Toxin(s) is proposed in the upcoming project period, provide:

- o A list of the new and/or additional Agent(s) that will be studied;
- o A description of the work that will be done with the Agent(s), and whether or not the work is a restricted experiment;
- o The title and location for each biocontainment resource/facility, including the name of the organization that operates the facility, and the biocontainment level at which the work will be conducted, with documentation of approval by your IBC or equivalent body or official. It is important to note if the work is being done in a new location.

STAFF CONTACTS

The Grants Management Specialist is responsible for the negotiation, award and administration of this project and for interpretation of Grants Administration policies and provisions. The Program Official is responsible for the scientific, programmatic and technical aspects of this project. These individuals work together in overall project administration. Prior approval requests (signed by an Authorized Organizational Representative) should be submitted in writing to the Grants Management Specialist. Requests may be made via e-mail.

Grants Management Specialist: Adam Graham
Email: adam.graham@nih.gov **Phone:** 301-761-6260 **Fax:** 301-493-0597

Program Official: Erik J. Stemmy
Email: erik.stemmy@nih.gov **Phone:** 240-627-3380

SPREADSHEET SUMMARY

GRANT NUMBER: 1R01AI139092-01

INSTITUTION: NEW YORK BLOOD CENTER

| Budget | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 |
|--|------------------|------------------|------------------|------------------|------------------|
| Salaries and Wages | \$82,628 | \$82,628 | \$82,628 | \$82,628 | \$82,628 |
| Fringe Benefits | \$27,268 | \$27,268 | \$27,268 | \$27,268 | \$27,268 |
| Personnel Costs (Subtotal) | \$109,896 | \$109,896 | \$109,896 | \$109,896 | \$109,896 |
| Materials & Supplies | \$16,000 | \$15,000 | \$14,000 | \$14,000 | \$14,000 |
| Travel | \$3,000 | \$3,000 | \$3,000 | \$3,000 | \$3,000 |
| Other | \$30,000 | \$28,000 | \$27,000 | \$24,000 | \$22,000 |
| Subawards/Consortium/Contractual Costs | \$569,748 | \$567,638 | \$565,283 | \$562,879 | \$560,428 |
| TOTAL FEDERAL DC | \$728,644 | \$723,534 | \$719,179 | \$713,775 | \$709,324 |
| TOTAL FEDERAL F&A | \$182,439 | \$121,599 | \$120,039 | \$117,699 | \$116,139 |
| TOTAL COST | \$911,083 | \$845,133 | \$839,218 | \$831,474 | \$825,463 |

| Facilities and Administrative Costs | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 |
|-------------------------------------|--------|--------|--------|--------|--------|
| | | | | | |

| | | | | | |
|-----------------|-----------|-----------|-----------|-----------|-----------|
| F&A Cost Rate 1 | 78% | 78% | 78% | 78% | 78% |
| F&A Cost Base 1 | \$233,896 | \$155,896 | \$153,896 | \$150,896 | \$148,896 |
| F&A Costs 1 | \$182,439 | \$121,599 | \$120,039 | \$117,699 | \$116,139 |

Re: Award notice

From: Shibo Jiang (姜世勃) <shibojiang@fudan.edu.cn>
To: Du, Lanying <LDu@nybc.org>
Cc: Fang Li <lifang@umn.edu>, Perlman, Stanley <stanley-perlman@uiowa.edu>, Jiang Zhu (jiang@scripps.edu) <jjiang@scripps.edu>
Sent: May 21, 2018 9:32:49 PM CDT
Received: May 21, 2018 9:33:01 PM CDT

Congratulation to all!

Shibo

-----Original Messages-----

From: "Du, Lanying" <LDu@nybc.org>
Sent Time: 2018-05-22 10:27:29 (Tuesday)
To: "Fang Li" <lifang@umn.edu>, "Perlman, Stanley" <stanley-perlman@uiowa.edu>, "Jiang Zhu (jiang@scripps.edu)" <jjiang@scripps.edu>
Cc: "Shibo Jiang (姜世勃)" <shibojiang@fudan.edu.cn>
Subject: Award notice

Hi all,

Our R01 has been funded, starting from today. The attached is the award notice.

Our grant manager Theresa will contact you soon for subaward agreements.

Congratulations!

Lanying



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Re: Award notice

From: Perlman, Stanley <stanley-perlman@uiowa.edu>
To: Du, Lanying <LDu@nybc.org>, Fang Li <lifang@umn.edu>, Jiang Zhu (jiang@scripps.edu) <jiang@scripps.edu>
Cc: Shibo Jiang (姜世勃) <shibojiang@fudan.edu.cn>
Sent: May 21, 2018 9:35:33 PM CDT
Received: May 21, 2018 9:35:37 PM CDT

great news!

Stanley Perlman, M.D., Ph.D.

Professor

Department of Microbiology

University of Iowa

From: Du, Lanying <LDu@nybc.org>

Sent: Monday, May 21, 2018 9:27:29 PM

To: Fang Li; Perlman, Stanley; Jiang Zhu (jiang@scripps.edu)

Cc: Shibo Jiang (姜世勃)

Subject: Award notice

Hi all,

Our R01 has been funded, starting from today. The attached is the award notice.

Our grant manager Theresa will contact you soon for subaward agreements.

Congratulations!

Lanying



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RE: Award notice

From: Jiang Zhu <jiang@scripps.edu>
To: Du, Lanying <LDu@nybc.org>, Fang Li <lifang@umn.edu>, Perlman, Stanley <stanley-perlman@uiowa.edu>
Cc: Shibo Jiang (姜世勃) <shibojiang@fudan.edu.cn>
Sent: May 21, 2018 9:37:05 PM CDT
Received: May 21, 2018 9:37:12 PM CDT

Congrats!!

Best regards
Jiang

From: Du, Lanying <LDu@nybc.org>
Sent: Monday, May 21, 2018 7:27 PM
To: Fang Li <lifang@umn.edu>; Perlman, Stanley <stanley-perlman@uiowa.edu>; Jiang Zhu <jiang@scripps.edu>
Cc: Shibo Jiang (姜世勃) <shibojiang@fudan.edu.cn>
Subject: Award notice
Importance: High

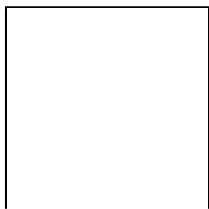
Hi all,

Our R01 has been funded, starting from today. The attached is the award notice.

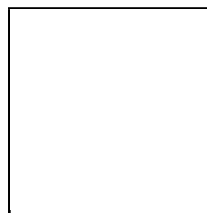
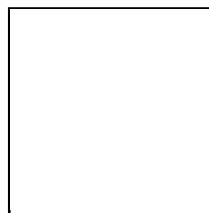
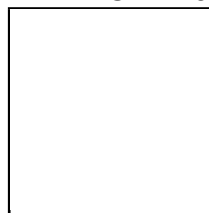
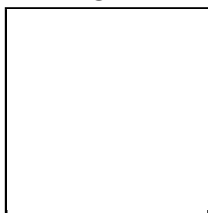
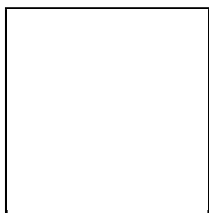
Our grant manager Theresa will contact you soon for subaward agreements.

Congratulations!

Lanying



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distribution or use of this transmission is strictly prohibited. If you have received this transmission in error, please immediately notify the sender by telephone or return email and delete the original transmission and its attachments without reading or saving in any manner.

RE: Award notice

From: Du, Lanying <LDu@nybc.org>
To: Jiang Zhu <jiang@scripps.edu>, Fang Li <lifang@umn.edu>
Sent: May 23, 2018 2:11:01 PM CDT
Received: May 23, 2018 2:11:10 PM CDT

Can you try if below TC call-in number works? It works from my side. If it does not work from your side, I will request a new number.

USA Toll-Free: [REDACTED]

Lanying

From: Jiang Zhu [mailto:jiang@scripps.edu]
Sent: Wednesday, May 23, 2018 10:05 AM
To: Fang Li; Perlman, Stanley
Cc: Du, Lanying; Shibo Jiang (姜世勃)
Subject: RE: Award notice

The week of June 4 works better for me. Thanks.

Best regards

Jiang Zhu

Associate Professor
Integrative Structural and Computational Biology
Immunology and Microbiology (Joint)
The Scripps Research Institute
10550 N Torrey Pines Rd
La Jolla, CA 92037
Email: jiang@scripps.edu
Phone: 858-784-8157
Fax: 858-784-8720

From: Fang Li <lifang@umn.edu>
Sent: Wednesday, May 23, 2018 5:52 AM
To: Perlman, Stanley <stanley-perlman@uiowa.edu>
Cc: Du, Lanying <LDu@nybc.org>; Jiang Zhu <jiang@scripps.edu>; Shibo Jiang (姜世勃) <shibojiang@fudan.edu.cn>
Subject: Re: Award notice

Sorry, I won't be available on June 1. Can we do May 31 or the week of June 4? Thanks.

On Tue, May 22, 2018 at 12:01 PM, Perlman, Stanley <stanley-perlman@uiowa.edu> wrote:

June 1 will work for me, after 11:15 am CDT.

Stanley Perlman, MD, Ph.D.
Professor
Depts of Microbiology and Immunology, and Pediatrics
BSB 3-712
University of Iowa
Iowa City, IA 52242
319-335-8549

On May 22, 2018, at 11:56 AM, Du, Lanying <LDu@nybc.org> wrote:

Yes, we should have a TC as an initial start of the project.

I remember I have a TC call number. I will check if it works, otherwise I will set up a new number.

Will all of you are available for a call sometime next week (e.g., Friday) or other time at your convenience?

Best,
Lanying

From: Fang Li [<mailto:lifang@umn.edu>]
Sent: Tuesday, May 22, 2018 12:46 PM
To: Du, Lanying
Cc: Perlman, Stanley; Jiang Zhu (jiang@scripps.edu); Shibo Jiang (姜世勃)
Subject: Re: Award notice

Congratulations to all! Should we have a teleconference to discuss our research plans moving forward?

Best,
Fang

On Mon, May 21, 2018 at 9:27 PM, Du, Lanying <LDu@nybc.org> wrote:

Hi all,

Our R01 has been funded, starting from today. The attached is the award notice.

Our grant manager Theresa will contact you soon for subaward agreements.

Congratulations!

Lanying



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--

Fang Li, Ph.D.
Associate Professor
Department of Veterinary and Biomedical Sciences
University of Minnesota Twin Cities
612-625-6149, lifang@umn.edu
<http://www.msi.umn.edu/~lifang>

--

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Associate Professor
Department of Veterinary and Biomedical Sciences
University of Minnesota Twin Cities
612-625-6149, lifang@umn.edu
<http://www.msi.umn.edu/~lifang>

Subcontract with NYBC for PI: Du, Lanying; 1 R01 AI139092-01

From: Walton, Theresa <TWalton@nybc.org>
To: lifang@umn.edu
Cc: Du, Lanying <LDu@nybc.org>
Sent: May 24, 2018 9:45:24 AM CDT
Received: May 24, 2018 9:46:49 AM CDT
Attachments: NIH_NOA_1R01AI139092-01.PDF, WS00065439-RR_SubawardBudget.pdf, R01-budget-justification-Li-2017.doc

Hi Dr. Li

We received the notice of award for grant # 1R01AI13092-01 for the project titled "Structure-Based design of coronavirus subunit vaccines". Please verify if the attached documents are still correct and send your scope of work for this project. I'll also need the contact information for your grants/ contracts administrator so I can send the preliminary subaward agreement for your institutions review.

This Notice of Award (NoA) includes funds for activity with **University of Minnesota** in the amount of **\$184,600** (\$120,000 direct costs + \$64,600 F&A costs).

Please let me know if you have any questions.

Thanks,
Theresa R. Walton, MPA
Manager, Grants & Contract Proposals

Office of Sponsored Programs
New York Blood Center
310 East 67th Street
New York, NY 10065
T: 212-570-3150
twalton@nybc.org

From: era-notify@mail.nih.gov [mailto:era-notify@mail.nih.gov]
Sent: Monday, May 21, 2018 12:04 AM
To: ResearchAdmin
Subject: NoA: 1 R01 AI139092-01 PI: Du, Lanying

Grant Number: 1 R01 AI139092-01
Principal Investigator: Du, Lanying
Project Title: Structure-based design of coronavirus subunit vaccines
Institution: NEW YORK BLOOD CENTER
CFDA: 93.855
OC: 414A
PCC: M51C B
Award Issue Date: 05/21/2018
Grants Management Officer: Mason, Chernay
Program Official: Stemmy, Erik
Grants Specialist: Graham, Adam

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1. NIH_NOA_1R01AI139092-01.PDF

Type: application/pdf
Size: 112 KB (115,506 bytes)

2. WS00065439-RR_SubawardBudget.pdf

Type: application/pdf
Size: 392 KB (402,307 bytes)

3. R01-budget-justification-Li-2017.doc

Type: application/vnd.ms-word
Size: 28 KB (29,184 bytes)



RESEARCH
Department of Health and Human Services
National Institutes of Health

Notice of Award

Federal Award Date: 05/21/2018



NATIONAL INSTITUTE OF ALLERGY AND INFECTIOUS DISEASES

Grant Number: 1R01AI139092-01

FAIN: R01AI139092

Principal Investigator(s):

Lanying Du, PHD

Project Title: Structure-based design of coronavirus subunit vaccines

Mr. Greene, Barry A., MPA
Executive Director
310 East 67 Street
New York, NY 100656275

Award e-mailed to: researchadmin@nybloodcenter.org

Period Of Performance:

Budget Period: 05/21/2018 – 04/30/2019

Project Period: 05/21/2018 – 04/30/2023

Dear Business Official:

The National Institutes of Health hereby awards a grant in the amount of \$911,083 (see “Award Calculation” in Section I and “Terms and Conditions” in Section III) to NEW YORK BLOOD CENTER in support of the above referenced project. This award is pursuant to the authority of 42 USC 241 42 CFR 52 and is subject to the requirements of this statute and regulation and of other referenced, incorporated or attached terms and conditions.

Acceptance of this award including the “Terms and Conditions” is acknowledged by the grantee when funds are drawn down or otherwise obtained from the grant payment system.

Each publication, press release, or other document about research supported by an NIH award must include an acknowledgment of NIH award support and a disclaimer such as “Research reported in this publication was supported by the National Institute Of Allergy And Infectious Diseases of the National Institutes of Health under Award Number R01AI139092. The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health.” Prior to issuing a press release concerning the outcome of this research, please notify the NIH awarding IC in advance to allow for coordination.

Award recipients must promote objectivity in research by establishing standards that provide a reasonable expectation that the design, conduct and reporting of research funded under NIH awards will be free from bias resulting from an Investigator’s Financial Conflict of Interest (FCOI), in accordance with the 2011 revised regulation at 42 CFR Part 50 Subpart F. The Institution shall submit all FCOI reports to the NIH through the eRA Commons FCOI Module. The regulation does not apply to Phase I Small Business Innovative Research (SBIR) and Small Business Technology Transfer (STTR) awards. Consult the NIH website <http://grants.nih.gov/grants/policy/coi/> for a link to the regulation and additional important information.

If you have any questions about this award, please contact the individual(s) referenced in Section IV.

Sincerely yours,

Chernay L. Mason
Grants Management Officer
NATIONAL INSTITUTE OF ALLERGY AND INFECTIOUS DISEASES

Additional information follows

SECTION I – AWARD DATA – 1R01AI139092-01**Award Calculation (U.S. Dollars)**

| | |
|--|-----------|
| Salaries and Wages | \$82,628 |
| Fringe Benefits | \$27,268 |
| Personnel Costs (Subtotal) | \$109,896 |
| Materials & Supplies | \$16,000 |
| Travel | \$3,000 |
| Other | \$30,000 |
| Subawards/Consortium/Contractual Costs | \$569,748 |

| | |
|---|------------------|
| Federal Direct Costs | \$728,644 |
| Federal F&A Costs | \$182,439 |
| Approved Budget | \$911,083 |
| Total Amount of Federal Funds Obligated (Federal Share) | \$911,083 |
| TOTAL FEDERAL AWARD AMOUNT | \$911,083 |

AMOUNT OF THIS ACTION (FEDERAL SHARE) \$911,083

| SUMMARY TOTALS FOR ALL YEARS | | |
|------------------------------|------------|-------------------|
| YR | THIS AWARD | CUMULATIVE TOTALS |
| 1 | \$911,083 | \$911,083 |
| 2 | \$845,133 | \$845,133 |
| 3 | \$839,218 | \$839,218 |
| 4 | \$831,474 | \$831,474 |
| 5 | \$825,463 | \$825,463 |

Recommended future year total cost support, subject to the availability of funds and satisfactory progress of the project

Fiscal Information:

CFDA Name: Allergy and Infectious Diseases Research
CFDA Number: 93.855
EIN: 1131949477A1
Document Number: RAI139092A
PMS Account Type: P (Subaccount)
Fiscal Year: 2018

| IC | CAN | 2018 | 2019 | 2020 | 2021 | 2022 |
|----|---------|-----------|-----------|-----------|-----------|-----------|
| AI | 8472364 | \$911,083 | \$845,133 | \$839,218 | \$831,474 | \$825,463 |

Recommended future year total cost support, subject to the availability of funds and satisfactory progress of the project

NIH Administrative Data:

PCC: M51C B / **OC:** 414A / **Released:** MASONC 05/15/2018
Award Processed: 05/21/2018 12:04:20 AM

SECTION II – PAYMENT/HOTLINE INFORMATION – 1R01AI139092-01

For payment and HHS Office of Inspector General Hotline information, see the NIH Home Page at <http://grants.nih.gov/grants/policy/awardconditions.htm>

SECTION III – TERMS AND CONDITIONS – 1R01AI139092-01

This award is based on the application submitted to, and as approved by, NIH on the above-titled project and is subject to the terms and conditions incorporated either directly or by reference in the following:

- a. The grant program legislation and program regulation cited in this Notice of Award.
- b. Conditions on activities and expenditure of funds in other statutory requirements, such as those included in appropriations acts.

- c. 45 CFR Part 75.
- d. National Policy Requirements and all other requirements described in the NIH Grants Policy Statement, including addenda in effect as of the beginning date of the budget period.
- e. Federal Award Performance Goals: As required by the periodic report in the RPPR or in the final progress report when applicable.
- f. This award notice, INCLUDING THE TERMS AND CONDITIONS CITED BELOW.

(See NIH Home Page at <http://grants.nih.gov/grants/policy/awardconditions.htm> for certain references cited above.)

Research and Development (R&D): All awards issued by the National Institutes of Health (NIH) meet the definition of "Research and Development" at 45 CFR Part§ 75.2. As such, auditees should identify NIH awards as part of the R&D cluster on the Schedule of Expenditures of Federal Awards (SEFA). The auditor should test NIH awards for compliance as instructed in Part V, Clusters of Programs. NIH recognizes that some awards may have another classification for purposes of indirect costs. The auditor is not required to report the disconnect (i.e., the award is classified as R&D for Federal Audit Requirement purposes but non-research for indirect cost rate purposes), unless the auditee is charging indirect costs at a rate other than the rate(s) specified in the award document(s).

An unobligated balance may be carried over into the next budget period without Grants Management Officer prior approval.

This grant is subject to Streamlined Noncompeting Award Procedures (SNAP).

This award is subject to the requirements of 2 CFR Part 25 for institutions to receive a Dun & Bradstreet Universal Numbering System (DUNS) number and maintain an active registration in the System for Award Management (SAM). Should a consortium/subaward be issued under this award, a DUNS requirement must be included. See <http://grants.nih.gov/grants/policy/awardconditions.htm> for the full NIH award term implementing this requirement and other additional information.

This award has been assigned the Federal Award Identification Number (FAIN) R01AI139092. Recipients must document the assigned FAIN on each consortium/subaward issued under this award.

Based on the project period start date of this project, this award is likely subject to the Transparency Act subaward and executive compensation reporting requirement of 2 CFR Part 170. There are conditions that may exclude this award; see <http://grants.nih.gov/grants/policy/awardconditions.htm> for additional award applicability information.

In accordance with P.L. 110-161, compliance with the NIH Public Access Policy is now mandatory. For more information, see NOT-OD-08-033 and the Public Access website: <http://publicaccess.nih.gov/>.

In accordance with the regulatory requirements provided at 45 CFR 75.113 and Appendix XII to 45 CFR Part 75, recipients that have currently active Federal grants, cooperative agreements, and procurement contracts with cumulative total value greater than \$10,000,000 must report and maintain information in the System for Award Management (SAM) about civil, criminal, and administrative proceedings in connection with the award or performance of a Federal award that reached final disposition within the most recent five-year period. The recipient must also make semiannual disclosures regarding such proceedings. Proceedings information will be made publicly available in the designated integrity and performance system (currently the Federal Awardee Performance and Integrity Information System (FAPIIS)). Full reporting requirements and procedures are found in Appendix XII to 45 CFR Part 75. This term does not apply to NIH fellowships.

Treatment of Program Income:
Additional Costs

SECTION IV – AI Special Terms and Conditions – 1R01AI139092-01

Clinical Trial Indicator: No

This award does not support any NIH-defined Clinical Trials. See the NIH Grants Policy Statement Section 1.2 for NIH definition of Clinical Trial.

This Notice of Award (NoA) includes funds for activity with **University of Minnesota** in the amount of **\$184,600** (\$120,000 direct costs + \$64,600 F&A costs).

This Notice of Award (NoA) includes funds for activity with **Scripps Research Institute** in the amount of **\$232,200** (\$120,000 direct costs + \$112,200 F&A costs).

This Notice of Award (NoA) includes funds for activity with **University of Iowa** in the amount of **\$152,948** (\$100,294 direct costs + \$52,654 F&A costs).

In accordance with the NIAID Financial Management Plan, NIAID does not provide funds for inflationary increases. Committed future year (s) funding was adjusted accordingly. See: <https://www.niaid.nih.gov/grants-contracts/financial-management-plan>.

The Research Performance Progress Report (RPPR), Section G.9 (Foreign component), includes reporting requirements for all research performed outside of the United States. Research conducted at the following site(s) must be reported in your RPPR:

Beijing Institute of Microbiology and Epidemiology, China

This award may include collaborations with and/or between foreign organizations. Please be advised that short term travel visa expenses are an allowable expense on this grant, if justified as critical and necessary for the conduct of the project.

The budget period anniversary start date for future year(s) will be **May 1**.

Select Agents:

Awardee of a project that at any time involves a restricted experiment with a select agent, is responsible for notifying and receiving prior approval from the NIAID. Please be advised that changes in the use of a Select Agent will be considered a change in scope and require NIH awarding office prior approval. The approval is necessary for new select agent experiments as well as changes in on-going experiments that would require change in the biosafety plan and/or biosafety containment level. An approval to conduct a restricted experiment granted to an individual cannot be assumed an approval to other individuals who conduct the same restricted experiment as defined in the Select Agents Regulation 42 CFR Part 73, Section 13.b (<http://www.selectagents.gov/Regulations.html>).

Highly Pathogenic Agent:

NIAID defines a Highly Pathogenic Agent as an infectious Agent or Toxin that may warrant a biocontainment safety level of BSL3 or higher according to the current edition of the CDC/NIH Biosafety in Microbiological and Biomedical Laboratories (BMBL) (<http://www.cdc.gov/OD/ohs/biosfty/bmb15/bmb15toc.htm>). Research funded under this grant must adhere to the BMBL, including using the BMBL-recommended biocontainment level at a minimum. If your Institutional Biosafety Committee (or equivalent body) or designated institutional biosafety official recommend a higher biocontainment level, the highest recommended containment level must be used.

When submitting future Progress Reports indicate at the beginning of the report:

If no research with a Highly Pathogenic Agent or Select Agent has been performed or is planned to be performed under this grant.

If your IBC or equivalent body or official has determined, for example, by conducting a risk assessment, that the work being planned or performed under this grant may be conducted at a biocontainment safety level that is lower than BSL3.

If the work involves Select Agents and/or Highly Pathogenic Agents, also address the following points:

Any changes in the use of the Agent(s) or Toxin(s) including its restricted experiments that have resulted in a change in the required biocontainment level, and any resultant change in location, if applicable, as determined by your IBC or equivalent body or official.

If work with a new or additional Agent(s)/Toxin(s) is proposed in the upcoming project period, provide:

- o A list of the new and/or additional Agent(s) that will be studied;
- o A description of the work that will be done with the Agent(s), and whether or not the work is a restricted experiment;
- o The title and location for each biocontainment resource/facility, including the name of the organization that operates the facility, and the biocontainment level at which the work will be conducted, with documentation of approval by your IBC or equivalent body or official. It is important to note if the work is being done in a new location.

STAFF CONTACTS

The Grants Management Specialist is responsible for the negotiation, award and administration of this project and for interpretation of Grants Administration policies and provisions. The Program Official is responsible for the scientific, programmatic and technical aspects of this project. These individuals work together in overall project administration. Prior approval requests (signed by an Authorized Organizational Representative) should be submitted in writing to the Grants Management Specialist. Requests may be made via e-mail.

Grants Management Specialist: Adam Graham
Email: adam.graham@nih.gov **Phone:** 301-761-6260 **Fax:** 301-493-0597

Program Official: Erik J. Stemmy
Email: erik.stemmy@nih.gov **Phone:** 240-627-3380

SPREADSHEET SUMMARY

GRANT NUMBER: 1R01AI139092-01

INSTITUTION: NEW YORK BLOOD CENTER

| Budget | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 |
|--|------------------|------------------|------------------|------------------|------------------|
| Salaries and Wages | \$82,628 | \$82,628 | \$82,628 | \$82,628 | \$82,628 |
| Fringe Benefits | \$27,268 | \$27,268 | \$27,268 | \$27,268 | \$27,268 |
| Personnel Costs (Subtotal) | \$109,896 | \$109,896 | \$109,896 | \$109,896 | \$109,896 |
| Materials & Supplies | \$16,000 | \$15,000 | \$14,000 | \$14,000 | \$14,000 |
| Travel | \$3,000 | \$3,000 | \$3,000 | \$3,000 | \$3,000 |
| Other | \$30,000 | \$28,000 | \$27,000 | \$24,000 | \$22,000 |
| Subawards/Consortium/Contractual Costs | \$569,748 | \$567,638 | \$565,283 | \$562,879 | \$560,428 |
| TOTAL FEDERAL DC | \$728,644 | \$723,534 | \$719,179 | \$713,775 | \$709,324 |
| TOTAL FEDERAL F&A | \$182,439 | \$121,599 | \$120,039 | \$117,699 | \$116,139 |
| TOTAL COST | \$911,083 | \$845,133 | \$839,218 | \$831,474 | \$825,463 |

| Facilities and Administrative Costs | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 |
|-------------------------------------|--------|--------|--------|--------|--------|
| | | | | | |

| | | | | | |
|-----------------|-----------|-----------|-----------|-----------|-----------|
| F&A Cost Rate 1 | 78% | 78% | 78% | 78% | 78% |
| F&A Cost Base 1 | \$233,896 | \$155,896 | \$153,896 | \$150,896 | \$148,896 |
| F&A Costs 1 | \$182,439 | \$121,599 | \$120,039 | \$117,699 | \$116,139 |

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For more assistance with Adobe Reader visit <http://www.adobe.com/go/acreader>.

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Budget justification

Personnel Justification

Fang Li, PhD, Principal Investigator (1.2 calendar months), 10% effort, will be responsible for laboratory management and supervision of the projects, including experimental design, execution, data analysis, and write-up.

One Postdoctoral Scientist (To be named) (12.00 calendar months), 100% effort, will be responsible for the designs, preparations, and biochemical and structural studies of coronavirus RBD vaccines (wild type or mutants).

Research Supplies Justification

Research supplies will include reagents for molecular biology, insect and mammalian cell culture, protein expression and purification, protein-protein binding assays, pseudovirus entry assays, and protein crystallography. More specifically, these reagents will include cloning enzymes, restriction enzymes, plasmid purification kits, DNA retraction kits, DNA transfection reagents, insect cells, insect cell culture media, mammalian cells, mammalian cell culture media, protein purification columns, Biacore chips, crystallization kits and plates, and crystal freezing tools.

Travel

For the PI and the postdoctoral scientist, on average there will be two trips to National synchrotron laboratories for X-ray data collection, and one trip to a national conference per year.

Publication

On average three publications will be expected per year.

Communications

Fax, long distance phone call, and shipping of experimental materials to collaborators.

Equipment maintenance

Purchase of service contracts for equipments such as AKTA purification system, centrifuges, plate readers, and insect cell shaker/incubators.

Lab service fees

Use of services from several on-campus labs, such as the electron microscopy lab, robot crystallization lab, mass spectrometry lab, and protein sequencing lab.

MERS project

From: Du, Lanying <LDu@nybc.org>
To: Perlman, Stanley (stanley-perlman@uiowa.edu) <stanley-perlman@uiowa.edu>, Fang Li <lifang@umn.edu>, Jiang Zhu (jiang@scripps.edu) <jiang@scripps.edu>
Sent: May 30, 2018 11:02:39 AM CDT
Received: May 30, 2018 11:02:48 AM CDT

Hi all,

Please see below Call-in information regarding our teleconference.

Date and time:

June 07, 2018, Thursday; 3-4 pm, CDT: (1-2 pm PDT; 4-5 pm EST)

Call-in number:

USA Toll-Free: [888-270-9936](tel:888-270-9936); followed by [REDACTED]

Best,
Lanying



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RE: Subcontract with NYBC for PI: Du, Lanying; 1 R01 AI139092-01

From: Walton, Theresa <TWalton@nybc.org>
To: Anne Mockovak <a-mock@umn.edu>
Cc: Du, Lanying <LDu@nybc.org>, Fang Li <lifang@umn.edu>
Sent: June 6, 2018 8:33:54 AM CDT
Received: June 6, 2018 8:34:04 AM CDT
Attachments: NIH_Subaward_ADDITIONAL TERMS AND CONDITIONS_REV4.20.17
University of Minnesota.doc

Good Morning Anne,

We have not received a response to the email below. Can you have your institution review the attachment? We will need the statement of work for this project. Once the attachment is signed I can send the cost reimbursement agreement.

Hope you week is going well!

Thanks,
Theresa R. Walton, MPA
Manager, Grants & Contract Proposals

Office of Sponsored Programs
New York Blood Center
310 East 67th Street
New York, NY 10065
T: 212-570-3150
twalton@nybc.org

From: Fang Li [mailto:lifang@umn.edu]
Sent: Thursday, May 24, 2018 11:30 AM
To: Walton, Theresa; Anne Mockovak
Cc: Du, Lanying
Subject: Re: Subcontract with NYBC for PI: Du, Lanying; 1 R01 AI139092-01

Hi Theresa,

Thanks for your email. I am CC'ing our grant accountant Anne here. She will take over the paper work.

Best,
Fang

On Thu, May 24, 2018 at 9:45 AM, Walton, Theresa <TWalton@nybc.org> wrote:
Hi Dr. Li

We received the notice of award for grant # 1R01AI13092-01 for the project titled "Structure-Based design of coronavirus subunit vaccines". Please verify if the attached documents are still correct and send your scope of work for this project. I'll also need the contact information for your grants/ contracts administrator so I can send the preliminary subaward agreement for your institutions review.

This Notice of Award (NoA) includes funds for activity with **University of Minnesota** in the amount of **\$184,600 (\$120,000 direct costs + \$64,600 F&A costs)**.

Please let me know if you have any questions.

Thanks,
Theresa R. Walton, MPA
Manager, Grants & Contract Proposals

Office of Sponsored Programs
New York Blood Center
310 East 67th Street
New York, NY 10065
T: 212-570-3150
twalton@nybc.org

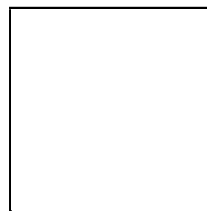
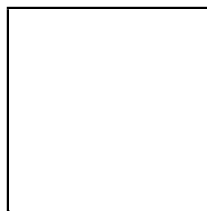
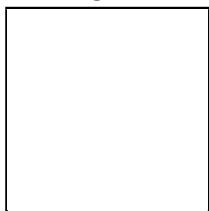
From: era-notify@mail.nih.gov [mailto:era-notify@mail.nih.gov]
Sent: Monday, May 21, 2018 12:04 AM
To: ResearchAdmin
Subject: NoA: 1 R01 AI139092-01 PI: Du, Lanying

Grant Number: 1 R01 AI139092-01
Principal Investigator: Du, Lanying
Project Title: Structure-based design of coronavirus subunit vaccines
Institution: NEW YORK BLOOD CENTER
CFDA: 93.855
OC: 414A
PCC: M51C B
Award Issue Date: 05/21/2018
Grants Management Officer: Mason, Chernay
Program Official: Stemmy, Erik
Grants Specialist: Graham, Adam

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the sender by telephone or return email and delete the original transmission and its attachments without reading or saving in any manner.

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Fang Li, Ph.D.
Associate Professor
Department of Veterinary and Biomedical Sciences
University of Minnesota Twin Cities
612-625-6149, lifang@umn.edu
<http://www.msi.umn.edu/~lifang>

1. NIH_Subaward_ADDITIONAL TERMS AND CONDITIONS_REV4.20.17 University of Minnesota.doc

Type: application/vnd.ms-word
Size: 70 KB (72,192 bytes)

ADDITIONAL TERMS AND CONDITIONS

TO

RESEARCH SUBAWARD AGREEMENT

BETWEEN

**NEW YORK BLOOD CENTER, INC.
(Pass-Through Entity or Prime Recipient)**

AND

**UNIVERSITY OF MINNESOTA
(Subrecipient)**

This Agreement is entered into and made effective on the last of the last signature set forth herein by and between the NEW YORK BLOOD CENTER, INC., a New York Not-for-Profit Corporation, with a place of business at 310 E. 67th Street, New York, New York 10065 (“NYBC” or “Pass-Through Entity” or “Prime Recipient”) and Subrecipient (or “Subcontractor”).

1. Background

NYBC, with the assistance of Subcontractor and other collaborators, has received funding for research proposed in a grant application submitted to the National Institutes of Health (“NIH”), an agency of the United States Department of Health and Human Services (“HHS”). The NIH grant (“**Prime Grant**” or “**Prime Award**”) contemplates that the research will be undertaken by a consortium of institutions, acting under the direction of NYBC, and further specifies that various aspects of the research will be undertaken at specified collaborating institutions, including Subcontractor. The purposes of this Agreement, a copy of which will be submitted to NIH if requested, is to set forth the responsibilities and obligations of each party to this Agreement. All requirements and conditions set forth in the Prime Grant, attached hereto, are hereby incorporated by reference into this Agreement.

2. Statement of Work

Subcontractor shall provide the necessary personnel, services, equipment and facilities (except as otherwise specifically provided herein) to perform the work, as more fully set forth in the Statement of Work, as set forth in **Attachment 5** of the **Research Subaward Agreement** and incorporated herein (the “Research Project”).

3. Period of Performance

The term of this Agreement shall be for the **Subaward Period of Performance**. Unless specifically identified in the grant application accepted by NIH, NYBC shall not reimburse Subcontractor for any expenses incurred prior to the Project Start Date or subsequent to the Project End Date. Nor may the Subcontractor seek reimbursement from NYBC for expenses other than those specified in the budget submitted to and approved by NIH as part of the Prime Grant. The period of this Agreement may be extended annually by the mutual written consent of both parties. This Agreement will not under any circumstances extend beyond the expiration or termination of the Prime Grant.

4. Invoices and Payment

Subcontractor shall submit invoices to NYBC for payment of Subcontractor's costs that are allowable and allocable to this Agreement. Subcontractor's invoices shall be in the form and contain all certifications reasonably required by the Prime Grant and shall include the invoice date; the Prime Grant number; the names, titles, and percent effort of all personnel charged to the Prime Grant; and a complete breakout of the costs incurred by budget category for the goods or services encompassed by the invoice.

Invoices shall be submitted monthly, no later than 30 days after the last day of the month to which the invoice relates to: APINVOICES@nybc.org. All invoices should reference the Purchase Order # for the applicable time period.

A final invoice for each budget period must be submitted within 60 calendar days after the budget period's termination date and be marked "***Final Invoice.***"

Subcontractor's invoices shall be prepared in a manner that is consistent with the budget that has been submitted to and approved by the grants officer. Subcontractor shall not invoice NYBC for costs not included in that budget or in excess of the amounts set forth in the budget.

Payment of all invoices is contingent upon compliance with the terms and conditions of this Agreement and the Prime Grant application as it applies to Subcontractor, and the propriety of the costs incurred, as determined by NYBC. Subcontractor shall reimburse NYBC for any amounts contained in Subcontractor's invoices and paid by NYBC that are subsequently determined by NYBC or the NIH to be unallowable or unallocable to the performance of this Agreement.

If NYBC's Prime Grant is incrementally funded, it is understood that this Agreement is funded only to the extent funds are available to pay Subcontractor in accordance with the Prime Grant, and that Subcontractor will be paid only to the extent funds are available for allocation to Subcontractor under the Prime Grant. NYBC shall notify Subcontractor thirty (30) days in advance of any period for which the Prime Grant has not been funded. In the absence of funding available for allocation to Subcontractor under the Prime Grant, NYBC may direct Subcontractor to stop work until such time as funding becomes available. Such a direction to stop work shall not entitle Subcontractor to reimbursement for any additional cost.

Subcontractor agrees to incorporate the requirements of this section, including the applicability of the appropriate set of cost principles, in any lower-tier cost reimbursement sub-grant or subcontract it enters into.

5. Availability of Funds

This Agreement is subject to and contingent upon the continuing availability of federal funds for the purpose hereof.

6. Grantee, Principal Investigator, and Project Directors

Although each institution will be involved in performing important aspects of the proposed research, NYBC, as the grantee, is the sole entity legally responsible to the Secretary of HHS for ensuring that the research will be conducted as proposed in the Prime Grant. Accordingly, Subcontractor agrees that in carrying out its research responsibilities under this Agreement and the Prime Grant, it shall take direction from and abide by the decisions of NYBC and its Principal Investigator. Subcontractor shall address all questions concerning the scope of work or its performance of the scope of work to the NYBC Principal Investigator. Subcontractor shall provide all information reasonably requested by NYBC's Principal Investigator or his/her designee to permit NYBC to direct and monitor Subcontractor's work.

7. Research Materials

It is contemplated that in performing services under this Agreement, that the parties will transfer and exchange biological and other research materials (“Research Materials”) in connection with the Research Project. The following terms shall govern any transfer of Research Materials pursuant to the Research Project.

- a. It is expected that the Parties will transfer Research Materials to each other that are developed during the course of the Research Project, as well as Research Materials that each Party may have developed independent of the Research Project.
- b. Materials developed solely by NYBC, whether developed before or after the Effective Date, together with progeny and unmodified derivatives, will be owned solely by NYBC (“NYBC Research Materials”); materials developed solely by Subcontractor, whether developed before or after the Effective Date, together with progeny and unmodified derivatives, will be owned solely by Subcontractor (“Subcontractor Research Materials”); and materials developed jointly by researchers at NYBC and Subcontractor in the course of the Research Project will be owned jointly (“Jointly Developed Research Materials”). All materials that may be transferred hereunder are sometimes hereinafter referred to as “Research Materials,” singly or collectively. Legal title to any Research Materials transferred hereunder shall be unaffected by this Agreement or the transfer made hereunder. Subcontractor shall use NYBC Research Materials only in work done in the course of the Research Project, and only in Subcontractor’s laboratory in research by laboratory personnel under his/her immediate and direct control. Subcontractor shall not transfer or share any NYBC Research Materials with other institutions or entities without NYBC’s written consent.

8. Reporting

Subcontractor acknowledges that the Prime Grant and applicable laws, regulations and NIH policies impose on NYBC certain reporting requirements (for example, periodic reports on the performance of the grant work, financial status reports, annual reports and final reports). Subcontractor agrees to provide NYBC with requested reports and with the information that NYBC needs concerning all aspects of Subcontractor’s performance of its work so that NYBC may make full and accurate reports to appropriate government personnel. NYBC will inform Subcontractor of the information it needs and the date when such information is needed from Subcontractor. To the extent possible, NYBC will provide Subcontractor at least ten (10) business days to provide the information needed. Timely response to requests for information shall be a condition for payment of Subcontractor’s invoices.

9. Confidentiality.

Subject to Section 10, below, each party shall cause all Confidential Information, that is disclosed to it by the other party in connection with the Research Project to be treated according to the same internal security procedures and with the same degree of care regarding its secrecy and confidentiality as the party receiving the disclosure treats similar information of its own within its organization. Confidential Information shall mean without limitation any information, data or know-how which relates to the research, business, services or products of the disclosing party, including, without limitation, any computer programs, algorithms, specifications, schematics, records, data, drawings, biological samples, notes, reports, processes, formulas, methodologies, conceptual or developmental products, compilations, trade secrets, copyrights, inventions, patent applications, financial information, business plans, or personnel, marketing or sales information, which is disclosed by the disclosing party or on its behalf, before or after the date hereof, to the receiving party either in writing, orally, by inspection or in any other form or medium, and may include information obtained from third parties which is subject to obligations of secrecy and confidentiality on behalf of the disclosing party. These obligations of confidentiality and non-use shall not apply to Confidential Information which:

- a. is in the public domain by use and/or publication before its receipt from the disclosing party, or thereafter enter the public domain through no fault of the receiving party;
- b. was already in the receiving party's possession prior to receipt from the disclosing party, as evidenced by the receiving party's written records;
- c. is properly obtained by the receiving party from a third party which has a valid right to disclose such information to the receiving party and is not under a confidentiality obligation to the disclosing party; or
- d. is developed independently by the receiving party without knowledge of the information provided by the disclosing party.

In addition, the receiving party may disclose Confidential Information if required by law, government regulation, or court order, provided that the disclosing party is promptly notified in writing in advance of any such requirement so that it has an opportunity to oppose or limit such disclosure.

10. Publication and Rights to Data

The contemplated research is necessarily a collaborative effort of many scientists and institutions, including NYBC and Subcontractor. To ensure that articles, abstracts and related publications accurately reflect the scientific work of the collaborators, all documents, manuscripts or other disclosures reporting on data or other results of the research conducted under the Prime Grant must be reviewed in advance by the NYBC Principal Investigator. Furthermore, the NYBC Principal Investigator is authorized to resolve any authorship or authorship priority issues that may arise. The NYBC Principal Investigator may ask that a publication or presentation be temporarily delayed for no longer than sixty (60) days so as not to undermine intellectual property interests or rights of one or more of the collaborators.

Without limiting Subcontractor's publication rights or rights to data as set forth in this section, the original versions of all data collected or recorded pursuant to the Prime Grant shall be the sole property of NYBC. NYBC, however, shall provide all collaborating institutions, including Subcontractor, with such copies as they may request. Subcontractor agrees not to release or share any data generated or gathered under the Prime Grant with any person or entity, other than those collaborating on the proposed research, without the prior written consent of the NYBC Principal Investigator.

11. Publicity

Subcontractor and NYBC shall not use, expressly or by implication, the name(s) or trademark(s) of the other party or its staff in any news release, publicity, policy recommendation, advertising or commercial communication without the prior written approval of the other party.

12. Patent Rights

Patents and inventions shall be treated in accordance with P.L. 96-517, as amended, 35 U.S.C., Chapter 18, entitled "**Patent Rights in Inventions Made with Federal Assistance**," the government-wide implementing regulations in 37 C.F.R. Part 401, and Appendix 9 from the PHS Grants Policy Statement. Subcontractor warrants that it has in place a patent policy that complies with the provisions of federal law.

Under federal law, NYBC, as the grantee, is required to notify NIH of any inventions developed with NIH grant funds. To permit NYBC to discharge this responsibility, Subcontractor agrees to and

shall within 60 calendar days of learning that an invention had been conceived of by its employees or agents with funds made available under the Prime Grant or this Agreement (i) notify NYBC in writing of such invention and (ii) provide NYBC with such information about the invention so as to enable NYBC to fully notify NIH.

Any inventions created as a result of the work performed under this Agreement shall remain the property of the originating party; provided, however, that if such an invention is conceived of by at least one employee of the Subcontractor and no employee of NYBC is an inventor, then the Subcontractor shall grant to NYBC a non-exclusive, worldwide, royalty-free fully paid-up license to practice the invention for research purposes.

In the event of joint inventions, NYBC and Subcontractor shall establish their respective rights pursuant to good faith negotiations between them. The parties agree to consult with one another prior to taking any action to obtain patent protection of joint inventions and shall agree upon the patent filing and prosecution strategy of any joint invention. Subject to the terms of the Prime Grant, the parties agree to cooperate to utilize and exploit any joint invention. Neither party has any right to utilize or exploit any joint invention without the express written permission of the other party, which shall not be unreasonably withheld. Nothing in this paragraph shall alter the rights of the Government under federal law including without limitation rights in patents, technical data, computer software, copyrights and other intellectual property.

13. Indemnification

To the extent authorized by law, Subcontractor shall indemnify, save and hold harmless NYBC, its employees and agents, against any and all claims, damages, liability and court awards including costs, expenses, and reasonable attorney's fees incurred as a result of any gross negligence, willful misconduct or omission by Subcontractor, or its employees, agents, subcontractors, or assignees in connection with its performance of the Agreement.

To the extent authorized by law, NYBC shall indemnify, save and hold harmless Subcontractor, its employees and agents, against any and all claims, damages, liability and court awards including costs, expenses, and reasonable attorney's fees incurred as a result of any gross negligence, willful misconduct or omission by NYBC, or its employees, agents subcontractors, assignees in connection with its performance of the Agreement.

14. Insurance

Subcontractor agrees to maintain coverage for workmen's compensation, as required by applicable state law, and comprehensive general liability insurance and employer's liability insurance either through commercial insurance or a reasonable self-insurance mechanism in an amount no less than \$1 million per incident and \$3 million in the aggregate.

15. Equal Opportunity

Subcontractor will comply with all applicable federal laws regarding equal opportunity in employment, including without limitation Title VI of the Civil Rights Act of 1964; Executive Order 11246; and Section 504 of the Rehabilitation Act of 1973; as each may be amended.

This NYBC and Subcontractor shall abide by the requirements of 41 CFR §§ 60-1.4(a), 60-300.5(a) and 60-741.5(a). These regulations prohibit discrimination against qualified individuals based on their status as protected veterans or individuals with disabilities, and prohibit discrimination against all individuals based on their race, color, religion, sex, or national origin. Moreover, these regulations require that covered prime contractors and subcontractors take affirmative action to employ and advance

in employment individuals without regard to race, color, religion, sex, national origin, protected veteran status or disability.

16. Drug-Free Workplace Requirements

Subcontractor certifies that it will carry out the provisions relating to maintaining a drug-free workplace as required by 45 C.F.R. Part 76, subpart F.

17. Assignment

This Agreement is not assignable without the written consent of both parties. Any such attempted assignment shall be void and of no legal effect.

18. Termination

This Agreement may be terminated as follows: (i) Either party may terminate with cause upon thirty (30) days written notice; or (ii) NYBC may terminate, effective on the date Subcontractor receives written notice, if the Prime Grant terminates. Upon its issuance or receipt of a termination notice, Subcontractor shall cancel as many outstanding obligations as possible, work shall stop, and Subcontractor shall not incur new obligations after the effective date of termination.

At the conclusion of the Agreement, Subcontractor shall deliver to NYBC all work, materials and data produced or acquired under this Agreement. NYBC shall pay Subcontractor for costs incurred and/or irrevocably obligated prior to the effective date of termination in accordance with the applicable termination cost principle. In the event of termination by NYBC for Subcontractor's failure to perform, NYBC may proceed with the work in any manner deemed proper by NYBC.

19. Independent Contractor Status

The relationship between the parties under this Agreement is that of independent contractors. Neither party is authorized or permitted to act as an agent or employee of the other. Neither party, by virtue of this Agreement, assumes any liability for any debts or obligations incurred by the other party to this Agreement.

20. Scientific Misconduct Certification

Subcontractor certifies that it has in place procedures for responding to allegations of **"misconduct in science"**.

In the event that Subcontractor learns of an allegation that any of its employees or agents, or any of the employees or agents of any lower-tier subcontractor performing work under this Agreement, has engaged in **"misconduct in science"** with respect to such work, Subcontractor shall immediately notify NYBC of such allegation and shall provide NYBC, NIH, or the Office of Research Integrity (**"ORI"**) with such information as each may request concerning said allegation.

Upon learning of an allegation of misconduct in science, as described above, Subcontractor shall immediately undertake an **"inquiry,"** and if warranted, an **"investigation"**. Subcontractor shall immediately notify NYBC of the results of any such inquiry and investigation and shall provide NYBC with any reports prepared by Subcontractor concerning the inquiry or investigation, as the case may be. In the event that the matter proceeds to an investigation, Subcontractor shall also advise ORI that Subcontractor intends to undertake such an investigation.

21. Physician Payment Sunshine Provisions

Subcontractor understands and acknowledges that, in accordance with the Physician Payment Sunshine Provision of the Patient Protection and Affordable Care Act of 2010 (“PPACA”), Section 6002, and all implementing regulations, NYBC is required to report to the Secretary of Health and Human Services for public disclosure all covered payments and transfers of value made under this Agreement from NYBC to Subcontractor if Subcontractor is a physician currently licensed to practice in the United States or is a teaching hospital, as defined by the PPACA and its implementing regulations (“Covered Recipient”). Such information required to be reported shall include the name and address of the Covered Recipient, the amount of the payment or transfer of value, the date of the payment or transfer of value, the nature and form of the payment or transfer of value, and, if the payment or transfer of value is related to research specific to a covered drug, device, biological or medical supply, the name of that covered drug, device, biological or medical supply.

22. Animal Welfare Certification

If the grant application proposes research involving the care and use of animals, under federal law, each institution at which such research is to be conducted should have on file with OPRR an **“Assurance of Compliance with PHS Policy on Humane Care and Use of Laboratory Animals”** acceptable to OPRR which among other things describes the institution’s program for animal care and use and which acknowledges that the institution has in place an Institutional Animal Care and Use Committee (“IACUC”).

In the event that there are animals involved in the proposed research which will be maintained under the aegis of Subcontractor, Subcontractor certifies that it has on file with OPRR an approved **“Assurance of Compliance with PHS Policy on Humane Care and Use of Laboratory Animals”** and further certifies that its IACUC approved those aspects of the grant application involving the care or use of animals. Subcontractor further agrees to take such actions as may be required to ensure the humane treatment of laboratory animals and to comply fully with the requirements of both the PHS Policy on Humane Care and Use of Laboratory Animals and 9 C.F.R. Part 2.

23. Significant Financial Interest and Financial Conflict of Interest Certification

Subcontractor certifies that it is in compliance with all the requirements of 42 C.F.R. Part 50, Subpart F and 45 C.F.R. Part 94, related to identifying, reporting and managing Significant Financial Interests and Financial Conflicts of Interest.

Subcontractor certifies that none of the investigators or other personnel responsible for the design, conduct or reporting of the research relevant to the Prime Grant or Research Project, nor any spouse, domestic partner or dependent child of such individual, has any Significant Financial Interest or Financial Conflict of Interest as defined in the above-referenced regulations.

In the event Subcontractor learns of any Significant Financial Interest or Financial Conflict of Interest, Subcontractor shall immediately notify NYBC of such and shall provide NYBC with any information it may request concerning such Significant Financial Interest or Financial Conflict of Interest. Subcontractor shall further undertake all measures required under the above-referenced regulations to properly report and manage the identified Significant Financial Interest or Financial Conflict of Interest.

24. Other Certifications

Acceptance of this Agreement constitutes certification that Subcontractor is not presently debarred, suspended, proposed for disbarment, declared ineligible or voluntarily excluded from covered transactions by any federal department or agency.

Acceptance of this Agreement constitutes certification that Subcontractor complies with the Uniform Guidance, will provide notice of the completion of required audits and any adverse findings which impact this subaward as required by parts 200.501-200.521, and will provide access to records as required by parts 200.336, 200.337 and 200.201, as applicable.

Acceptance of this Agreement constitutes certification that Subcontractor is not delinquent on any federal debt.

Acceptance of this Agreement constitutes certification that to the best of signatory's knowledge and belief:

(1) No federal appropriated funds have been paid or will be paid, by or on behalf of Subcontractor, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any federal contract, the making of any federal grant, the making of any federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any federal contract, grant, loan, or cooperative agreement.

(2) If funds other than federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this federal contract, grant loan, or cooperative agreement, Subcontractor shall complete and submit Standard Form - LLL, "**Disclosure Form to Report Lobbying**," in accordance with its instructions.

(3) Subcontractor shall require that the language of this certification be included in the award documents for all sub-awards at all tiers (including subcontracts, sub-grants, and contracts under grants, loans, and cooperative agreements) and that all sub-recipients shall certify and disclose accordingly.

Subcontractor agrees to notify NYBC immediately if there is any change of status in the certifications above or other certifications or assurances required under law or by this Agreement.

25. Record Retention

As required by 45 CFR § 74.53, the Subcontractor agrees to retain for the "retention period" all records related in any way to the work performed under this Agreement. The retention period is three (3) years after the later of (i) receipt of final payment under this Agreement or (ii) all pending matters are closed. Provided, however, if an audit, administrative action, investigation, litigation or other action is commenced during the retention period, the records must be retained by the Subcontractor until all issues arising out of the action are fully and finally resolved or until the end of the normal retention period, whichever is later. This provision shall be included in any agreement between Subcontractor and a lower-tier subcontractor or subgrantee to perform work under this Agreement.

26. Choice of Law; Jurisdiction

This Agreement shall be construed in the federal courts located in the State of New York and enforced in accordance with the laws of the State of New York, excluding its laws on conflicts of laws.

27. Force Majeure

The parties shall be excused from any performance required under this Agreement if performance is impossible or unfeasible due to any event beyond their reasonable control, including without limitation war, riot or insurrection; government action or inaction; lockouts or other serious labor disputes; or floods, fires, explosions, or other natural disasters. When such events abate, and in any event within one year, the parties' respective obligations will resume.

28. Severability

Each clause of this Agreement is a distinct and severable clause and if any clause is deemed illegal, void or unenforceable, the validity, legality or enforceability of any other clause or portion of this Agreement will not be affected.

29. Counterparts

This Agreement may be executed in one or more counterparts, all of which taken together shall constitute one original.

30. Titles

All titles and article headings contained in this Agreement are inserted only as a matter of convenience and reference. They do not define, limit, extend or describe the scope of this Agreement or the intent of any of its provisions.

31. Entire Agreement

This Agreement, together with any and all attachments incorporated by reference, constitutes the full and complete understanding of the parties regarding the subject matter hereof. No modification or alteration of or addition to this Agreement shall be effective to bind the parties hereto unless it shall be in writing and signed by authorized representatives of the parties.

IN WITNESS WHEREOF, the authorized officers of the respective parties do hereby set their hand.

NEW YORK BLOOD CENTER, INC.

UNIVERSITY OF MINNESOTA

New York, New York

Minneapolis, MN

Signed

Signed

Barry A. Greene, M.P.A
Name

Name

Executive Director,
Office of Sponsored Programs
Title

Title

Date

Date

RE: Subcontract with NYBC for PI: Du, Lanying; 1 R01 AI139092-01

From: Walton, Theresa <TWalton@nybc.org>
To: Anne Mockovak <a-mock@umn.edu>
Cc: Du, Lanying <LDu@nybc.org>, Fang Li <lifang@umn.edu>
Sent: June 6, 2018 9:11:20 AM CDT
Received: June 6, 2018 9:11:30 AM CDT

Thanks!

From: Anne Mockovak [mailto:a-mock@umn.edu]
Sent: Wednesday, June 06, 2018 10:11 AM
To: Walton, Theresa
Cc: Du, Lanying; Fang Li
Subject: Re: Subcontract with NYBC for PI: Du, Lanying; 1 R01 AI139092-01

Theresa,

Your addendum to the NIH subcontract is being reviewed by our Sponsored Projects administrator, Brett Carlson. I've copied him on the email to make sure you have his information.

Anne

Anne Mockovak
Accountant
Department of Veterinary and
Biomedical Sciences
612.301.2143

On Wed, Jun 6, 2018 at 8:33 AM, Walton, Theresa <TWalton@nybc.org> wrote:
Good Morning Anne,

We have not received a response to the email below. Can you have your institution review the attachment? We will need the statement of work for this project. Once the attachment is signed I can send the cost reimbursement agreement.

Hope you week is going well!

Thanks,
Theresa R. Walton, MPA
Manager, Grants & Contract Proposals

Office of Sponsored Programs
New York Blood Center
310 East 67th Street
New York, NY 10065
T: 212-570-3150
twalton@nybc.org

From: Fang Li [mailto:lifang@umn.edu]
Sent: Thursday, May 24, 2018 11:30 AM
To: Walton, Theresa; Anne Mockovak

Cc: Du, Lanying

Subject: Re: Subcontract with NYBC for PI: Du, Lanying; 1 R01 AI139092-01

Hi Theresa,

Thanks for your email. I am CC'ing our grant accountant Anne here. She will take over the paper work.

Best,
Fang

On Thu, May 24, 2018 at 9:45 AM, Walton, Theresa <TWalton@nybc.org> wrote:
Hi Dr. Li

We received the notice of award for grant # 1R01AI13092-01 for the project titled "Structure-Based design of coronavirus subunit vaccines". Please verify if the attached documents are still correct and send your scope of work for this project. I'll also need the contact information for your grants/ contracts administrator so I can send the preliminary subaward agreement for your institutions review.

This Notice of Award (NoA) includes funds for activity with **University of Minnesota** in the amount of **\$184,600** (\$120,000 direct costs + \$64,600 F&A costs).

Please let me know if you have any questions.

Thanks,
Theresa R. Walton, MPA
Manager, Grants & Contract Proposals

Office of Sponsored Programs
New York Blood Center
310 East 67th Street
New York, NY 10065
T: 212-570-3150
twalton@nybc.org

From: era-notify@mail.nih.gov [mailto:era-notify@mail.nih.gov]

Sent: Monday, May 21, 2018 12:04 AM

To: ResearchAdmin

Subject: NoA: 1 R01 AI139092-01 PI: Du, Lanying

Grant Number: 1 R01 AI139092-01

Principal Investigator: Du, Lanying

Project Title: Structure-based design of coronavirus subunit vaccines

Institution: NEW YORK BLOOD CENTER

CFDA: 93.855

OC: 414A

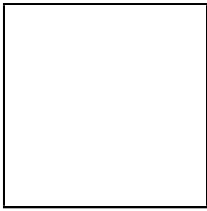
PCC: M51C B

Award Issue Date: 05/21/2018

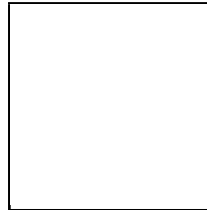
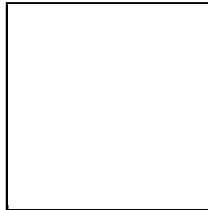
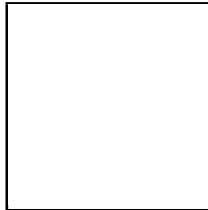
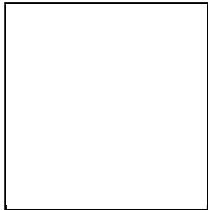
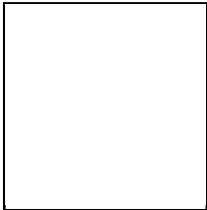
Grants Management Officer: Mason, Chernay

Program Official: Stemmy, Erik
Grants Specialist: Graham, Adam

*** This is an automated notification - Please do not reply to this message. ***



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--

Fang Li, Ph.D.
Associate Professor
Department of Veterinary and Biomedical Sciences
University of Minnesota Twin Cities
612-625-6149, lifang@umn.edu
<http://www.msi.umn.edu/~lifang>

FW: No change in workscope Subcontract with NYBC for PI: Du, Lanying; 1 R01 AI139092-01

From: Du, Lanying <LDu@nybc.org>
To: Fang Li <lifang@umn.edu>
Sent: June 7, 2018 12:01:55 PM CDT
Received: June 7, 2018 12:02:31 PM CDT
Attachments: NIH000554 NY Blood Ctr CONSORTIUM AGREEMENT.doc,
NIH_Subaward_ADDITIONAL TERMS AND CONDITIONS_REV4.20.17
University of Minnesota.doc, NIH000554 - NGA AI139092-01.pdf

From: Walton, Theresa
Sent: Wednesday, June 06, 2018 2:27 PM
To: 'Brett Carlson'
Cc: Du, Lanying; Anne M Mockovak-1
Subject: RE: No change in workscope Subcontract with NYBC for PI: Du, Lanying; 1 R01 AI139092-01

Hi Brett,

My apologies, see attached. I am new to NYBC and did not find the original scope of work in our files which is why I requested in again.

Thanks,
Theresa R. Walton, MPA
Manager, Grants & Contract Proposals

Office of Sponsored Programs
New York Blood Center
310 East 67th Street
New York, NY 10065
T: 212-570-3150
twalton@nybc.org

From: Brett Carlson [mailto:carls234@umn.edu]
Sent: Wednesday, June 06, 2018 2:16 PM
To: Walton, Theresa
Cc: Du, Lanying; Anne M Mockovak-1
Subject: Re: No change in workscope Subcontract with NYBC for PI: Du, Lanying; 1 R01 AI139092-01

Ms. Walton,

I am the assigned grant & contract administrator in the University of Minnesota's Office of Sponsored Projects Administration. The attached "Additional Terms and Conditions" document that was sent appears to be part of the subaward agreement that will be coming to my office. We would generally receive the subaward with all terms and conditions and related attachments together. Please send the complete subaward and attachments together to my attention via email for review.

Also, according to our Principal Investigator, the scope of work has not changed from what was originally submitted.

Feel free to contact me with any questions.

Thank you,

Brett

Brett Carlson

Sr. Grant & Contract Administrator
University of Minnesota
Office of Sponsored Projects Administration
450 McNamara Alumni Center
200 Oak Street SE
Minneapolis, MN 55455
Phone: 612-626-7441
Fax: 612-624-4843

----- Forwarded message -----

From: **Fang Li** <lifang@umn.edu>
Date: Thu, May 24, 2018 at 10:30 AM
Subject: Re: Subcontract with NYBC for PI: Du, Lanying; 1 R01 AI139092-01
To: "Walton, Theresa" <TWalton@nybc.org>, Anne Mockovak <a-mock@umn.edu>
Cc: "Du, Lanying" <LDu@nybc.org>

Hi Theresa,

Thanks for your email. I am CC'ing our grant accountant Anne here. She will take over the paper work.

Best,
Fang

On Thu, May 24, 2018 at 9:45 AM, Walton, Theresa <TWalton@nybc.org> wrote:
Hi Dr. Li

We received the notice of award for grant # 1R01AI13092-01 for the project titled "Structure-Based design of coronavirus subunit vaccines". Please verify if the attached documents are still correct and send your scope of work for this project. I'll also need the contact information for your grants/ contracts administrator so I can send the preliminary subaward agreement for your institutions review.

This Notice of Award (NoA) includes funds for activity with **University of Minnesota** in the amount of **\$184,600** (**\$120,000** direct costs + **\$64,600** F&A costs).

Please let me know if you have any questions.

Thanks,
Theresa R. Walton, MPA
Manager, Grants & Contract Proposals

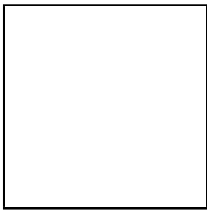
Office of Sponsored Programs
New York Blood Center
[310 East 67th Street](http://www.nybc.org)
[New York, NY 10065](http://www.nybc.org)
T: 212-570-3150
twalton@nybc.org

From: era-notify@mail.nih.gov [mailto:era-notify@mail.nih.gov]
Sent: Monday, May 21, 2018 12:04 AM

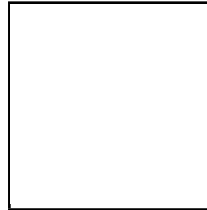
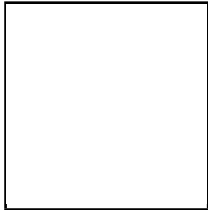
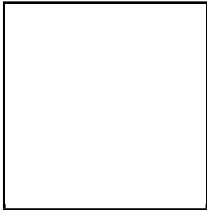
To: ResearchAdmin
Subject: NoA: 1 R01 AI139092-01 PI: Du, Lanying

Grant Number: 1 R01 AI139092-01
Principal Investigator: Du, Lanying
Project Title: Structure-based design of coronavirus subunit vaccines
Institution: NEW YORK BLOOD CENTER
CFDA: 93.855
OC: 414A
PCC: M51C B
Award Issue Date: 05/21/2018
Grants Management Officer: Mason, Chernay
Program Official: Stemmy, Erik
Grants Specialist: Graham, Adam

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Fang Li, Ph.D.
Associate Professor
Department of Veterinary and Biomedical Sciences
University of Minnesota Twin Cities
612-625-6149, lifang@umn.edu
<http://www.msi.umn.edu/~lifang>

1. NIH000554 NY Blood Ctr CONSORTIUM AGREEMENT.doc

Type: application/vnd.ms-word
Size: 101 KB (103,936 bytes)

2. NIH_Subaward_ADDITIONAL TERMS AND CONDITIONS_REV4.20.17 University of Minnesota.doc

Type: application/vnd.ms-word
Size: 66 KB (68,096 bytes)

3. NIH000554 - NGA AI139092-01.pdf

Type: application/pdf
Size: 115 KB (118,236 bytes)



**CONSORTIUM AGREEMENT
NIH000554**

BETWEEN

**NEW YORK BLOOD CENTER, INC.
P.I: Dr. Lanying Du**

AND

**THE SCRIPPS RESEARCH INSTITUTE
P.I.: Dr. Fang Li**

This Agreement is entered into and made effective May 21, 2018 by and between the NEW YORK BLOOD CENTER, INC., a New York Not-for-Profit Corporation, with a place of business at 310 E. 67th Street, New York, New York 10065 (“NYBC” or “Grantee”) and UNIVERSITY OF MINNESOTA (“Subcontractor” or “Subgrantee”).

1. Background

NYBC, with the assistance of Subcontractor and other collaborators, has received funding for research proposed in a grant application submitted to the National Institutes of Health (“NIH”), an agency of the United States Department of Health and Human Services (“HHS”). The NIH grant 1R01AI139092-01 (“**Prime Grant**”) contemplates that the research will be undertaken by a consortium of institutions, acting under the direction of NYBC, and further specifies that various aspects of the research will be undertaken at specified collaborating institutions, including Subcontractor. The purposes of this Agreement, a copy of which will be submitted to NIH if requested, is to set forth the responsibilities and obligations of each party to this Agreement.

2. Statement of Work

Subcontractor shall provide the necessary personnel, services, equipment and facilities (except as otherwise specifically provided herein) to perform the work, as more fully set forth in the Statement of Work, annexed hereto as Exhibit A to this Agreement (the “Research Project”).

3. Period of Performance

Performance under this Agreement shall commence on **May 21, 2018 (“Project Start Date”)** and shall end on **April 30, 2019 (“Project End Date”)**. Unless specifically identified in the grant application accepted by NIH, NYBC shall not reimburse Subcontractor for any expenses incurred prior to the Project Start Date or subsequent to the Project End Date. Nor may the Subcontractor seek reimbursement from NYBC for expenses other than those specified in the budget submitted to and approved by NIH as part of the Prime Grant. The period of this Agreement may be extended annually by the mutual written consent of both parties. This Agreement will not under any circumstances extend beyond the expiration or termination of the Prime Grant.

4. Invoices and Payment

Subcontractor shall submit invoices to NYBC for payment of Subcontractor's costs that are allowable and allocable to this Agreement. Subcontractor's invoices shall be in the form and contain all certifications reasonably required by the Prime Grant and shall include the invoice date; the Prime Grant number; the names, titles, and percent effort of all personnel charged to the Prime Grant; and a complete breakout of the costs incurred by budget category for the goods or services encompassed by the invoice.

Invoices shall be submitted monthly, no later than 30 days after the last day of the month to which the invoice relates to:

Office of Sponsored Programs
NEW YORK BLOOD CENTER, INC.
310 East 67th Street
New York, NY 10065
Attention: **Kenneth P. Mathis**

A final invoice for each budget period must be submitted within 60 calendar days after the budget period's termination date and be marked "***Final Invoice.***"

Subcontractor's invoices shall be prepared in a manner that is consistent with the budget that has been submitted to and approved by the grants officer. That budget (Exhibit B) provides for a total payment to Subcontractor of no more than \$184,600. Subcontractor shall not invoice NYBC for costs not included in that budget or in excess of the amounts set forth in the budget.

Payment of all invoices is contingent upon compliance with the terms and conditions of this Agreement and the Prime Grant application as it applies to Subcontractor, and the propriety of the costs incurred, as determined by NYBC. Subcontractor shall reimburse NYBC for any amounts contained in Subcontractor's invoices and paid by NYBC that are subsequently determined by NYBC or the NIH to be unallowable or unallocable to the performance of this Agreement.

If NYBC's Prime Grant is incrementally funded, it is understood that this Agreement is funded only to the extent funds are available to pay Subcontractor in accordance with the Prime Grant, and that Subcontractor will be paid only to the extent funds are available for allocation to Subcontractor under the Prime Grant. NYBC shall notify Subcontractor thirty (30) days in advance of any period for which the Prime Grant has not been funded. In the absence of funding available for allocation to Subcontractor under the Prime Grant, NYBC may direct Subcontractor to stop work until such time as funding becomes available. Such a direction to stop work shall not entitle Subcontractor to reimbursement for any additional cost.

Subcontractor agrees to incorporate the requirements of this section, including the applicability of the appropriate set of cost principles, in any lower-tier cost reimbursement sub-grant or subcontract it enters into.

5. Availability of Funds

This Agreement is subject to and contingent upon the continuing availability of federal funds for the purpose hereof.

6. Grantee, Principal Investigator, and Project Directors

Although each institution will be involved in performing important aspects of the proposed research, NYBC, as the Grantee, is the sole entity legally responsible to the Secretary of HHS for ensuring that the research will be conducted as proposed in the Prime Grant. Accordingly, Subcontractor agrees that in carrying out its research responsibilities under this Agreement and the Prime Grant, it shall

take direction from and abide by the decisions of NYBC and its Principal Investigator. Subcontractor shall address all questions concerning the scope of work or its performance of the scope of work to the NYBC Principal Investigator. Subcontractor shall provide all information reasonably requested by NYBC's Principal Investigator or his/her designee to permit NYBC to direct and monitor Subcontractor's work.

7. Research Materials

It is contemplated that in performing services under this Agreement, that the parties will transfer and exchange biological and other research materials ("Research Materials") in connection with the Research Project. The following terms shall govern any transfer of Research Materials pursuant to the Research Project.

- a. It is expected that the Parties will transfer Research Materials to each other that are developed during the course of the Research Project, as well as Research Materials that each Party may have developed independent of the Research Project.
- b. Materials developed solely by NYBC, whether developed before or after the Effective Date, together with progeny and unmodified derivatives, will be owned solely by NYBC ("NYBC Research Materials"); materials developed solely by Subcontractor, whether developed before or after the Effective Date, together with progeny and unmodified derivatives, will be owned solely by Subcontractor ("Subcontractor Research Materials"); and materials developed jointly by researchers at NYBC and Subcontractor in the course of the Research Project will be owned jointly ("Jointly Developed Research Materials"). All materials that may be transferred hereunder are sometimes hereinafter referred to as "Research Materials," singly or collectively. Legal title to any Research Materials transferred hereunder shall be unaffected by this Agreement or the transfer made hereunder. Subcontractor shall use NYBC Research Materials only in work done in the course of the Research Project, and only in Subcontractor's laboratory in research by laboratory personnel under his/her immediate and direct control. Subcontractor shall not transfer or share any NYBC Research Materials with other institutions or entities without NYBC's written consent.

8. Reporting

Subcontractor acknowledges that the Prime Grant and applicable laws, regulations and NIH policies impose on NYBC certain reporting requirements (for example, periodic reports on the performance of the grant work, financial status reports, annual reports and final reports). Subcontractor agrees to provide NYBC with requested reports and with the information that NYBC needs concerning all aspects of Subcontractor's performance of its work so that NYBC may make full and accurate reports to appropriate government personnel. NYBC will inform Subcontractor of the information it needs and the date when such information is needed from Subcontractor. To the extent possible, NYBC will provide Subcontractor at least ten (10) business days to provide the information needed.

9. Confidentiality.

Subject to Section 10, below, each party shall cause all Confidential Information, that is disclosed to it by the other party in connection with the Research Project to be treated according to the same internal security procedures and with the same degree of care regarding its secrecy and confidentiality as the party receiving the disclosure treats similar information of its own within its organization. Confidential Information shall mean without limitation any information, data or know-how which relates to the research, business, services or products of the disclosing party, including, without limitation, any computer programs, algorithms, specifications, schematics, records, data, drawings, biological samples, notes, reports, processes, formulas, methodologies, conceptual or developmental products, compilations,

trade secrets, copyrights, inventions, patent applications, financial information, business plans, or personnel, marketing or sales information, which is disclosed by the disclosing party or on its behalf, before or after the date hereof, to the receiving party either in writing, orally, by inspection or in any other form or medium, and may include information obtained from third parties which is subject to obligations of secrecy and confidentiality on behalf of the disclosing party. These obligations of confidentiality and non-use shall not apply to Confidential Information which:

- a. is in the public domain by use and/or publication before its receipt from the disclosing party, or thereafter enter the public domain through no fault of the receiving party;
- b. was already in the receiving party's possession prior to receipt from the disclosing party, as evidenced by the receiving party's written records;
- c. is properly obtained by the receiving party from a third party which has a valid right to disclose such information to the receiving party and is not under a confidentiality obligation to the disclosing party; or
- d. is developed independently by the receiving party without knowledge of the information provided by the disclosing party.

In addition, the receiving party may disclose Confidential Information if required by law, government regulation, or court order, provided that the disclosing party is promptly notified in writing in advance of any such requirement so that it has an opportunity to oppose or limit such disclosure.

10. Publication and Rights to Data

The contemplated research is necessarily a collaborative effort of many scientists and institutions, including NYBC and Subcontractor. To ensure that articles, abstracts and related publications accurately reflect the scientific work of the collaborators, all documents, manuscripts or other disclosures reporting on data or other results of the research conducted under the Prime Grant must be reviewed in advance by the NYBC Principal Investigator. Any authorship or authorship priority issues that may arise shall be resolved by the parties to this Agreement in good faith. The NYBC Principal Investigator may ask that a publication or presentation be temporarily delayed for no longer than sixty (60) days so as not to undermine intellectual property interests or rights of one or more of the collaborators.

11. Publicity

Subcontractor and NYBC shall not use, expressly or by implication, the name(s) or trademark(s) of the other party or its staff in any news release, publicity, policy recommendation, advertising or commercial communication without the prior written approval of the other party.

12. Patent Rights

Patents and inventions shall be treated in accordance with P.L. 96-517, as amended, 35 U.S.C., Chapter 18, entitled "**Patent Rights in Inventions Made with Federal Assistance**," the government-wide implementing regulations in 37 C.F.R. Part 401, and Appendix 9 from the PHS Grants Policy Statement. Subcontractor warrants that it has in place a patent policy that complies with the provisions of federal law.

Under federal law, NYBC, as the Grantee, is required to notify NIH of any inventions developed with NIH grant funds. To permit NYBC to discharge this responsibility, Subcontractor agrees to and shall within 30 calendar days of learning that an invention had been conceived of by its employees or agents with funds made available under the Prime Grant or this Agreement (i) notify NYBC in writing of such invention and (ii) provide NYBC with such information about the invention so as to enable NYBC to fully notify NIH.

Any inventions created as a result of the work performed under this Agreement shall remain the property of the originating party; provided, however, that if such an invention is conceived of by at least one employee of the Subcontractor and no employee of NYBC is an inventor, then the Subcontractor shall grant to NYBC a non-exclusive, worldwide, royalty-free fully paid-up license to practice the inventions solely for NYBC's to meet its obligations under the Prime Grant..

In the event of joint inventions, NYBC and Subcontractor shall establish their respective rights pursuant to good faith negotiations between them. The parties agree to consult with one another prior to taking any action to obtain patent protection of joint inventions and shall agree upon the patent filing and prosecution strategy of any joint invention. Subject to the terms of the Prime Grant, the parties agree to cooperate to utilize and exploit any joint invention. Neither party has any right to utilize or exploit any joint invention without the express written permission of the other party, which shall not be unreasonably withheld. Nothing in this paragraph shall alter the rights of the Government under federal law including without limitation rights in patents, technical data, computer software, copyrights and other intellectual property.

13. Indemnification

To the extent authorized by law, Subcontractor shall indemnify, defend and hold harmless NYBC, and its trustees, directors, officers, employees, agents, successors and assigns, from and against any and all claims, damages, liability, losses and court awards including without limitation costs, expenses, and reasonable attorney's fees incurred as a result of any gross negligence, willful misconduct or omission by Subcontractor, or its employees, agents, subcontractors, or assignees in connection with its performance of this Agreement.

To the extent authorized by law, NYBC shall indemnify, defend and hold harmless Subcontractor, and its trustees, directors, officers, employees, agents, successors and assigns, from and against any and all claims, damages, liability, losses and court awards including without limitation costs, expenses, and reasonable attorney's fees incurred as a result of any gross negligence, willful misconduct or omission by NYBC, or its employees, agents subcontractors, assignees in connection with its performance of this Agreement.

14. Insurance

The parties agree to maintain coverage for workmen's compensation, as required by applicable state law, and comprehensive general liability insurance and employer's liability insurance either through commercial insurance or a reasonable self-insurance mechanism in an amount no more than \$1 million per incident and \$3 million in the aggregate.

15. Equal Opportunity

Subcontractor will comply with all applicable federal laws regarding equal opportunity in employment, including without limitation Title VI of the Civil Rights Act of 1964; Executive Order 11246; and Section 504 of the Rehabilitation Act of 1973; as each may be amended.

16. Drug-Free Workplace Requirements

Subcontractor certifies that it will carry out the provisions relating to maintaining a drug-free workplace as required by 45 C.F.R. Part 76, subpart F.

17. Assignment

This Agreement is not assignable without the written consent of both parties. Any such attempted assignment shall be void and of no legal effect.

18. Termination

This Agreement may be terminated as follows: (i) Either party may terminate with cause upon thirty (30) days written notice; or (ii) NYBC may terminate, effective on the date Subcontractor receives written notice, if the Prime Grant terminates. Upon its issuance or receipt of a termination notice, Subcontractor shall cancel as many outstanding obligations as possible, work shall stop, and Subcontractor shall not incur new obligations after the effective date of termination.

At the conclusion of the Agreement, Subcontractor shall deliver to NYBC copies of all work, materials and data produced or acquired under this Agreement. NYBC shall pay Subcontractor for costs incurred and/or irrevocably obligated prior to the effective date of termination in accordance with the applicable termination cost principle. In the event of termination by NYBC for Subcontractor's failure to perform, NYBC may proceed with the work in any manner deemed proper by NYBC.

19. Independent Contractor Status

The relationship between the parties under this Agreement is that of independent contractors. Neither party is authorized or permitted to act as an agent or employee of the other. Neither party, by virtue of this Agreement, assumes any liability for any debts or obligations incurred by the other party to this Agreement.

20. Scientific Misconduct Certification

Subcontractor certifies that it has in place procedures for responding to allegations of **"misconduct in science"**.

In the event that Subcontractor learns of an allegation that any of its employees or agents, or any of the employees or agents of any lower-tier subcontractor performing work under this Agreement, has engaged in **"misconduct in science"** with respect to such work, Subcontractor shall immediately notify NYBC of such allegation and shall provide NYBC, NIH, or the Office of Research Integrity (**"ORI"**) with such information as each may request concerning said allegation.

Upon learning of an allegation of misconduct in science, as described above, Subcontractor shall immediately undertake an **"inquiry,"** and if warranted, an **"investigation"**. Subcontractor shall immediately notify NYBC of the results of any such inquiry and investigation and shall provide NYBC with any reports prepared by Subcontractor concerning the inquiry or investigation, as the case may be. In the event that the matter proceeds to an investigation, Subcontractor shall also advise ORI that Subcontractor intends to undertake such an investigation.

21. Physician Payment Sunshine Provisions

Subcontractor understands and acknowledges that, in accordance with the Physician Payment Sunshine Provision of the Patient Protection and Affordable Care Act of 2010 (**"PPACA"**), Section 6002, and all implementing regulations, NYBC is required to report to the Secretary of Health and Human Services for public disclosure all covered payments and transfers of value made under this Agreement

from NYBC to Subcontractor if Subcontractor is a physician currently licensed to practice in the United States or is a teaching hospital, as defined by the PPACA and its implementing regulations (“Covered Recipient”). Such information required to be reported shall include the name and address of the Covered Recipient, the amount of the payment or transfer of value, the date of the payment or transfer of value, the nature and form of the payment or transfer of value, and, if the payment or transfer of value is related to research specific to a covered drug, device, biological or medical supply, the name of that covered drug, device, biological or medical supply.

22. Animal Welfare Certification

If the grant application proposes research involving the care and use of animals, under federal law, each institution at which such research is to be conducted should have on file with OPRR an **“Assurance of Compliance with PHS Policy on Humane Care and Use of Laboratory Animals”** acceptable to OPRR which among other things describes the institution’s program for animal care and use and which acknowledges that the institution has in place an Institutional Animal Care and Use Committee (“IACUC”).

In the event that there are animals involved in the proposed research which will be maintained under the aegis of Subcontractor, Subcontractor certifies that it has on file with OPRR an approved **“Assurance of Compliance with PHS Policy on Human Care and Use of Laboratory Animals”** and further certifies that its IACUC approved those aspects of the grant application involving the care or use of animals. Subcontractor further agrees to take such actions as may be required to ensure the humane treatment of laboratory animals and to comply fully with the requirements of both the PHS Policy on Humane Care and Use of Laboratory Animals and 9 C.F.R. Part 2.

23. Significant Financial Interest and Financial Conflict of Interest Certification

Subcontractor certifies that it is in compliance with all the requirements of 42 C.F.R. Part 50, Subpart F and 45 C.F.R. Part 94, related to identifying, reporting and managing Significant Financial Interests and Financial Conflicts of Interest.

Subcontractor certifies that none of the investigators or other personnel responsible for the design, conduct or reporting of the research relevant to the Prime Grant or Research Project, nor any spouse, domestic partner or dependent child of such individual, has any Significant Financial Interest or Financial Conflict of Interest as defined in the above-referenced regulations.

In the event Subcontractor learns of any Significant Financial Interest or Financial Conflict of Interest, Subcontractor shall immediately notify NYBC of such and shall provide NYBC with any information it may request concerning such Significant Financial Interest or Financial Conflict of Interest. Subcontractor shall further undertake all measures required under the above-referenced regulations to properly report and manage the identified Significant Financial Interest or Financial Conflict of Interest.

24. Other Certifications

Acceptance of this Agreement constitutes certification that Subcontractor is not presently debarred, suspended, proposed for disbarment, declared ineligible or voluntarily excluded from covered transactions by any federal department or agency.

Acceptance of this Agreement constitutes certification that Subcontractor is not delinquent on any federal debt.

Acceptance of this Agreement constitutes certification that to the best of signatory’s knowledge and belief:

(1) No federal appropriated funds have been paid or will be paid, by or on behalf of Subcontractor, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any federal contract, the making of any federal grant, the making of any federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any federal contract, grant, loan, or cooperative agreement.

(2) If funds other than federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress in connection with this federal contract, grant loan, or cooperative agreement, Subcontractor shall complete and submit Standard Form - LLL, **“Disclosure Form to Report Lobbying,”** in accordance with its instructions.

(3) Subcontractor shall require that the language of this certification be included in the award documents for all sub-awards at all tiers (including subcontracts, sub-grants, and contracts under grants, loans, and cooperative agreements) and that all sub-recipients shall certify and disclose accordingly.

Subcontractor agrees to notify NYBC immediately if there is any change of status in the certifications above or other certifications or assurances required under law or by this Agreement.

25. Record Retention

As required by 45 CFR § 74.53, the Subcontractor agrees to retain for the “retention period” all records related in any way to the work performed under this Agreement. The retention period is three (3) years after the later of (i) receipt of final payment under this Agreement or (ii) all pending matters are closed. Provided, however, if an audit, administrative action, investigation, litigation or other action is commenced during the retention period, the records must be retained by the Subcontractor until all issues arising out of the action are fully and finally resolved or until the end of the normal retention period, whichever is later. This provision shall be included in any agreement between Subcontractor and a lower-tier subcontractor or subgrantee to perform work under this Agreement.

26. Choice of Law; Jurisdiction

This Agreement shall be construed and enforced in accordance with the laws of the State of New York, excluding its laws on conflicts or choice of laws.

27. Force Majeure

With the exception of payment to Subcontractor for work performed under this Agreement, the parties shall be excused from any performance required under this Agreement if performance is impossible or unfeasible due to any event beyond their reasonable control, including without limitation war, riot or insurrection; government action or inaction; lockouts or other serious labor disputes; or floods, fires, explosions, or other natural disasters. When such events abate, and in any event within one year, the parties’ respective obligations will resume.

28. Severability

Each clause of this Agreement is a distinct and severable clause and if any clause is deemed illegal, void or unenforceable, the validity, legality or enforceability of any other clause or portion of this Agreement will not be affected.

29. Counterparts

This Agreement may be executed in one or more counterparts, all of which taken together shall constitute one original.

30. Titles

All titles and article headings contained in this Agreement are inserted only as a matter of convenience and reference. They do not define, limit, extend or describe the scope of this Agreement or the intent of any of its provisions.

31. Entire Agreement

This Agreement, together with any and all attachments incorporated by reference, constitutes the full and complete understanding of the parties regarding the subject matter hereof. No modification or alteration of or addition to this Agreement shall be effective to bind the parties hereto unless it shall be in writing and signed by authorized representatives of the parties.

IN WITNESS WHEREOF, the authorized officers of the respective parties do hereby set their hand.

NEW YORK BLOOD CENTER, INC.
New York, New York

The Scripps Research Institute
La Jolla, California

Signed

Signed

Barry A. Greene, M.P.A

Name

Name

Executive Director,
Office of Sponsored Programs

Title

Title

Date

Date

ADDITIONAL TERMS AND CONDITIONS

TO

RESEARCH SUBAWARD AGREEMENT

BETWEEN

**NEW YORK BLOOD CENTER, INC.
(Pass-Through Entity or Prime Recipient)**

AND

**UNIVERSITY OF MINNESOTA
(Subrecipient)**

This Agreement is entered into and made effective on the last of the last signature set forth herein by and between the NEW YORK BLOOD CENTER, INC., a New York Not-for-Profit Corporation, with a place of business at 310 E. 67th Street, New York, New York 10065 (“NYBC” or “Pass-Through Entity” or “Prime Recipient”) and Subrecipient (or “Subcontractor”).

1. Background

NYBC, with the assistance of Subcontractor and other collaborators, has received funding for research proposed in a grant application submitted to the National Institutes of Health (“NIH”), an agency of the United States Department of Health and Human Services (“HHS”). The NIH grant (“Prime Grant” or “Prime Award”) contemplates that the research will be undertaken by a consortium of institutions, acting under the direction of NYBC, and further specifies that various aspects of the research will be undertaken at specified collaborating institutions, including Subcontractor. The purposes of this Agreement, a copy of which will be submitted to NIH if requested, is to set forth the responsibilities and obligations of each party to this Agreement. All requirements and conditions set forth in the Prime Grant, attached hereto, are hereby incorporated by reference into this Agreement.

2. Statement of Work

Subcontractor shall provide the necessary personnel, services, equipment and facilities (except as otherwise specifically provided herein) to perform the work, as more fully set forth in the Statement of Work, as set forth in **Attachment 5** of the **Research Subaward Agreement** and incorporated herein (the “Research Project”).

3. Period of Performance

The term of this Agreement shall be for the **Subaward Period of Performance**. Unless specifically identified in the grant application accepted by NIH, NYBC shall not reimburse Subcontractor for any expenses incurred prior to the Project Start Date or subsequent to the Project End Date. Nor may the Subcontractor seek reimbursement from NYBC for expenses other than those specified in the budget submitted to and approved by NIH as part of the Prime Grant. The period of this Agreement may be extended annually by the mutual written consent of both parties. This Agreement will not under any circumstances extend beyond the expiration or termination of the Prime Grant.

4. Invoices and Payment

Subcontractor shall submit invoices to NYBC for payment of Subcontractor's costs that are allowable and allocable to this Agreement. Subcontractor's invoices shall be in the form and contain all certifications reasonably required by the Prime Grant and shall include the invoice date; the Prime Grant number; the names, titles, and percent effort of all personnel charged to the Prime Grant; and a complete breakout of the costs incurred by budget category for the goods or services encompassed by the invoice.

Invoices shall be submitted monthly, no later than 30 days after the last day of the month to which the invoice relates to: APINVOICES@nybc.org. All invoices should reference the Purchase Order # for the applicable time period.

A final invoice for each budget period must be submitted within 60 calendar days after the budget period's termination date and be marked "**Final Invoice.**"

Subcontractor's invoices shall be prepared in a manner that is consistent with the budget that has been submitted to and approved by the grants officer. Subcontractor shall not invoice NYBC for costs not included in that budget or in excess of the amounts set forth in the budget.

Payment of all invoices is contingent upon compliance with the terms and conditions of this Agreement and the Prime Grant application as it applies to Subcontractor, and the propriety of the costs incurred, as determined by NYBC. Subcontractor shall reimburse NYBC for any amounts contained in Subcontractor's invoices and paid by NYBC that are subsequently determined by NYBC or the NIH to be unallowable or unallocable to the performance of this Agreement.

If NYBC's Prime Grant is incrementally funded, it is understood that this Agreement is funded only to the extent funds are available to pay Subcontractor in accordance with the Prime Grant, and that Subcontractor will be paid only to the extent funds are available for allocation to Subcontractor under the Prime Grant. NYBC shall notify Subcontractor thirty (30) days in advance of any period for which the Prime Grant has not been funded. In the absence of funding available for allocation to Subcontractor under the Prime Grant, NYBC may direct Subcontractor to stop work until such time as funding becomes available. Such a direction to stop work shall not entitle Subcontractor to reimbursement for any additional cost.

Subcontractor agrees to incorporate the requirements of this section, including the applicability of the appropriate set of cost principles, in any lower-tier cost reimbursement sub-grant or subcontract it enters into.

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Although each institution will be involved in performing important aspects of the proposed research, NYBC, as the grantee, is the sole entity legally responsible to the Secretary of HHS for ensuring that the research will be conducted as proposed in the Prime Grant. Accordingly, Subcontractor agrees that in carrying out its research responsibilities under this Agreement and the Prime Grant, it shall take direction from and abide by the decisions of NYBC and its Principal Investigator. Subcontractor shall address all questions concerning the scope of work or its performance of the scope of work to the NYBC Principal Investigator. Subcontractor shall provide all information reasonably requested by NYBC's Principal Investigator or his/her designee to permit NYBC to direct and monitor Subcontractor's work.

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- b. Materials developed solely by NYBC, whether developed before or after the Effective Date, together with progeny and unmodified derivatives, will be owned solely by NYBC (“NYBC Research Materials”); materials developed solely by Subcontractor, whether developed before or after the Effective Date, together with progeny and unmodified derivatives, will be owned solely by Subcontractor (“Subcontractor Research Materials”); and materials developed jointly by researchers at NYBC and Subcontractor in the course of the Research Project will be owned jointly (“Jointly Developed Research Materials”). All materials that may be transferred hereunder are sometimes hereinafter referred to as “Research Materials,” singly or collectively. Legal title to any Research Materials transferred hereunder shall be unaffected by this Agreement or the transfer made hereunder. Subcontractor shall use NYBC Research Materials only in work done in the course of the Research Project, and only in Subcontractor’s laboratory in research by laboratory personnel under his/her immediate and direct control. Subcontractor shall not transfer or share any NYBC Research Materials with other institutions or entities without NYBC’s written consent.

8. Reporting

Subcontractor acknowledges that the Prime Grant and applicable laws, regulations and NIH policies impose on NYBC certain reporting requirements (for example, periodic reports on the performance of the grant work, financial status reports, annual reports and final reports). Subcontractor agrees to provide NYBC with requested reports and with the information that NYBC needs concerning all aspects of Subcontractor’s performance of its work so that NYBC may make full and accurate reports to appropriate government personnel. NYBC will inform Subcontractor of the information it needs and the date when such information is needed from Subcontractor. To the extent possible, NYBC will provide Subcontractor at least ten (10) business days to provide the information needed. Timely response to requests for information shall be a condition for payment of Subcontractor’s invoices.

9. Confidentiality.

Subject to Section 10, below, each party shall cause all Confidential Information, that is disclosed to it by the other party in connection with the Research Project to be treated according to the same internal security procedures and with the same degree of care regarding its secrecy and confidentiality as the party receiving the disclosure treats similar information of its own within its organization. Confidential Information shall mean without limitation any information, data or know-how which relates to the research, business, services or products of the disclosing party, including, without limitation, any computer programs, algorithms, specifications, schematics, records, data, drawings, biological samples, notes, reports, processes, formulas, methodologies, conceptual or developmental products, compilations, trade secrets, copyrights, inventions, patent applications, financial information, business plans, or personnel, marketing or sales information, which is disclosed by the disclosing party or on its behalf, before or after the date hereof, to the receiving party either in writing, orally, by inspection or in any other form or medium, and may include information obtained from third parties which is subject to obligations of secrecy and confidentiality on behalf of the disclosing party. These obligations of confidentiality and non-use shall not apply to Confidential Information which:

- a. is in the public domain by use and/or publication before its receipt from the disclosing party, or thereafter enter the public domain through no fault of the receiving party;
- b. was already in the receiving party's possession prior to receipt from the disclosing party, as evidenced by the receiving party's written records;
- c. is properly obtained by the receiving party from a third party which has a valid right to disclose such information to the receiving party and is not under a confidentiality obligation to the disclosing party; or
- d. is developed independently by the receiving party without knowledge of the information provided by the disclosing party.

In addition, the receiving party may disclose Confidential Information if required by law, government regulation, or court order, provided that the disclosing party is promptly notified in writing in advance of any such requirement so that it has an opportunity to oppose or limit such disclosure.

10. Publication and Rights to Data

The contemplated research is necessarily a collaborative effort of many scientists and institutions, including NYBC and Subcontractor. To ensure that articles, abstracts and related publications accurately reflect the scientific work of the collaborators, all documents, manuscripts or other disclosures reporting on data or other results of the research conducted under the Prime Grant must be reviewed in advance by the NYBC Principal Investigator. Furthermore, the NYBC Principal Investigator is authorized to resolve any authorship or authorship priority issues that may arise. The NYBC Principal Investigator may ask that a publication or presentation be temporarily delayed for no longer than sixty (60) days so as not to undermine intellectual property interests or rights of one or more of the collaborators.

Without limiting Subcontractor's publication rights or rights to data as set forth in this section, the original versions of all data collected or recorded pursuant to the Prime Grant shall be the sole property of NYBC. NYBC, however, shall provide all collaborating institutions, including Subcontractor, with such copies as they may request. Subcontractor agrees not to release or share any data generated or gathered under the Prime Grant with any person or entity, other than those collaborating on the proposed research, without the prior written consent of the NYBC Principal Investigator.

11. Publicity

Subcontractor and NYBC shall not use, expressly or by implication, the name(s) or trademark(s) of the other party or its staff in any news release, publicity, policy recommendation, advertising or commercial communication without the prior written approval of the other party.

12. Patent Rights

Patents and inventions shall be treated in accordance with P.L. 96-517, as amended, 35 U.S.C., Chapter 18, entitled "**Patent Rights in Inventions Made with Federal Assistance**," the government-wide implementing regulations in 37 C.F.R. Part 401, and Appendix 9 from the PHS Grants Policy Statement. Subcontractor warrants that it has in place a patent policy that complies with the provisions of federal law.

Under federal law, NYBC, as the grantee, is required to notify NIH of any inventions developed with NIH grant funds. To permit NYBC to discharge this responsibility, Subcontractor agrees to and

shall within 60 calendar days of learning that an invention had been conceived of by its employees or agents with funds made available under the Prime Grant or this Agreement (i) notify NYBC in writing of such invention and (ii) provide NYBC with such information about the invention so as to enable NYBC to fully notify NIH.

Any inventions created as a result of the work performed under this Agreement shall remain the property of the originating party; provided, however, that if such an invention is conceived of by at least one employee of the Subcontractor and no employee of NYBC is an inventor, then the Subcontractor shall grant to NYBC a non-exclusive, worldwide, royalty-free fully paid-up license to practice the invention for research purposes.

In the event of joint inventions, NYBC and Subcontractor shall establish their respective rights pursuant to good faith negotiations between them. The parties agree to consult with one another prior to taking any action to obtain patent protection of joint inventions and shall agree upon the patent filing and prosecution strategy of any joint invention. Subject to the terms of the Prime Grant, the parties agree to cooperate to utilize and exploit any joint invention. Neither party has any right to utilize or exploit any joint invention without the express written permission of the other party, which shall not be unreasonably withheld. Nothing in this paragraph shall alter the rights of the Government under federal law including without limitation rights in patents, technical data, computer software, copyrights and other intellectual property.

13. Indemnification

To the extent authorized by law, Subcontractor shall indemnify, save and hold harmless NYBC, its employees and agents, against any and all claims, damages, liability and court awards including costs, expenses, and reasonable attorney's fees incurred as a result of any gross negligence, willful misconduct or omission by Subcontractor, or its employees, agents, subcontractors, or assignees in connection with its performance of the Agreement.

To the extent authorized by law, NYBC shall indemnify, save and hold harmless Subcontractor, its employees and agents, against any and all claims, damages, liability and court awards including costs, expenses, and reasonable attorney's fees incurred as a result of any gross negligence, willful misconduct or omission by NYBC, or its employees, agents subcontractors, assignees in connection with its performance of the Agreement.

14. Insurance

Subcontractor agrees to maintain coverage for workmen's compensation, as required by applicable state law, and comprehensive general liability insurance and employer's liability insurance either through commercial insurance or a reasonable self-insurance mechanism in an amount no less than \$1 million per incident and \$3 million in the aggregate.

15. Equal Opportunity

Subcontractor will comply with all applicable federal laws regarding equal opportunity in employment, including without limitation Title VI of the Civil Rights Act of 1964; Executive Order 11246; and Section 504 of the Rehabilitation Act of 1973; as each may be amended.

This NYBC and Subcontractor shall abide by the requirements of 41 CFR §§ 60-1.4(a), 60-300.5(a) and 60-741.5(a). These regulations prohibit discrimination against qualified individuals based on their status as protected veterans or individuals with disabilities, and prohibit discrimination against all individuals based on their race, color, religion, sex, or national origin. Moreover, these regulations require that covered prime contractors and subcontractors take affirmative action to employ and advance

in employment individuals without regard to race, color, religion, sex, national origin, protected veteran status or disability.

16. Drug-Free Workplace Requirements

Subcontractor certifies that it will carry out the provisions relating to maintaining a drug-free workplace as required by 45 C.F.R. Part 76, subpart F.

17. Assignment

This Agreement is not assignable without the written consent of both parties. Any such attempted assignment shall be void and of no legal effect.

18. Termination

This Agreement may be terminated as follows: (i) Either party may terminate with cause upon thirty (30) days written notice; or (ii) NYBC may terminate, effective on the date Subcontractor receives written notice, if the Prime Grant terminates. Upon its issuance or receipt of a termination notice, Subcontractor shall cancel as many outstanding obligations as possible, work shall stop, and Subcontractor shall not incur new obligations after the effective date of termination.

At the conclusion of the Agreement, Subcontractor shall deliver to NYBC all work, materials and data produced or acquired under this Agreement. NYBC shall pay Subcontractor for costs incurred and/or irrevocably obligated prior to the effective date of termination in accordance with the applicable termination cost principle. In the event of termination by NYBC for Subcontractor's failure to perform, NYBC may proceed with the work in any manner deemed proper by NYBC.

19. Independent Contractor Status

The relationship between the parties under this Agreement is that of independent contractors. Neither party is authorized or permitted to act as an agent or employee of the other. Neither party, by virtue of this Agreement, assumes any liability for any debts or obligations incurred by the other party to this Agreement.

20. Scientific Misconduct Certification

Subcontractor certifies that it has in place procedures for responding to allegations of **"misconduct in science"**.

In the event that Subcontractor learns of an allegation that any of its employees or agents, or any of the employees or agents of any lower-tier subcontractor performing work under this Agreement, has engaged in **"misconduct in science"** with respect to such work, Subcontractor shall immediately notify NYBC of such allegation and shall provide NYBC, NIH, or the Office of Research Integrity (**"ORI"**) with such information as each may request concerning said allegation.

Upon learning of an allegation of misconduct in science, as described above, Subcontractor shall immediately undertake an **"inquiry,"** and if warranted, an **"investigation"**. Subcontractor shall immediately notify NYBC of the results of any such inquiry and investigation and shall provide NYBC with any reports prepared by Subcontractor concerning the inquiry or investigation, as the case may be. In the event that the matter proceeds to an investigation, Subcontractor shall also advise ORI that Subcontractor intends to undertake such an investigation.

21. Physician Payment Sunshine Provisions

Subcontractor understands and acknowledges that, in accordance with the Physician Payment Sunshine Provision of the Patient Protection and Affordable Care Act of 2010 (“PPACA”), Section 6002, and all implementing regulations, NYBC is required to report to the Secretary of Health and Human Services for public disclosure all covered payments and transfers of value made under this Agreement from NYBC to Subcontractor if Subcontractor is a physician currently licensed to practice in the United States or is a teaching hospital, as defined by the PPACA and its implementing regulations (“Covered Recipient”). Such information required to be reported shall include the name and address of the Covered Recipient, the amount of the payment or transfer of value, the date of the payment or transfer of value, the nature and form of the payment or transfer of value, and, if the payment or transfer of value is related to research specific to a covered drug, device, biological or medical supply, the name of that covered drug, device, biological or medical supply.

22. Animal Welfare Certification

If the grant application proposes research involving the care and use of animals, under federal law, each institution at which such research is to be conducted should have on file with OPRR an **“Assurance of Compliance with PHS Policy on Humane Care and Use of Laboratory Animals”** acceptable to OPRR which among other things describes the institution’s program for animal care and use and which acknowledges that the institution has in place an Institutional Animal Care and Use Committee (“IACUC”).

In the event that there are animals involved in the proposed research which will be maintained under the aegis of Subcontractor, Subcontractor certifies that it has on file with OPRR an approved **“Assurance of Compliance with PHS Policy on Humane Care and Use of Laboratory Animals”** and further certifies that its IACUC approved those aspects of the grant application involving the care or use of animals. Subcontractor further agrees to take such actions as may be required to ensure the humane treatment of laboratory animals and to comply fully with the requirements of both the PHS Policy on Humane Care and Use of Laboratory Animals and 9 C.F.R. Part 2.

23. Significant Financial Interest and Financial Conflict of Interest Certification

Subcontractor certifies that it is in compliance with all the requirements of 42 C.F.R. Part 50, Subpart F and 45 C.F.R. Part 94, related to identifying, reporting and managing Significant Financial Interests and Financial Conflicts of Interest.

Subcontractor certifies that none of the investigators or other personnel responsible for the design, conduct or reporting of the research relevant to the Prime Grant or Research Project, nor any spouse, domestic partner or dependent child of such individual, has any Significant Financial Interest or Financial Conflict of Interest as defined in the above-referenced regulations.

In the event Subcontractor learns of any Significant Financial Interest or Financial Conflict of Interest, Subcontractor shall immediately notify NYBC of such and shall provide NYBC with any information it may request concerning such Significant Financial Interest or Financial Conflict of Interest. Subcontractor shall further undertake all measures required under the above-referenced regulations to properly report and manage the identified Significant Financial Interest or Financial Conflict of Interest.

24. Other Certifications

Acceptance of this Agreement constitutes certification that Subcontractor is not presently debarred, suspended, proposed for disbarment, declared ineligible or voluntarily excluded from covered transactions by any federal department or agency.

Acceptance of this Agreement constitutes certification that Subcontractor complies with the Uniform Guidance, will provide notice of the completion of required audits and any adverse findings which impact this subaward as required by parts 200.501-200.521, and will provide access to records as required by parts 200.336, 200.337 and 200.201, as applicable.

Acceptance of this Agreement constitutes certification that Subcontractor is not delinquent on any federal debt.

Acceptance of this Agreement constitutes certification that to the best of signatory's knowledge and belief:

(1) No federal appropriated funds have been paid or will be paid, by or on behalf of Subcontractor, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any federal contract, the making of any federal grant, the making of any federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any federal contract, grant, loan, or cooperative agreement.

(2) If funds other than federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this federal contract, grant loan, or cooperative agreement, Subcontractor shall complete and submit Standard Form - LLL, "**Disclosure Form to Report Lobbying**," in accordance with its instructions.

(3) Subcontractor shall require that the language of this certification be included in the award documents for all sub-awards at all tiers (including subcontracts, sub-grants, and contracts under grants, loans, and cooperative agreements) and that all sub-recipients shall certify and disclose accordingly.

Subcontractor agrees to notify NYBC immediately if there is any change of status in the certifications above or other certifications or assurances required under law or by this Agreement.

25. Record Retention

As required by 45 CFR § 74.53, the Subcontractor agrees to retain for the "retention period" all records related in any way to the work performed under this Agreement. The retention period is three (3) years after the later of (i) receipt of final payment under this Agreement or (ii) all pending matters are closed. Provided, however, if an audit, administrative action, investigation, litigation or other action is commenced during the retention period, the records must be retained by the Subcontractor until all issues arising out of the action are fully and finally resolved or until the end of the normal retention period, whichever is later. This provision shall be included in any agreement between Subcontractor and a lower-tier subcontractor or subgrantee to perform work under this Agreement.

26. Choice of Law; Jurisdiction

This Agreement shall be construed in the federal courts located in the State of New York and enforced in accordance with the laws of the State of New York, excluding its laws on conflicts of laws.

27. Force Majeure

The parties shall be excused from any performance required under this Agreement if performance is impossible or unfeasible due to any event beyond their reasonable control, including without limitation war, riot or insurrection; government action or inaction; lockouts or other serious labor disputes; or floods, fires, explosions, or other natural disasters. When such events abate, and in any event within one year, the parties' respective obligations will resume.

28. Severability

Each clause of this Agreement is a distinct and severable clause and if any clause is deemed illegal, void or unenforceable, the validity, legality or enforceability of any other clause or portion of this Agreement will not be affected.

29. Counterparts

This Agreement may be executed in one or more counterparts, all of which taken together shall constitute one original.

30. Titles

All titles and article headings contained in this Agreement are inserted only as a matter of convenience and reference. They do not define, limit, extend or describe the scope of this Agreement or the intent of any of its provisions.

31. Entire Agreement

This Agreement, together with any and all attachments incorporated by reference, constitutes the full and complete understanding of the parties regarding the subject matter hereof. No modification or alteration of or addition to this Agreement shall be effective to bind the parties hereto unless it shall be in writing and signed by authorized representatives of the parties.

IN WITNESS WHEREOF, the authorized officers of the respective parties do hereby set their hand.

NEW YORK BLOOD CENTER, INC.

UNIVERSITY OF MINNESOTA

New York, New York

Minneapolis, MN

Signed

Signed

Barry A. Greene, M.P.A
Name

Name

Executive Director,
Office of Sponsored Programs
Title

Title

Date

Date



RESEARCH
Department of Health and Human Services
National Institutes of Health

Notice of Award

Federal Award Date: 05/21/2018



NATIONAL INSTITUTE OF ALLERGY AND INFECTIOUS DISEASES

Grant Number: 1R01AI139092-01

FAIN: R01AI139092

Principal Investigator(s):

Lanying Du, PHD

Project Title: Structure-based design of coronavirus subunit vaccines

Mr. Greene, Barry A., MPA
Executive Director
310 East 67 Street
New York, NY 100656275

Award e-mailed to: researchadmin@nybloodcenter.org

Period Of Performance:

Budget Period: 05/21/2018 – 04/30/2019

Project Period: 05/21/2018 – 04/30/2023

Dear Business Official:

The National Institutes of Health hereby awards a grant in the amount of \$911,083 (see “Award Calculation” in Section I and “Terms and Conditions” in Section III) to NEW YORK BLOOD CENTER in support of the above referenced project. This award is pursuant to the authority of 42 USC 241 42 CFR 52 and is subject to the requirements of this statute and regulation and of other referenced, incorporated or attached terms and conditions.

Acceptance of this award including the “Terms and Conditions” is acknowledged by the grantee when funds are drawn down or otherwise obtained from the grant payment system.

Each publication, press release, or other document about research supported by an NIH award must include an acknowledgment of NIH award support and a disclaimer such as “Research reported in this publication was supported by the National Institute Of Allergy And Infectious Diseases of the National Institutes of Health under Award Number R01AI139092. The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health.” Prior to issuing a press release concerning the outcome of this research, please notify the NIH awarding IC in advance to allow for coordination.

Award recipients must promote objectivity in research by establishing standards that provide a reasonable expectation that the design, conduct and reporting of research funded under NIH awards will be free from bias resulting from an Investigator’s Financial Conflict of Interest (FCOI), in accordance with the 2011 revised regulation at 42 CFR Part 50 Subpart F. The Institution shall submit all FCOI reports to the NIH through the eRA Commons FCOI Module. The regulation does not apply to Phase I Small Business Innovative Research (SBIR) and Small Business Technology Transfer (STTR) awards. Consult the NIH website <http://grants.nih.gov/grants/policy/coi/> for a link to the regulation and additional important information.

If you have any questions about this award, please contact the individual(s) referenced in Section IV.

Sincerely yours,

Chernay L. Mason
Grants Management Officer
NATIONAL INSTITUTE OF ALLERGY AND INFECTIOUS DISEASES

Additional information follows

SECTION I – AWARD DATA – 1R01AI139092-01

Award Calculation (U.S. Dollars)

| | |
|--|-----------|
| Salaries and Wages | \$82,628 |
| Fringe Benefits | \$27,268 |
| Personnel Costs (Subtotal) | \$109,896 |
| Materials & Supplies | \$16,000 |
| Travel | \$3,000 |
| Other | \$30,000 |
| Subawards/Consortium/Contractual Costs | \$569,748 |

| | |
|---|------------------|
| Federal Direct Costs | \$728,644 |
| Federal F&A Costs | \$182,439 |
| Approved Budget | \$911,083 |
| Total Amount of Federal Funds Obligated (Federal Share) | \$911,083 |
| TOTAL FEDERAL AWARD AMOUNT | \$911,083 |

AMOUNT OF THIS ACTION (FEDERAL SHARE) **\$911,083**

| SUMMARY TOTALS FOR ALL YEARS | | |
|------------------------------|------------|-------------------|
| YR | THIS AWARD | CUMULATIVE TOTALS |
| 1 | \$911,083 | \$911,083 |
| 2 | \$845,133 | \$845,133 |
| 3 | \$839,218 | \$839,218 |
| 4 | \$831,474 | \$831,474 |
| 5 | \$825,463 | \$825,463 |

Recommended future year total cost support, subject to the availability of funds and satisfactory progress of the project

Fiscal Information:

CFDA Name: Allergy and Infectious Diseases Research
CFDA Number: 93.855
EIN: 1131949477A1
Document Number: RAI139092A
PMS Account Type: P (Subaccount)
Fiscal Year: 2018

| IC | CAN | 2018 | 2019 | 2020 | 2021 | 2022 |
|----|---------|-----------|-----------|-----------|-----------|-----------|
| AI | 8472364 | \$911,083 | \$845,133 | \$839,218 | \$831,474 | \$825,463 |

Recommended future year total cost support, subject to the availability of funds and satisfactory progress of the project

NIH Administrative Data:

PCC: M51C B / **OC:** 414A / **Released:** MASONC 05/15/2018
Award Processed: 05/21/2018 12:04:20 AM

SECTION II – PAYMENT/HOTLINE INFORMATION – 1R01AI139092-01

For payment and HHS Office of Inspector General Hotline information, see the NIH Home Page at <http://grants.nih.gov/grants/policy/awardconditions.htm>

SECTION III – TERMS AND CONDITIONS – 1R01AI139092-01

This award is based on the application submitted to, and as approved by, NIH on the above-titled project and is subject to the terms and conditions incorporated either directly or by reference in the following:

- a. The grant program legislation and program regulation cited in this Notice of Award.
- b. Conditions on activities and expenditure of funds in other statutory requirements, such as those included in appropriations acts.

- c. 45 CFR Part 75.
- d. National Policy Requirements and all other requirements described in the NIH Grants Policy Statement, including addenda in effect as of the beginning date of the budget period.
- e. Federal Award Performance Goals: As required by the periodic report in the RPPR or in the final progress report when applicable.
- f. This award notice, INCLUDING THE TERMS AND CONDITIONS CITED BELOW.

(See NIH Home Page at <http://grants.nih.gov/grants/policy/awardconditions.htm> for certain references cited above.)

Research and Development (R&D): All awards issued by the National Institutes of Health (NIH) meet the definition of "Research and Development" at 45 CFR Part§ 75.2. As such, auditees should identify NIH awards as part of the R&D cluster on the Schedule of Expenditures of Federal Awards (SEFA). The auditor should test NIH awards for compliance as instructed in Part V, Clusters of Programs. NIH recognizes that some awards may have another classification for purposes of indirect costs. The auditor is not required to report the disconnect (i.e., the award is classified as R&D for Federal Audit Requirement purposes but non-research for indirect cost rate purposes), unless the auditee is charging indirect costs at a rate other than the rate(s) specified in the award document(s).

An unobligated balance may be carried over into the next budget period without Grants Management Officer prior approval.

This grant is subject to Streamlined Noncompeting Award Procedures (SNAP).

This award is subject to the requirements of 2 CFR Part 25 for institutions to receive a Dun & Bradstreet Universal Numbering System (DUNS) number and maintain an active registration in the System for Award Management (SAM). Should a consortium/subaward be issued under this award, a DUNS requirement must be included. See <http://grants.nih.gov/grants/policy/awardconditions.htm> for the full NIH award term implementing this requirement and other additional information.

This award has been assigned the Federal Award Identification Number (FAIN) R01AI139092. Recipients must document the assigned FAIN on each consortium/subaward issued under this award.

Based on the project period start date of this project, this award is likely subject to the Transparency Act subaward and executive compensation reporting requirement of 2 CFR Part 170. There are conditions that may exclude this award; see <http://grants.nih.gov/grants/policy/awardconditions.htm> for additional award applicability information.

In accordance with P.L. 110-161, compliance with the NIH Public Access Policy is now mandatory. For more information, see NOT-OD-08-033 and the Public Access website: <http://publicaccess.nih.gov/>.

In accordance with the regulatory requirements provided at 45 CFR 75.113 and Appendix XII to 45 CFR Part 75, recipients that have currently active Federal grants, cooperative agreements, and procurement contracts with cumulative total value greater than \$10,000,000 must report and maintain information in the System for Award Management (SAM) about civil, criminal, and administrative proceedings in connection with the award or performance of a Federal award that reached final disposition within the most recent five-year period. The recipient must also make semiannual disclosures regarding such proceedings. Proceedings information will be made publicly available in the designated integrity and performance system (currently the Federal Awardee Performance and Integrity Information System (FAPIIS)). Full reporting requirements and procedures are found in Appendix XII to 45 CFR Part 75. This term does not apply to NIH fellowships.

Treatment of Program Income:
Additional Costs

SECTION IV – AI Special Terms and Conditions – 1R01AI139092-01

Clinical Trial Indicator: No

This award does not support any NIH-defined Clinical Trials. See the NIH Grants Policy Statement Section 1.2 for NIH definition of Clinical Trial.

This Notice of Award (NoA) includes funds for activity with **University of Minnesota** in the amount of **\$184,600** (**\$120,000** direct costs + **\$64,600** F&A costs).

This Notice of Award (NoA) includes funds for activity with **Scripps Research Institute** in the amount of **\$232,200** (**\$120,000** direct costs + **\$112,200** F&A costs).

This Notice of Award (NoA) includes funds for activity with **University of Iowa** in the amount of **\$152,948** (**\$100,294** direct costs + **\$52,654** F&A costs).

In accordance with the NIAID Financial Management Plan, NIAID does not provide funds for inflationary increases. Committed future year (s) funding was adjusted accordingly. See: <https://www.niaid.nih.gov/grants-contracts/financial-management-plan>.

The Research Performance Progress Report (RPPR), Section G.9 (Foreign component), includes reporting requirements for all research performed outside of the United States. Research conducted at the following site(s) must be reported in your RPPR:

Beijing Institute of Microbiology and Epidemiology, China

This award may include collaborations with and/or between foreign organizations. Please be advised that short term travel visa expenses are an allowable expense on this grant, if justified as critical and necessary for the conduct of the project.

The budget period anniversary start date for future year(s) will be **May 1**.

Select Agents:

Awardee of a project that at any time involves a restricted experiment with a select agent, is responsible for notifying and receiving prior approval from the NIAID. Please be advised that changes in the use of a Select Agent will be considered a change in scope and require NIH awarding office prior approval. The approval is necessary for new select agent experiments as well as changes in on-going experiments that would require change in the biosafety plan and/or biosafety containment level. An approval to conduct a restricted experiment granted to an individual cannot be assumed an approval to other individuals who conduct the same restricted experiment as defined in the Select Agents Regulation 42 CFR Part 73, Section 13.b (<http://www.selectagents.gov/Regulations.html>).

Highly Pathogenic Agent:

NIAID defines a Highly Pathogenic Agent as an infectious Agent or Toxin that may warrant a biocontainment safety level of BSL3 or higher according to the current edition of the CDC/NIH Biosafety in Microbiological and Biomedical Laboratories (BMBL) (<http://www.cdc.gov/OD/ohs/biosfty/bmb15/bmb15toc.htm>). Research funded under this grant must adhere to the BMBL, including using the BMBL-recommended biocontainment level at a minimum. If your Institutional Biosafety Committee (or equivalent body) or designated institutional biosafety official recommend a higher biocontainment level, the highest recommended containment level must be used.

When submitting future Progress Reports indicate at the beginning of the report:

If no research with a Highly Pathogenic Agent or Select Agent has been performed or is planned to be performed under this grant.

If your IBC or equivalent body or official has determined, for example, by conducting a risk assessment, that the work being planned or performed under this grant may be conducted at a biocontainment safety level that is lower than BSL3.

If the work involves Select Agents and/or Highly Pathogenic Agents, also address the following points:

Any changes in the use of the Agent(s) or Toxin(s) including its restricted experiments that have resulted in a change in the required biocontainment level, and any resultant change in location, if applicable, as determined by your IBC or equivalent body or official.

If work with a new or additional Agent(s)/Toxin(s) is proposed in the upcoming project period, provide:

- o A list of the new and/or additional Agent(s) that will be studied;
- o A description of the work that will be done with the Agent(s), and whether or not the work is a restricted experiment;
- o The title and location for each biocontainment resource/facility, including the name of the organization that operates the facility, and the biocontainment level at which the work will be conducted, with documentation of approval by your IBC or equivalent body or official. It is important to note if the work is being done in a new location.

STAFF CONTACTS

The Grants Management Specialist is responsible for the negotiation, award and administration of this project and for interpretation of Grants Administration policies and provisions. The Program Official is responsible for the scientific, programmatic and technical aspects of this project. These individuals work together in overall project administration. Prior approval requests (signed by an Authorized Organizational Representative) should be submitted in writing to the Grants Management Specialist. Requests may be made via e-mail.

Grants Management Specialist: Adam Graham
Email: adam.graham@nih.gov **Phone:** 301-761-6260 **Fax:** 301-493-0597

Program Official: Erik J. Stemmy
Email: erik.stemmy@nih.gov **Phone:** 240-627-3380

SPREADSHEET SUMMARY

GRANT NUMBER: 1R01AI139092-01

INSTITUTION: NEW YORK BLOOD CENTER

| Budget | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 |
|--|------------------|------------------|------------------|------------------|------------------|
| Salaries and Wages | \$82,628 | \$82,628 | \$82,628 | \$82,628 | \$82,628 |
| Fringe Benefits | \$27,268 | \$27,268 | \$27,268 | \$27,268 | \$27,268 |
| Personnel Costs (Subtotal) | \$109,896 | \$109,896 | \$109,896 | \$109,896 | \$109,896 |
| Materials & Supplies | \$16,000 | \$15,000 | \$14,000 | \$14,000 | \$14,000 |
| Travel | \$3,000 | \$3,000 | \$3,000 | \$3,000 | \$3,000 |
| Other | \$30,000 | \$28,000 | \$27,000 | \$24,000 | \$22,000 |
| Subawards/Consortium/Contractual Costs | \$569,748 | \$567,638 | \$565,283 | \$562,879 | \$560,428 |
| TOTAL FEDERAL DC | \$728,644 | \$723,534 | \$719,179 | \$713,775 | \$709,324 |
| TOTAL FEDERAL F&A | \$182,439 | \$121,599 | \$120,039 | \$117,699 | \$116,139 |
| TOTAL COST | \$911,083 | \$845,133 | \$839,218 | \$831,474 | \$825,463 |

| Facilities and Administrative Costs | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 |
|-------------------------------------|--------|--------|--------|--------|--------|
| | | | | | |

| | | | | | |
|-----------------|-----------|-----------|-----------|-----------|-----------|
| F&A Cost Rate 1 | 78% | 78% | 78% | 78% | 78% |
| F&A Cost Base 1 | \$233,896 | \$155,896 | \$153,896 | \$150,896 | \$148,896 |
| F&A Costs 1 | \$182,439 | \$121,599 | \$120,039 | \$117,699 | \$116,139 |

Re: FW: No change in workscope Subcontract with NYBC for PI: Du, Lanying; 1 R01 AI139092-01

From: Fang Li <lifang@umn.edu>
To: Du, Lanying <LDu@nybc.org>, Anne Mockovak <a-mock@umn.edu>
Sent: June 7, 2018 2:05:59 PM CDT
Received: June 7, 2018 2:05:59 PM CDT

Scope of work for my group:

Dr. Fang Li's group will be responsible for the designs, preparations, and biochemical and structural studies of coronavirus RBD vaccines (wild type or mutants).

On Thu, Jun 7, 2018 at 12:01 PM, Du, Lanying <LDu@nybc.org> wrote:

From: Walton, Theresa
Sent: Wednesday, June 06, 2018 2:27 PM
To: 'Brett Carlson'
Cc: Du, Lanying; Anne M Mockovak-1
Subject: RE: No change in workscope Subcontract with NYBC for PI: Du, Lanying; 1 R01 AI139092-01

Hi Brett,

My apologies, see attached. I am new to NYBC and did not find the original scope of work in our files which is why I requested in again.

Thanks,

Theresa R. Walton, MPA

Manager, Grants & Contract Proposals

Office of Sponsored Programs

New York Blood Center

310 East 67th Street

New York, NY 10065

T: 212-570-3150

twalton@nybc.org

MERS project_proposal

From: Du, Lanying <LDu@nybc.org>
To: Fang Li <lifang@umn.edu>, Perlman, Stanley (stanley-perlman@uiowa.edu) <stanley-perlman@uiowa.edu>, Jiang Zhu (jiang@scripps.edu) <jiang@scripps.edu>
Sent: June 7, 2018 2:29:47 PM CDT
Received: June 7, 2018 2:30:08 PM CDT
Attachments: Submitted proposal.pdf

Hi all,

The attached is the submitted proposal for your review.

Best regards,

Lanying

-----Original Appointment-----

From: Du, Lanying
Sent: Wednesday, May 30, 2018 12:03 PM
To: Perlman, Stanley (stanley-perlman@uiowa.edu); Fang Li; Jiang Zhu (jiang@scripps.edu)
Subject: MERS project
When: Thursday, June 07, 2018 3:00 PM-4:00 PM (UTC-06:00) Central Time (US & Canada).
Where:

Hi all,

Please see below Call-in information regarding our teleconference.

Date and time:
June 07, 2018, Thursday; 3-4 pm, CDT: (1-2 pm PDT; 4-5 pm EST)

Call-in number:
USA Toll-Free: [REDACTED] followed by [REDACTED]

Best,
Lanying



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1. Submitted proposal.pdf

Type: application/pdf
Size: 1 MB (1,546,106 bytes)

Project Summary

Viral subunit vaccines are safe and convenient, but generally suffer low efficacy. Our overall hypothesis is that an intrinsic limitation is associated with subunit vaccine designs in which artificially exposed surfaces of subunit vaccines contain epitopes unfavorable for vaccine efficacy. The receptor-binding domain (RBD) of a coronavirus spike protein consists of a core subdomain that serves as the structural scaffold and a receptor-binding motif (RBM) that binds the receptor and contains neutralizing epitopes. The RBDs are prime candidates for subunit vaccine designs.

Therefore, this research holds the promise of making subunit vaccines a more successful and widely used strategy in combating virus infections.

Project Narrative

This research establishes that artificially exposed unfavorable epitopes on viral subunit vaccines pose a severe intrinsic limitation to viral subunit vaccine designs. It further develops novel structure-based approaches to overcome this limitation in vaccine design. It produces highly effective subunit vaccines to combat the infections of highly pathogenic coronaviruses such as MERS and SARS coronaviruses, and also has implications for subunit vaccine design against other life-threatening viruses.

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Coronavirus project_061218

From: Du, Lanying <LDu@nybc.org>
To: Fang Li <lifang@umn.edu>, Perlman, Stanley (stanley-perlman@uiowa.edu) <stanley-perlman@uiowa.edu>, Jiang Zhu (jiang@scripps.edu) <jiang@scripps.edu>
Sent: June 12, 2018 11:35:11 AM CDT
Received: June 12, 2018 11:44:43 AM CDT
Attachments: 0601218 Coronavirus Project.docx

Hi all,

The attached is the project summary and plan for the next 3 months. Please feel free to make any comments.

Depending on the progress, we could have another meeting in September, 2018.

Best,
Lanying



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1. 0601218 Coronavirus Project.docx

Type: application/vnd.openxmlformats-officedocument.wordprocessingml.document
Size: 17 KB (17,778 bytes)

Coronavirus project_MERS-CoV S-RBD sequences

From: Du, Lanying <LDu@nybc.org>
To: Jiang Zhu (jiang@scripps.edu) <jiang@scripps.edu>
Cc: Fang Li <lifang@umn.edu>
Sent: June 18, 2018 12:27:41 PM CDT
Received: June 18, 2018 12:27:48 PM CDT
Attachments: MERS-CoV spike RBD sequence.docx

Hi Jiang,

The attached are [REDACTED] sequences for your reference if you want to construct [REDACTED] for both [REDACTED].

Best,
Lanying

From: Du, Lanying
Sent: Tuesday, June 12, 2018 12:35 PM
To: Fang Li; Perlman, Stanley (stanley-perlman@uiowa.edu); Jiang Zhu (jiang@scripps.edu)
Subject: Coronavirus project_061218

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Lanying



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RE: Coronavirus project_MERS-CoV S-RBD sequences

From: Jiang Zhu <jiang@scripps.edu>
To: Du, Lanying <LDu@nybc.org>, Fang Li <lifang@umn.edu>
Cc: Linling He <linling@scripps.edu>
Sent: June 18, 2018 1:41:21 PM CDT
Received: June 18, 2018 1:41:30 PM CDT

Hi Lanying and Fang,

Thanks for sending the sequence. We already made the [REDACTED]. I think the results will come out in a few days.

I cc'd Linling on this email. She is in charge of all experimental projects in my lab.

Best regards
Jiang

From: Du, Lanying <LDu@nybc.org>
Sent: Monday, June 18, 2018 10:28 AM
To: Jiang Zhu <jiang@scripps.edu>
Cc: Fang Li <lifang@umn.edu>
Subject: Coronavirus project_MERS-CoV S-RBD sequences

Hi Jiang,

The attached are MERS-CoV spike [REDACTED] sequences for your reference if you want to construct [REDACTED] for both [REDACTED]

Best,
Lanying

From: Du, Lanying
Sent: Tuesday, June 12, 2018 12:35 PM
To: Fang Li; Perlman, Stanley (stanley-perlman@uiowa.edu); Jiang Zhu (jiang@scripps.edu)
Subject: Coronavirus project_061218

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Re: Coronavirus project_MERS-CoV S-RBD sequences

From: [REDACTED]
To: Jiang Zhu (jiang@scripps.edu) <jiang@scripps.edu>
Cc: Fang Li <lifang@umn.edu>, Du, Lanying <LDu@nybc.org>
Sent: June 18, 2018 2:20:46 PM CDT
Received: June 18, 2018 2:21:29 PM CDT

Hi, Dr. Zhu,

Good afternoon! I'm [REDACTED] from Dr. Fang Li's lab. We have prepared the plasmid of [REDACTED]. Could you please give me your detailed shipping address so that I can ship the plasmid to you?

Thanks very much! Any question please let me know.

Best,

[REDACTED]

On Mon, Jun 18, 2018 at 1:30 PM, Fang Li <lifang@umn.edu> wrote:

Hi [REDACTED]

Please get in touch with Dr. Jiang Zhu at Scripps (CC'ed here) and arrange to send the [REDACTED] to him.

Thanks,
Fang

On Mon, Jun 18, 2018 at 12:27 PM, Du, Lanying <LDu@nybc.org> wrote:

Hi Jiang,

The attached are [REDACTED] sequences for your reference if you want to construct [REDACTED].

Best,

Lanying

From: Du, Lanying
Sent: Tuesday, June 12, 2018 12:35 PM
To: Fang Li; Perlman, Stanley (stanley-perlman@uiowa.edu); Jiang Zhu (jiang@scripps.edu)
Subject: Coronavirus project_061218

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Best,

Lanying



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612-625-6149, lifang@umn.edu
<http://www.msi.umn.edu/~lifang>

RE: Coronavirus project_MERS-CoV S-RBD sequences

From: Du, Lanying <LDu@nybc.org>
To: Jiang Zhu <jiang@scripps.edu>, Fang Li <lifang@umn.edu>
Cc: Linling He <linling@scripps.edu>
Sent: June 18, 2018 2:38:40 PM CDT
Received: June 18, 2018 2:38:47 PM CDT

Hi Jiang,

We have not tested the efficacy of a [REDACTED], but we did compare neutralizing activity of several longer [REDACTED] and found this one induces the highest neutralizing activity [REDACTED]. Since you have constructed the [REDACTED] we could just go ahead to test its neutralizing activity. Once you have it ready, please send some to us, and we can do immunization to compare it with RBD proteins.

Best,
Lanying

From: Jiang Zhu [mailto:jiang@scripps.edu]
Sent: Monday, June 18, 2018 2:52 PM
To: Du, Lanying; Fang Li
Cc: Linling He
Subject: RE: Coronavirus project_MERS-CoV S-RBD sequences

Hi Lanying,

I aligned the [REDACTED] sequences and found that the construct we use is a bit shorter than yours.

Don't think it really matters...



Re: [Viruses] Special Issue "MERS-CoV "- New candidates

From: Allison Yang/MDPI <allison.yang@mdpi.com>
To: Du, Lanying <LDu@nybc.org>, lifang@umn.edu
Cc: viruses@mdpi.com
Sent: June 20, 2018 9:47:09 PM CDT
Received: June 20, 2018 9:47:12 PM CDT

Dear Lanying, dear Fang,

Thank you for checking the list and having sent out more invitations. I will follow up with these invitations.

Until now we have ten 'planned papers' for this special issue. Please feel free to invite more potential authors to participate in this project. Hopefully we could get more papers for this special issue.

Thanks for your input.

Best,
Allison

On 6/21/2018 12:39 AM, Du, Lanying wrote:

Dear Allison,

We have sent out invitations to four more experts in the field. We did not send emails to other people listed in Sheet 2, who are either invited before and accepted (e.g., Vincent Jacobus Munster, Vincent J. Munster) or not appropriate.

Best regards,
Lanying

-----Original Message-----

From: Allison Yang/MDPI [mailto:allison.yang@mdpi.com]
Sent: Wednesday, June 20, 2018 2:06 AM
To: Du, Lanying; lifang@umn.edu
Cc: viruses@mdpi.com
Subject: [Viruses] Special Issue "MERS-CoV "- New candidates

Dear Lanying, dear Fang,

I have looked for some new experts in MERS-CoV field who might be able to contribute to the special issue. Could you have a look at these candidates in Sheet 2? We will appreciate it if you could consider inviting some people from the list.

Thanks for your consideration. I look forward to hearing from you.

Best,
Allison

On 5/28/2018 9:47 PM, Du, Lanying wrote:

Dear Allison,

Thanks for the update. Yes, please send a reminder to the people I invited on May 15..

Best regards,

Lanying

From: Allison Yang/MDPI <allison.yang@mdpi.com>
Sent: Monday, May 28, 2018 4:50 AM
To: Du, Lanying; lifang@umn.edu
Cc: liu.6244@osu.edu; viruses@mdpi.com
Subject: [Viruses] Special Issue "MERS-CoV " - Status Report

Dear Lanying, dear Fang,

I am sending you the May update on your Special Issue "MERS-CoV".

Please find below the current status of the SI and attached the "planned papers" file.

Submission deadline: 30 November 2018

Published papers: 0

Planned papers: 10

Thank you for contacting 10 authors to contribute to this special issue. I have updated the responses received recently in attached Excel table and would like to share if you got new replies in the past days.

Lanying, I will be glad to send a gentle reminders to the people who you invited on 15 May if you did not hear from them. Fang, would you also consider submitting a manuscript to this issue?

Thank you. Please feel free to let me know if you have any questions.

Best regards,

Allison

[New York Blood Center]<<http://www.nybloodcenter.org>>

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[New York Blood Center]<<https://www.facebook.com/newyorkbloodcenter>> [New York Blood Center]

<<https://twitter.com/NYBloodCenter>> [New York Blood Center] <<https://instagram.com/newyorkbloodcenter/>> [New

York Blood Center] <<https://www.youtube.com/user/NewYorkBloodCenter>> [New York Blood Center]

<<https://www.linkedin.com/company/new-york-blood-center>>

Donate Blood<<http://www.nybloodcenter.org/donate-blood/>> | Volunteer<<http://nybloodcenter.org/support-us/volunteer-nybc/>> | Support NYBC<<http://nybloodcenter.org/support-us/financial-contribution/>>

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Re: [Viruses] Manuscript ID: viruses-326414 - Pre Peer-Review Approval

From: Fang Li <lifang@umn.edu>
To: Wynne Wang <wynne.wang@mdpi.com>, Viruses Editorial Office <viruses@mdpi.com>
Cc: Du, Lanying <LDu@nybc.org>
Sent: June 25, 2018 11:52:55 AM CDT
Received: June 25, 2018 11:52:55 AM CDT

I think it can be sent out for peer review. Thanks.

On Sun, Jun 24, 2018 at 10:40 PM, Allison Yang <allison.yang@mdpi.com> wrote:

Dear Lanying, dear Fang,

The paper below is a new submission to Viruses. Could you please check it and give us your opinion as to whether it can be sent for peer-review? I would also like to confirm with you whether this paper is invited by you since Dr. Shibo Jiang is co-author of this paper.

You can find the manuscript file at the following link:

http://susy.mdpi.com/user/pre_decision/process_form/409478/q081VhkLr3oW

You will see there is a list of recommended reviewers provided by either authors or our in-house editors. If any of these are unsuitable, please click the button "Not suitable for this manuscript" to remove them. It would be of great assistance if you could also suggest any people who would make suitable reviews so that we could get in touch with them.

Manuscript ID: viruses-326414

Type of manuscript: Article

Title: A human DPP4-knockin mouse model susceptible to infection by authentic and pseudotyped MERS-CoV

Authors: Changfa Fan, Xi Wu, Qiang Liu, Qianqian Li, Susu Liu, Jianjun Lu, Yanwei Yang, Yuan Cao, Weijin Huang, Chunnan Liang, Tianlei Ying, Shibo Jiang, Youchun Wang *

Received: 24 June 2018

E-mails: fancf@nifdc.org.cn, wuxi@nifdc.org.cn, liuqiang@nifdc.org.cn, 980932706@qq.com, liususu@nifdc.org.cn, lujianjun@nifdc.org.cn, yangyanwei@nifdc.org.cn, caoyuan0512@163.com, huangweijin@nifdc.org.cn, chunnan_liang@nifdc.org.cn, tlying@fudan.edu.cn, shibojiang@fudan.edu.cn, wangyc@nifdc.org.cn

Submitted to section: Animal Viruses,

http://www.mdpi.com/journal/viruses/sections/animal_viruses

MERS-CoV

http://www.mdpi.com/journal/viruses/special_issues/MERS_CoV

Thank you very much for your time, I look forward to hearing from you.

Kind regards,

Allison Yang

Assistant Editor

E-Mail: allison.yang@mdpi.com

MDPI

Viruses Editorial Office

St. Alban-Anlage 66, 4052 Basel, Switzerland

Tel.: +41 61 683 77 34; Fax: +41 61 302 89 18

E-Mail: viruses@mdpi.com

<http://www.mdpi.com/journal/viruses/>

--

Fang Li, Ph.D.

Associate Professor

Department of Veterinary and Biomedical Sciences

University of Minnesota Twin Cities

612-625-6149, lifang@umn.edu

<http://www.msi.umn.edu/~lifang>

Re: Coronavirus project_MERS-CoV S-RBD sequences

From: [REDACTED]
To: Jiang Zhu <jiang@scripps.edu>, Linling He <linling@scripps.edu>
Cc: Fang Li <lifang@umn.edu>, Du, Lanying <LDu@nybc.org>
Sent: July 2, 2018 11:27:08 PM CDT
Received: July 2, 2018 11:27:51 PM CDT

Hi, Dr. Zhu,

Sorry for the late reply. After the discussion with Dr. Li, we are going to send you and Dr. Du the [REDACTED]
[REDACTED]

Thanks a lot! Any question please let me know.

Best,
[REDACTED]

On Sun, Jul 1, 2018 at 4:07 PM, Jiang Zhu <jiang@scripps.edu> wrote:

Hi [REDACTED]

Below is our shipping address:

Dr. Linling He

Scripps Research Institute-California

IMM 306

[9365 WAPLES ST STE E](#)

[SAN DIEGO, CA 92121](#)

[USA](#)

I am also wondering if you can ship us the plasmid of [REDACTED] described in the proposal.

Thanks.

Best regards

Jiang Zhu

Associate Professor

Integrative Structural and Computational Biology

Immunology and Microbiology (Joint)

The Scripps Research Institute

[10550 N Torrey Pines Rd](#)

[La Jolla, CA 92037](#)

Email: jiang@scripps.edu

Phone: 858-784-8157

Fax: 858-784-8720

From: [REDACTED]
Sent: Monday, June 18, 2018 12:21 PM
To: Jiang Zhu <jiang@scripps.edu>
Cc: Fang Li <lifang@umn.edu>; Du, Lanying <LDu@nybc.org>
Subject: Re: Coronavirus project_MERS-CoV S-RBD sequences

Hi, Dr. Zhu,

Good afternoon! I'm [REDACTED] from Dr. Fang Li's lab. We have prepared the [REDACTED]
[REDACTED] Could you please give me your detailed shipping
address so that I can ship the [REDACTED] to you?

Thanks very much! Any question please let me know.

Best,

[REDACTED]

On Mon, Jun 18, 2018 at 1:30 PM, Fang Li <lifang@umn.edu> wrote:

Hi [REDACTED]

Please get in touch with Dr. Jiang Zhu at Scripps (CC'ed here) and arrange to send the [REDACTED] to him.

Thanks,

Fang

On Mon, Jun 18, 2018 at 12:27 PM, Du, Lanying <LDu@nybc.org> wrote:

Hi Jiang,

The attached are [REDACTED] sequences for your reference if you want to construct [REDACTED] for both [REDACTED] mutant.

Best,

Lanying

From: Du, Lanying
Sent: Tuesday, June 12, 2018 12:35 PM
To: Fang Li; Perlman, Stanley (stanley-perlman@uiowa.edu); Jiang Zhu (jiang@scripps.edu)
Subject: Coronavirus project_061218

Hi all,

The attached is the project summary and plan for the next 3 months. Please feel free to make any comments.

Depending on the progress, we could have another meeting in September, 2018.

Best,

Lanying



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--

Fang Li, Ph.D.
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University of Minnesota Twin Cities
612-625-6149, lifang@umn.edu
<http://www.msi.umn.edu/~lifang>

Re: Nature review Microbiology

From: Fang Li <lifang@umn.edu>
To: zlshi <zlshi@wh.iov.cn>
Sent: July 16, 2018 8:31:55 PM CDT
Received: July 16, 2018 8:31:55 PM CDT

Dear Zhengli,

Could you let me know what I am supposed to do with my section of the manuscript? The editor didn't make any suggestion on my section, and so I am not sure what I need to do with it.

Thanks,
Fang

On Sun, Jul 15, 2018 at 10:23 PM, zlshi <zlshi@wh.iov.cn> wrote:

Dear Fang, Jie,

The submission deadline of our review is due on 5th August. Can you please send me your section at least 10 days before the submission?

Thank you for your collaboration.

Best regards,
Zhengli,

SHI Zhengli, Ph. D
Senior Scientist & Professor
Wuhan Institute of Virology, Chinese Academy of Sciences
44 Xiao Hong Shan
430071 Wuhan, Hubei
China
Tel & Fax: (0086) 27 87197240
Email: zlshi@wh.iov.cn

--

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Department of Veterinary and Biomedical Sciences
University of Minnesota Twin Cities
612-625-6149, lifang@umn.edu
<http://www.msi.umn.edu/~lifang>

Re: Re: Fw: Initial editorial feedback for manuscript NRMICRO-17-293S

From: 石正丽 <zlshi@wh.iov.cn>
To: Fang Li <lifang@umn.edu>
Sent: July 17, 2018 7:52:48 PM CDT
Received: July 17, 2018 7:52:58 PM CDT

I don't have specific plan. I think you just need to add a paragraph on the interactions between [REDACTED] and [REDACTED]. Thanks.

-----原始邮件-----

发件人:"Fang Li" <lifang@umn.edu>
发送时间:2018-07-18 00:12:02 (星期三)
收件人: "zlshi@wh.iov.cn" <zlshi@wh.iov.cn>
抄送:
主题: Re: Fw: Initial editorial feedback for manuscript NRMICRO-17-293S

Hi Zhengli,

So should I write a paragraph on the interactions between [REDACTED]? Could you be more specific about the plan?

thanks,
Fang

On Mon, Jul 16, 2018 at 8:40 PM, zlshi@wh.iov.cn <zlshi@wh.iov.cn> wrote:

Dear Fang,

I forward you again the email from the editor. She asked us to add MERS-CoV progress in the manuscript. Please help us to complete this section. Thanks.

Best regards,
Zhengli,

zlshi@wh.iov.cn

From: ursula.hofer1
Date: 2018-06-06 20:36
To: zlshi
Subject: Initial editorial feedback for manuscript NRMICRO-17-293S

Dear Zenghli,

Manuscript number: NRMICRO-17-293S
Title: Genetic evolution and pathogenesis of SARS-related coronaviruses
Authors: Zheng-Li Shi, Jie Cui, and Fang Li
Submission date for revisions: 9th July 2018

I hope this e-mail finds you well. Below and in the attached edited manuscript, I have provided some initial editorial feedback on your article before peer review. At this stage, my aim is to focus on the overall structure, flow and clarity of the manuscript, so my edits and comments are intended to improve these aspects before the article is seen by referees. Please feel free to

discuss any of the suggested changes with me.

You are above our word limit and the current article is narrower than we had expected, so my suggestion would be to make your article a proper review instead of progress article. Regular reviews can have up to 4500 words in the main text (excluding abstract, boxes, figure legends, tables and references). So, this would give you the space to expand on background information about coronaviruses, which might be helpful for unfamiliar readers, and to also include the origin and evolution of MERS coronavirus. Considering the broad microbiology audience that we have, we felt both points, background information and a broad scope, were important. I've made some suggestions for both the text and the display items in the attached word file.

I would be grateful if you could return a revised version of the article to me by 9th July 2018.

If at any time you think you will be unable to meet this deadline, please contact me at your earliest convenience to discuss a new date.

Please use the following link to upload your revised manuscript:



Thank you very much for all your hard work on this piece so far. Please don't hesitate to contact me if you have any questions or wish to discuss any points in this letter. Finally, I would be very grateful if you could acknowledge receipt of this e-mail and confirm whether you will be able to return your revised draft by the suggested date.

Best wishes,
Ursula

Ursula Hofer, MD PhD
Chief Editor, Nature Reviews Microbiology
[4 Crinan Street](#)
[London](#)
[N1 9XW](#)
[e-mail:ursula.hofer1@nature.com](mailto:ursula.hofer1@nature.com)
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Department of Veterinary and Biomedical Sciences
University of Minnesota Twin Cities
612-625-6149, lifang@umn.edu
<http://www.msi.umn.edu/~lifang>

Re: ACVA email list

From: Meng, X.J. <xjmeng@vt.edu>
To: Liu, Shan-Lu <liu.6244@osu.edu>, zhengt@exchange.nih.gov, haitguo@iupui.edu, tzhou@mail.nih.gov, GCheng@mednet.ucla.edu, liangy@umn.edu, rli@vcu.edu, wma@vet.kstate.edu, Zhijian.Chen@UTSouthwestern.edu, mluo@gsu.edu, zhangyj@umd.edu, xzhu1@umd.edu, jqiu@kumc.edu, lijun@uic.edu, fengwei.bai@usm.edu, andyu@iupui.edu, Wang, Xiaofeng <reachxw@vt.edu>, gluo@uab.edu, ldu@nybc.org, hxu@tulane.edu, liu_fy@berkeley.edu, shitao.li@okstate.edu, Shan.lu@umassmed.edu, haihu@UTMB.edu, wenzheho@temple.edu, Qfeng4@central.uh.edu, tang@bio.fsu.edu, feng.li@sdstate.edu, ruilu@lsu.edu, sxiang2@unl.edu, qiyi.tang@howard.edu, dingsw@ucr.edu, guohua@missouri.edu, bling@tulane.edu, junwang@pharmacy.arizona.edu, lifang@umn.edu, wang518@umd.edu, gaos8@upmc.edu, pewang@uchc.edu, xiangy@uthscsa.edu, fzhu@bio.fsu.edu, chen.liang@mcgill.ca, Yuan, Lijuan <lyuan@vt.edu>, fgao@duke.edu, wangjw28@163.com, xfyu1@zju.edu.cn, bzhao@partners.org, jianw@musc.edu, zyang@ksu.edu, yu.cong@nih.gov, weiming.yuan@usc.edu, Zongdi.feng@nationwidechildrens.org, juh13@psu.edu, hengx@missouri.edu, lsu@med.unc.edu, ywu8@gmu.edu, jwu@whu.edu.cn, tshuo@uic.edu, Shibojiang@fudan.edu.cn, sjiang@nybc.org, pinwang@usc.edu, rzhao@som.umaryland.edu, shuylong@mail.sysu.edu.cn, xuefeng.liu@georgetown.edu, yuxingli@som.umaryland.edu, shixia.wang@umassmed.edu, yhe@ipbcams.ac.cn, Pinghui.feng@usc.edu, jutao.guo@bblumberg.org, lin.liu@okstate.edu, hua.zhu@rutgers.edu, Jinhong.chang@bblumberg.org, jianzhu1012@gmail.com, ronghai@ucr.edu, jun.zhu@nih.gov, jliu4@uams.edu, xiangpeng.kong@med.nyu.edu, haoquanwu@outlook.com, Wenjun.liu@defence.gov.au, Liang.shan@wustl.edu, hliao@duke.edu, Yuan, Yan <yuan2@upenn.edu>, zxing@umn.edu, hongmin.li@health.ny.gov, pzheng@ihv.umaryland.edu, yaliu@ihv.umaryland.edu
Sent: July 19, 2018 5:18:34 PM CDT
Received: July 19, 2018 5:19:02 PM CDT

Dear Shan-Lu: Thanks for your leadership, time and efforts! I recognized quite a few familiar faces in the picture. Sorry that I could not attend this historic meeting (was in Clymer NY at the time). Best, --XJ

X.J. Meng, M.D., Ph.D.
University Distinguished Professor
Department of Biomedical Sciences and Pathobiology
Virginia-Maryland College of Veterinary Medicine

Professor of Internal Medicine
Department of Internal Medicine
Virginia Tech Carilion School of Medicine

Virginia Polytechnic Institute and State University
1981 Kraft Drive
Blacksburg, Virginia 24061-0913
Phone: 540-231-6912
E-mail: xjmeng@vt.edu

Webpage: <http://www.tinyurl.com/mengxj>

From: "Liu, Shan-Lu" <liu.6244@osu.edu>

Date: Thursday, July 19, 2018 at 12:56 PM

To: Zhi-Ming Zheng <zhengt@exchange.nih.gov>, "haitguo@iupui.edu" <haitguo@iupui.edu>,

"tzhou@mail.nih.gov" <tzhou@mail.nih.gov>, "GCheng@mednet.ucla.edu" <GCheng@mednet.ucla.edu>, "liangy@umn.edu" <liangy@umn.edu>, "rli@vcu.edu" <rli@vcu.edu>, "wma@vet.kstate.edu" <wma@vet.kstate.edu>, "X.J. Meng" <xjmeng@vt.edu>, "Zhijian.Chen@UTSouthwestern.edu" <Zhijian.Chen@UTSouthwestern.edu>, "mluo@gsu.edu" <mluo@gsu.edu>, Yanjin Zhang <zhangyj@umd.edu>, XiaoPing Zhu <xzhu1@umd.edu>, "jqiu@kumc.edu" <jqiu@kumc.edu>, "lijun@uic.edu" <lijun@uic.edu>, "fengwei.bai@usm.edu" <fengwei.bai@usm.edu>, "andyu@iupui.edu" <andyu@iupui.edu>, "Wang, Xiaofeng" <reachxw@vt.edu>, "gluo@uab.edu" <gluo@uab.edu>, "ldu@nybc.org" <ldu@nybc.org>, "hxu@tulane.edu" <hxu@tulane.edu>, "liu_fy@berkeley.edu" <liu_fy@berkeley.edu>, "shitao.li@okstate.edu" <shitao.li@okstate.edu>, "Shan.lu@umassmed.edu" <Shan.lu@umassmed.edu>, "haihu@UTMB.edu" <haihu@UTMB.edu>, "wenzheho@temple.edu" <wenzheho@temple.edu>, "Qfeng4@central.uh.edu" <Qfeng4@central.uh.edu>, "tang@bio.fsu.edu" <tang@bio.fsu.edu>, "feng.li@sdsstate.edu" <feng.li@sdsstate.edu>, "ruilu@lsu.edu" <ruilu@lsu.edu>, "sxiang2@unl.edu" <sxiang2@unl.edu>, "qiyi.tang@howard.edu" <qiyi.tang@howard.edu>, "dingsw@ucr.edu" <dingsw@ucr.edu>, "guohua@missouri.edu" <guohua@missouri.edu>, "bling@tulane.edu" <bling@tulane.edu>, "junwang@pharmacy.arizona.edu" <junwang@pharmacy.arizona.edu>, "lifang@umn.edu" <lifang@umn.edu>, "wang518@umd.edu" <wang518@umd.edu>, "gaos8@upmc.edu" <gaos8@upmc.edu>, "pewang@uchc.edu" <pewang@uchc.edu>, "xiangy@uthscsa.edu" <xiangy@uthscsa.edu>, "fzhu@bio.fsu.edu" <fzhu@bio.fsu.edu>, "chen.liang@mcgill.ca" <chen.liang@mcgill.ca>, Lijuan Yuan <lyuan@vt.edu>, "fgao@duke.edu" <fgao@duke.edu>, "wangjw28@163.com" <wangjw28@163.com>, "xfyu1@zju.edu.cn" <xfyu1@zju.edu.cn>, "bzhao@partners.org" <bzhao@partners.org>, "jianw@musc.edu" <jianw@musc.edu>, "zyang@ksu.edu" <zyang@ksu.edu>, "yu.cong@nih.gov" <yu.cong@nih.gov>, "weiming.yuan@usc.edu" <weiming.yuan@usc.edu>, "Zongdi.feng@nationwidechildrens.org" <Zongdi.feng@nationwidechildrens.org>, Jianming Hu <juh13@psu.edu>, "hengx@missouri.edu" <hengx@missouri.edu>, "lsu@med.unc.edu" <lsu@med.unc.edu>, "ywu8@gmu.edu" <ywu8@gmu.edu>, "jwu@whu.edu.cn" <jwu@whu.edu.cn>, "tshuo@uic.edu" <tshuo@uic.edu>, "Shibojiang@fudan.edu.cn" <Shibojiang@fudan.edu.cn>, "sjiang@nybc.org" <sjiang@nybc.org>, "pinwang@usc.edu" <pinwang@usc.edu>, "rzhao@som.umaryland.edu" <rzhao@som.umaryland.edu>, "shuylong@mail.sysu.edu.cn" <shuylong@mail.sysu.edu.cn>, "xuefeng.liu@georgetown.edu" <xuefeng.liu@georgetown.edu>, "yuxingli@som.umaryland.edu" <yuxingli@som.umaryland.edu>, "shixia.wang@umassmed.edu" <shixia.wang@umassmed.edu>, "yhe@ipbcams.ac.cn" <yhe@ipbcams.ac.cn>, "Pinghui.feng@usc.edu" <Pinghui.feng@usc.edu>, "jutao.guo@bblumberg.org" <jutao.guo@bblumberg.org>, "lin.liu@okstate.edu" <lin.liu@okstate.edu>, "hua.zhu@rutgers.edu" <hua.zhu@rutgers.edu>, "Jinhong.chang@bblumberg.org" <Jinhong.chang@bblumberg.org>, "jianzhu1012@gmail.com" <jianzhu1012@gmail.com>, "ronghai@ucr.edu" <ronghai@ucr.edu>, "jun.zhu@nih.gov" <jun.zhu@nih.gov>, "jliu4@uams.edu" <jliu4@uams.edu>, "xiangpeng.kong@med.nyu.edu" <xiangpeng.kong@med.nyu.edu>, "haoquanwu@outlook.com" <haoquanwu@outlook.com>, "Wenjun.liu@defence.gov.au" <Wenjun.liu@defence.gov.au>, "Liang.shan@wustl.edu" <Liang.shan@wustl.edu>, "hliao@duke.edu" <hliao@duke.edu>, "Yuan, Yan" <yuan2@upenn.edu>, "zxing@umn.edu" <zxing@umn.edu>, "hongmin.li@health.ny.gov" <hongmin.li@health.ny.gov>, "pzheng@ihv.umaryland.edu" <pzheng@ihv.umaryland.edu>, "yaliu@ihv.umaryland.edu" <yaliu@ihv.umaryland.edu>

Cc: "Liu, Shan-Lu" <liu.6244@osu.edu>

Subject: ACVA email list

Dear colleagues,

This is a test for our new mailing list.

Attached please also find a group photo (high resolution – sorry for the large size) of our first meeting held in College Park, Maryland on July 15, 2018. It was unfortunate that many of you were unable to make it. If you want to learn more about the meeting or see more photos, kindly let me know.

Thank you, and hope you all have a great summer.

Shan-Lu Liu

RE: ACVA email list

From: Zheng, Zhi-Ming (Thomas) (NIH/NCI) [E] <zhengt@exchange.nih.gov>
To: Liu, Shan-Lu <liu.6244@osu.edu>, haitguo@iupui.edu, Zhou, Tongqing (NIH/VRC) [E] <tzhou@mail.nih.gov>, GCheng@mednet.ucla.edu, liangy@umn.edu, rli@vcu.edu, wma@vet.kstate.edu, xjmeng@vt.edu, Zhijian.Chen@UTSouthwestern.edu, mluo@gsu.edu, zhangyj@umd.edu, xzhu1@umd.edu, jqiu@kumc.edu, lijun@uic.edu, fengwei.bai@usm.edu, andyu@iupui.edu, reachxw@vt.edu, gluo@uab.edu, ldu@nybc.org, hxu@tulane.edu, liu_fy@berkeley.edu, shitao.li@okstate.edu, Shan.lu@umassmed.edu, haihu@UTMB.edu, wenzheho@temple.edu, Qfeng4@central.uh.edu, tang@bio.fsu.edu, feng.li@sdstate.edu, ruilu@lsu.edu, sxiang2@unl.edu, qiyi.tang@howard.edu, dingsw@ucr.edu, guohua@missouri.edu, bling@tulane.edu, junwang@pharmacy.arizona.edu, lifang@umn.edu, wang518@umd.edu, gaos8@upmc.edu, pewang@uchc.edu, xiangy@uthscsa.edu, fzhu@bio.fsu.edu, chen.liang@mcgill.ca, lyuan@vt.edu, fgao@duke.edu, wangjw28@163.com, xfyu1@zju.edu.cn, bzhao@partners.org, jianw@musc.edu, zyang@ksu.edu, Cong, Yu (NIH/NIAID) [C] <yu.cong@nih.gov>, weiming.yuan@usc.edu, Zongdi.feng@nationwidechildrens.org, juh13@psu.edu, hengx@missouri.edu, lsu@med.unc.edu, ywu8@gmu.edu, jwu@whu.edu.cn, tshuo@uic.edu, Shibojiang@fudan.edu.cn, sjiang@nybc.org, pinwang@usc.edu, rzhao@som.umaryland.edu, shuylong@mail.sysu.edu.cn, xuefeng.liu@georgetown.edu, yuxingli@som.umaryland.edu, shixia.wang@umassmed.edu, yhe@ipbcams.ac.cn, Pinghui.feng@usc.edu, jutao.guo@bblumberg.org, lin.liu@okstate.edu, hua.zhu@rutgers.edu, Jinhong.chang@bblumberg.org, jianzhu1012@gmail.com, ronghai@ucr.edu, Zhu, Jun (NIH/NHLBI) [E] <jun.zhu@nih.gov>, jliu4@uams.edu, xiangpeng.kong@med.nyu.edu, haoquanwu@outlook.com, Wenjun.liu@defence.gov.au, Liang.shan@wustl.edu, hliao@duke.edu, Yuan, Yan <yuan2@upenn.edu>, zxing@umn.edu, hongmin.li@health.ny.gov, pzheng@ihv.umaryland.edu, yaliu@ihv.umaryland.edu

Sent: July 19, 2018 6:08:53 PM CDT
Received: July 19, 2018 6:09:17 PM CDT

Many thanks for this great gathering to everyone. Shan-Lu, this email works for me and thank you and Tongqing for the photo. I have downloaded and saved it in a secured folder. Due to NIH regulation on the massive email messages, please use my private email at zhengzhiming4@gmail.com for any future contact.

Looking forward to seeing many upcoming SCBA-ACVA Virology gathering and scientific events!

Cheers,

Zhi-Ming

Zhi-Ming Zheng, MD., Ph.D.
Senior Investigator and Chief
Tumor Virus RNA Biology Section
RNA Biology Laboratory
Center for Cancer Research
National Cancer Institute
National Institutes of Health

Bldg. 560, Rm. 11-86
Frederick, MD 21702
Tel. 301-846-7634 (O)
Fax. 301-846-6846

Email: zhengt@exchange.nih.gov

Website: <https://ccr.cancer.gov/zhi-ming-zheng>

From: Liu, Shan-Lu [mailto:liu.6244@osu.edu]

Sent: Thursday, July 19, 2018 12:54 PM

To: Zheng, Zhi-Ming (Thomas) (NIH/NCI) [E] <zhengt@exchange.nih.gov>; haitguo@iupui.edu; Zhou, Tongqing (NIH/VRC) [E] <tzhou@mail.nih.gov>; GCheng@mednet.ucla.edu; liangy@umn.edu; rli@vcu.edu; wma@vet.kstate.edu; xjmeng@vt.edu; Zhijian.Chen@UTSouthwestern.edu; mluo@gsu.edu; zhangyj@umd.edu; xzhu1@umd.edu; jqiu@kumc.edu; lijun@uic.edu; fengwei.bai@usm.edu; andyu@iupui.edu; reachxw@vt.edu; gluo@uab.edu; ldu@nybc.org; hxu@tulane.edu; liu_fy@berkeley.edu; shitao.li@okstate.edu; Shan.lu@umassmed.edu; haihu@UTMB.edu; wenzheho@temple.edu; Qfeng4@central.uh.edu; tang@bio.fsu.edu; feng.li@sdstate.edu; ruilu@lsu.edu; sxiang2@unl.edu; qiyi.tang@howard.edu; dingsw@ucr.edu; guohua@missouri.edu; bling@tulane.edu; junwang@pharmacy.arizona.edu; lifang@umn.edu; wang518@umd.edu; gaos8@upmc.edu; pewang@uchc.edu; xiangy@uthscsa.edu; fzhu@bio.fsu.edu; chen.liang@mcgill.ca; lyuan@vt.edu; fgao@duke.edu; wangjw28@163.com; xfyu1@zju.edu.cn; bzhao@partners.org; jianw@musc.edu; zyang@ksu.edu; Cong, Yu (NIH/NIAID) [C] <yu.cong@nih.gov>; weiming.yuan@usc.edu; Zongdi.feng@nationwidechildrens.org; juh13@psu.edu; hengx@missouri.edu; lsu@med.unc.edu; ywu8@gmu.edu; jwu@whu.edu.cn; tshuo@uic.edu; Shibojiang@fudan.edu.cn; sjiang@nybc.org; pinwang@usc.edu; rzhao@som.umaryland.edu; shuylong@mail.sysu.edu.cn; xuefeng.liu@georgetown.edu; yuxingli@som.umaryland.edu; shixia.wang@umassmed.edu; yhe@ipbcams.ac.cn; Pinghui.feng@usc.edu; jutao.guo@bblumberg.org; lin.liu@okstate.edu; hua.zhu@rutgers.edu; Jinhong.chang@bblumberg.org; jianzhu1012@gmail.com; ronghai@ucr.edu; Zhu, Jun (NIH/NHLBI) [E] <jun.zhu@nih.gov>; jliu4@uams.edu; xiangpeng.kong@med.nyu.edu; haoquanwu@outlook.com; Wenjun.liu@defence.gov.au; Liang.shan@wustl.edu; hliao@duke.edu; Yuan, Yan <yuan2@upenn.edu>; zxing@umn.edu; hongmin.li@health.ny.gov; pzheng@ihv.umaryland.edu; yaliu@ihv.umaryland.edu

Cc: Liu, Shan-Lu <liu.6244@osu.edu>

Subject: ACVA email list

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Thank you, and hope you all have a great summer.

Shan-Lu Liu

RE: ACVA email list

From: Lu, Shan <Shan.Lu@umassmed.edu>
To: Liu, Shan-Lu <liu.6244@osu.edu>, zhengt@exchange.nih.gov, haitguo@iupui.edu, tzhou@mail.nih.gov, GCheng@mednet.ucla.edu, liangy@umn.edu, rli@vcu.edu, wma@vet.kstate.edu, xjmeng@vt.edu, Zhijian.Chen@UTSouthwestern.edu, mluo@gsu.edu, zhangyj@umd.edu, xzhu1@umd.edu, jqiu@kumc.edu, lijun@uic.edu, fengwei.bai@usm.edu, andyu@iupui.edu, reachxw@vt.edu, gluo@uab.edu, ldu@nybc.org, hxu@tulane.edu, liu_fy@berkeley.edu, shitao.li@okstate.edu, haihu@UTMB.edu, wenzheho@temple.edu, Qfeng4@central.uh.edu, tang@bio.fsu.edu, feng.li@sdstate.edu, ruilu@lsu.edu, sxiang2@unl.edu, qiye.tang@howard.edu, dingsw@ucr.edu, guohua@missouri.edu, bling@tulane.edu, junwang@pharmacy.arizona.edu, lifang@umn.edu, wang518@umd.edu, gaos8@upmc.edu, pewang@uchc.edu, xiangy@uthscsa.edu, fzhu@bio.fsu.edu, chen.liang@mccgill.ca, lyuan@vt.edu, fgao@duke.edu, wangjw28@163.com, xfyu1@zju.edu.cn, bzhao@partners.org, jianw@musc.edu, zyang@ksu.edu, yu.cong@nih.gov, weiming.yuan@usc.edu, Zongdi.feng@nationwidechildrens.org, juh13@psu.edu, hengx@missouri.edu, lsu@med.unc.edu, ywu8@gmu.edu, jwu@whu.edu.cn, tshuo@uic.edu, Shibojiang@fudan.edu.cn, sjiang@nybc.org, pinwang@usc.edu, rzhao@som.umaryland.edu, shuylong@mail.sysu.edu.cn, xuefeng.liu@georgetown.edu, yuxingli@som.umaryland.edu, Wang, Shixia <Shixia.Wang@umassmed.edu>, yhe@ipbcams.ac.cn, Pinghui.feng@usc.edu, jutao.guo@bblumberg.org, lin.liu@okstate.edu, hua.zhu@rutgers.edu, Jinhong.chang@bblumberg.org, jianzhu1012@gmail.com, ronghai@ucr.edu, jun.zhu@nih.gov, jliu4@uams.edu, xiangpeng.kong@med.nyu.edu, haoquanwu@outlook.com, Wenjun.liu@defence.gov.au, Liang.shan@wustl.edu, hliao@duke.edu, Yuan, Yan <yuan2@upenn.edu>, zxing@umn.edu, hongmin.li@health.ny.gov, pzheng@ihv.umaryland.edu, yaliu@ihv.umaryland.edu
Sent: July 19, 2018 6:26:33 PM CDT
Received: July 19, 2018 6:27:33 PM CDT

Shan-Lu Liu,

Thanks for the nice photo!

I wonder if you can try to label on who is who. Typically, you copy the picture but only keep each person's shape but no details. Then add a number to each person. On the side, indicate who has what number. Just for your reference.

Best.

Shan

From: Liu, Shan-Lu <liu.6244@osu.edu>

Sent: Thursday, July 19, 2018 12:54 PM

To: zhengt@exchange.nih.gov; haitguo@iupui.edu; tzhou@mail.nih.gov; GCheng@mednet.ucla.edu; liangy@umn.edu; rli@vcu.edu; wma@vet.kstate.edu; xjmeng@vt.edu; Zhijian.Chen@UTSouthwestern.edu; mluo@gsu.edu; zhangyj@umd.edu; xzhu1@umd.edu; jqiu@kumc.edu; lijun@uic.edu; fengwei.bai@usm.edu; andyu@iupui.edu; reachxw@vt.edu; gluo@uab.edu; ldu@nybc.org; hxu@tulane.edu; liu_fy@berkeley.edu; shitao.li@okstate.edu; Lu, Shan <Shan.Lu@umassmed.edu>; haihu@UTMB.edu; wenzheho@temple.edu; Qfeng4@central.uh.edu; tang@bio.fsu.edu; feng.li@sdstate.edu; ruilu@lsu.edu; sxiang2@unl.edu; qiye.tang@howard.edu; dingsw@ucr.edu; guohua@missouri.edu; bling@tulane.edu; junwang@pharmacy.arizona.edu; lifang@umn.edu; wang518@umd.edu; gaos8@upmc.edu; pewang@uchc.edu; xiangy@uthscsa.edu; fzhu@bio.fsu.edu; chen.liang@mccgill.ca; lyuan@vt.edu; fgao@duke.edu; wangjw28@163.com; xfyu1@zju.edu.cn; bzhao@partners.org; jianw@musc.edu; zyang@ksu.edu; yu.cong@nih.gov; weiming.yuan@usc.edu; Zongdi.feng@nationwidechildrens.org; juh13@psu.edu; hengx@missouri.edu;

lsu@med.unc.edu; ywu8@gmu.edu; jwu@whu.edu.cn; tshuo@uic.edu; Shibojiang@fudan.edu.cn; sjiang@nybc.org; pinwang@usc.edu; rzhao@som.umaryland.edu; shuylong@mail.sysu.edu.cn; xuefeng.liu@georgetown.edu; yuxingli@som.umaryland.edu; Wang, Shixia <Shixia.Wang@umassmed.edu>; yhe@ipbcams.ac.cn; Pinghui.feng@usc.edu; jutao.guo@bblumberg.org; lin.liu@okstate.edu; hua.zhu@rutgers.edu; Jinhong.chang@bblumberg.org; jianzhu1012@gmail.com; ronghai@ucr.edu; jun.zhu@nih.gov; jliu4@uams.edu; xiangpeng.kong@med.nyu.edu; haoquanwu@outlook.com; Wenjun.liu@defence.gov.au; Liang.shan@wustl.edu; hliao@duke.edu; Yuan, Yan <yuan2@upenn.edu>; zxing@umn.edu; hongmin.li@health.ny.gov; pzheng@ihv.umaryland.edu; yaliu@ihv.umaryland.edu

Cc: Liu, Shan-Lu <liu.6244@osu.edu>

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From: Zhi-Ming Zheng <zhengzhiming4@gmail.com>
To: Liu, Shan-Lu <liu.6244@osu.edu>
Cc: GCheng@mednet.ucla.edu, Jinhong.chang@bblumberg.org, Liang.shan@wustl.edu, Pinghui.feng@usc.edu, Qfeng4@central.uh.edu, Shan.lu@umassmed.edu, Shibojiang@fudan.edu.cn, Wenjun.liu@defence.gov.au, Zhijian.Chen@UTSouthwestern.edu <Zhijian.Chen@utsouthwestern.edu>, Zongdi.feng@nationwidechildrens.org, andyu@iupui.edu, bling@tulane.edu, bzhao@partners.org, chen.liang@mcgill.ca, dingsw@ucr.edu, feng.li@sdsu.edu, fengwei.bai@usm.edu, fgao@duke.edu, fzhu@bio.fsu.edu, gaos8@upmc.edu, gluo@uab.edu, guohua@missouri.edu, haihu@UTMB.edu <haihu@utmb.edu>, haitguo@iupui.edu, haoquanwu@outlook.com, hengx@missouri.edu, hliao@duke.edu, hongmin.li@health.ny.gov, hua.zhu@rutgers.edu, hxu@tulane.edu, jianw@musc.edu, jianzhu1012@gmail.com, jliu4@uams.edu, jqiu@kumc.edu, juttao.guo@bblumberg.org, juh13@psu.edu, jun.zhu@nih.gov, junwang@pharmacy.arizona.edu, jwu@whu.edu.cn, jxw103@case.edu, ldu@nybc.org, liangy@umn.edu, lifang@umn.edu, lijun@uic.edu, lin.liu@okstate.edu, liu_fy@berkeley.edu, lsu@med.unc.edu, lyuan@vt.edu, mluo@gsu.edu, pewang@uchc.edu, pinwang@usc.edu, pzheng@ihv.umaryland.edu, qiyi.tang@howard.edu, reachxw@vt.edu, rli@vcu.edu, ronghai@ucr.edu, ruilu@lsu.edu, rzhao@som.umaryland.edu, shitao.li@okstate.edu, shixia.wang@umassmed.edu, shuylong@mail.sysu.edu.cn, sjiang@nybc.org, sxiang2@unl.edu, tang@bio.fsu.edu, tshuo@uic.edu, tzhou@mail.nih.gov, wang518@umd.edu, wangjw28@163.com, weiming.yuan@usc.edu, wenzheho@temple.edu, wjma@ksu.edu, xfyu1@zju.edu.cn, xiangguo.qiu@canada.ca, xiangpeng.kong@med.nyu.edu, xiangy@uthscsa.edu, xjmeng@vt.edu, xuefeng.liu@georgetown.edu, xzhu1@umd.edu, yaliu@ihv.umaryland.edu, yhe@ipbcams.ac.cn, yu.cong@nih.gov, yuan2@upenn.edu, yuxingli@som.umaryland.edu, ywu8@gmu.edu, zhangyj@umd.edu, zxing@umn.edu, zyang@ksu.edu

Sent: July 19, 2018 7:17:40 PM CDT
Received: July 19, 2018 7:17:53 PM CDT

Thanks! I got it!

Zhu-Ming

On Thu, Jul 19, 2018 at 7:34 PM Liu, Shan-Lu <liu.6244@osu.edu> wrote:

XJ: thank you for your kind word. We appreciate you and everybody's input, help and support. Hope to see you next time.

Zhi-Ming: I have modified your email address and used it in this new email. Hope it works.

Others: I have corrected or modified the email address of several others as per requests. Feel free to contact me if you have questions or concerns.

Shan-Lu

Shan-Lu Liu, M.D., Ph.D.

Professor

Director, Viruses and Emerging Pathogens Program

Infectious Diseases Institute

Center for Retrovirus Research

Department of Veterinary Biosciences, Microbial Infection and Immunity, and Microbiology

The Ohio State University

[1900 Coffey Rd, Room 480](#) VMAB

Columbus, Ohio 43210

Phone: (614) 292-8690

Fax: (614) 292-6473

Email: liu.6244@osu.edu; shan-lu.liu@osumc.edu

From: "Meng, X.J." <xjmeng@vt.edu>

Date: Thursday, July 19, 2018 at 6:18 PM

To: Shan-Lu Liu <liu.6244@osu.edu>, "zhengt@exchange.nih.gov" <zhengt@exchange.nih.gov>, "haitguo@iupui.edu" <haitguo@iupui.edu>, "tzhou@mail.nih.gov" <tzhou@mail.nih.gov>, "GCheng@mednet.ucla.edu" <GCheng@mednet.ucla.edu>, "liangy@umn.edu" <liangy@umn.edu>, "rli@vcu.edu" <rli@vcu.edu>, "wma@vet.kstate.edu" <wma@vet.kstate.edu>, Zhijian Chen <Zhijian.Chen@UTSouthwestern.edu>, "mlo@gsu.edu" <mlo@gsu.edu>, "zhangyj@umd.edu" <zhangyj@umd.edu>, "xzhu1@umd.edu" <xzhu1@umd.edu>, Jianming Qiu <jqiu@kumc.edu>, "lijun@uic.edu" <lijun@uic.edu>, "fengwei.bai@usm.edu" <fengwei.bai@usm.edu>, "andyu@iupui.edu" <andyu@iupui.edu>, "Wang, Xiaofeng" <reachxw@vt.edu>, "gluo@uab.edu" <gluo@uab.edu>, "ldu@nybc.org" <ldu@nybc.org>, "hxu@tulane.edu" <hxu@tulane.edu>, "liu_fy@berkeley.edu" <liu_fy@berkeley.edu>, "shitao.li@okstate.edu" <shitao.li@okstate.edu>, "Shan.lu@umassmed.edu" <Shan.lu@umassmed.edu>, "haihu@UTMB.edu" <haihu@UTMB.edu>, "wenzheho@temple.edu" <wenzheho@temple.edu>, "Qfeng4@central.uh.edu" <Qfeng4@central.uh.edu>, "tang@bio.fsu.edu" <tang@bio.fsu.edu>, "feng.li@sdstate.edu" <feng.li@sdstate.edu>, "ruiyu@lsu.edu" <ruiyu@lsu.edu>, Shi-Hua Xiang <sxiang2@unl.edu>, "qiyi.tang@howard.edu" <qiyi.tang@howard.edu>, "dingsw@ucr.edu" <dingsw@ucr.edu>, "guohua@missouri.edu" <guohua@missouri.edu>, "bling@tulane.edu" <bling@tulane.edu>, "junwang@pharmacy.arizona.edu" <junwang@pharmacy.arizona.edu>, "lifang@umn.edu" <lifang@umn.edu>, "wang518@umd.edu" <wang518@umd.edu>, "gaos8@upmc.edu" <gaos8@upmc.edu>, "pewang@uchc.edu" <pewang@uchc.edu>, "xiangy@uthscsa.edu" <xiangy@uthscsa.edu>, "fzhu@bio.fsu.edu" <fzhu@bio.fsu.edu>, chen liang <chen.liang@mcgill.ca>, "Yuan, Lijuan" <lyuan@vt.edu>, "fgao@duke.edu" <fgao@duke.edu>, "wangjw28@163.com" <wangjw28@163.com>, "xfyu1@zju.edu.cn" <xfyu1@zju.edu.cn>, "bzhao@partners.org" <bzhao@partners.org>, "jianw@musc.edu" <jianw@musc.edu>, "zyang@ksu.edu" <zyang@ksu.edu>, "yu.cong@nih.gov" <yu.cong@nih.gov>, "weiming.yuan@usc.edu" <weiming.yuan@usc.edu>

"Zongdi.feng@nationwidechildrens.org" <Zongdi.feng@nationwidechildrens.org>, Jianming Hu <juh13@psu.edu>, "hengx@missouri.edu" <hengx@missouri.edu>, "lsu@med.unc.edu" <lsu@med.unc.edu>, "ywu8@gmu.edu" <ywu8@gmu.edu>, "jwu@whu.edu.cn" <jwu@whu.edu.cn>, "tshuo@uic.edu" <tshuo@uic.edu>, Jiang Shibo <Shibojiang@fudan.edu.cn>, "sjiang@nybc.org" <sjiang@nybc.org>, "pinwang@usc.edu" <pinwang@usc.edu>, "rzhao@som.umaryland.edu" <rzhao@som.umaryland.edu>, "shuylong@mail.sysu.edu.cn" <shuylong@mail.sysu.edu.cn>, "xuefeng.liu@georgetown.edu" <xuefeng.liu@georgetown.edu>, "yuxingli@som.umaryland.edu" <yuxingli@som.umaryland.edu>, "shixia.wang@umassmed.edu" <shixia.wang@umassmed.edu>, "yhe@ipbcams.ac.cn" <yhe@ipbcams.ac.cn>, "Pinghui.feng@usc.edu" <Pinghui.feng@usc.edu>, "jutao.guo@bblumberg.org" <jutao.guo@bblumberg.org>, "lin.liu@okstate.edu" <lin.liu@okstate.edu>, "hua.zhu@rutgers.edu" <hua.zhu@rutgers.edu>, "Jinhong.chang@bblumberg.org" <Jinhong.chang@bblumberg.org>, "jianzhu1012@gmail.com" <jianzhu1012@gmail.com>, "ronghai@ucr.edu" <ronghai@ucr.edu>, "jun.zhu@nih.gov" <jun.zhu@nih.gov>, "jliu4@uams.edu" <jliu4@uams.edu>, "xiangpeng.kong@med.nyu.edu" <xiangpeng.kong@med.nyu.edu>, "haoquanwu@outlook.com" <haoquanwu@outlook.com>, Jenna Liu <Wenjun.liu@defence.gov.au>, "Liang.shan@wustl.edu" <Liang.shan@wustl.edu>, "hliao@duke.edu" <hliao@duke.edu>, "Yuan, Yan" <yuan2@upenn.edu>, Zheng Xing <zxing@umn.edu>, "hongmin.li@health.ny.gov" <hongmin.li@health.ny.gov>, "pzheng@ihv.umaryland.edu" <pzheng@ihv.umaryland.edu>, "yaliu@ihv.umaryland.edu" <yaliu@ihv.umaryland.edu>

Subject: Re: ACVA email list

Dear Shan-Lu: Thanks for your leadership, time and efforts! I recognized quite a few familiar faces in the picture. Sorry that I could not attend this historic meeting (was in Clymer NY at the time). Best, --XJ

X.J. Meng, M.D., Ph.D.

University Distinguished Professor

Department of Biomedical Sciences and Pathobiology

Virginia-Maryland College of Veterinary Medicine

Professor of Internal Medicine

Department of Internal Medicine

Virginia Tech Carilion School of Medicine

Virginia Polytechnic Institute and State University

[1981 Kraft Drive](#)

[Blacksburg, Virginia 24061-0913](#)

Phone: 540-231-6912

E-mail: xjmeng@vt.edu

Webpage: <http://www.tinyurl.com/mengxj>

From: "Liu, Shan-Lu" <liu.6244@osu.edu>

Date: Thursday, July 19, 2018 at 12:56 PM

To: Zhi-Ming Zheng <zhengt@exchange.nih.gov>, "haitguo@iupui.edu" <haitguo@iupui.edu>, "tzhou@mail.nih.gov" <tzhou@mail.nih.gov>, "GCheng@mednet.ucla.edu" <GCheng@mednet.ucla.edu>, "liangy@umn.edu" <liangy@umn.edu>, "rli@vcu.edu" <rli@vcu.edu>, "wma@vet.kstate.edu" <wma@vet.kstate.edu>, "X.J. Meng" <xjmeng@vt.edu>, "Zhijian.Chen@UTSouthwestern.edu" <Zhijian.Chen@UTSouthwestern.edu>, "mlio@gsu.edu" <mlio@gsu.edu>, Yanjin Zhang <zhangyj@umd.edu>, XiaoPing Zhu <xzhu1@umd.edu>, "jqiu@kumc.edu" <jqiu@kumc.edu>, "lijun@uic.edu" <lijun@uic.edu>, "fengwei.bai@usm.edu" <fengwei.bai@usm.edu>, "andyu@iupui.edu" <andyu@iupui.edu>, "Wang, Xiaofeng" <reachxw@vt.edu>, "gluo@uab.edu" <gluo@uab.edu>, "ldu@nybc.org" <ldu@nybc.org>, "hxu@tulane.edu" <hxu@tulane.edu>, "liu_fy@berkeley.edu" <liu_fy@berkeley.edu>, "shitao.li@okstate.edu" <shitao.li@okstate.edu>, "Shan.lu@umassmed.edu" <Shan.lu@umassmed.edu>, "haihu@UTMB.edu" <haihu@UTMB.edu>, "wenzheho@temple.edu" <wenzheho@temple.edu>, "Qfeng4@central.uh.edu" <Qfeng4@central.uh.edu>, "tang@bio.fsu.edu" <tang@bio.fsu.edu>, "feng.li@sdstate.edu" <feng.li@sdstate.edu>, "ruiyu@lsu.edu" <ruiyu@lsu.edu>, "sxiang2@unl.edu" <sxiang2@unl.edu>, "qiye.tang@howard.edu" <qiye.tang@howard.edu>, "dingsw@ucr.edu" <dingsw@ucr.edu>, "guohua@missouri.edu" <guohua@missouri.edu>, "bling@tulane.edu" <bling@tulane.edu>, "junwang@pharmacy.arizona.edu" <junwang@pharmacy.arizona.edu>, "lifang@umn.edu" <lifang@umn.edu>, "wang518@umd.edu" <wang518@umd.edu>, "gaos8@upmc.edu" <gaos8@upmc.edu>, "pewang@uchc.edu" <pewang@uchc.edu>, "xiangy@uthscsa.edu" <xiangy@uthscsa.edu>, "fzhu@bio.fsu.edu" <fzhu@bio.fsu.edu>, "chen.liang@mcgill.ca" <chen.liang@mcgill.ca>, Lijuan Yuan <lyuan@vt.edu>, "fgao@duke.edu" <fgao@duke.edu>, "wangjw28@163.com" <wangjw28@163.com>, "xfyu1@zju.edu.cn" <xfyu1@zju.edu.cn>, "bzhao@partners.org" <bzhao@partners.org>, "jianw@muscu.edu" <jianw@muscu.edu>, "zyang@ksu.edu" <zyang@ksu.edu>, "yu.cong@nih.gov" <yu.cong@nih.gov>, "weiming.yuan@usc.edu" <weiming.yuan@usc.edu>, "Zongdi.feng@nationwidechildrens.org" <Zongdi.feng@nationwidechildrens.org>, Jianming Hu <juh13@psu.edu>, "hengx@missouri.edu" <hengx@missouri.edu>, "lsu@med.unc.edu" <lsu@med.unc.edu>, "ywu8@gmu.edu" <ywu8@gmu.edu>, "jwu@whu.edu.cn" <jwu@whu.edu.cn>, "tshuo@uic.edu" <tshuo@uic.edu>, "Shibojiang@fudan.edu.cn" <Shibojiang@fudan.edu.cn>, "sjiang@nybc.org" <sjiang@nybc.org>, "pinwang@usc.edu" <pinwang@usc.edu>, "rzhao@som.umaryland.edu" <rzhao@som.umaryland.edu>, "shuylong@mail.sysu.edu.cn" <shuylong@mail.sysu.edu.cn>, "xuefeng.liu@georgetown.edu" <xuefeng.liu@georgetown.edu>, "yuxingli@som.umaryland.edu" <yuxingli@som.umaryland.edu>, "shixia.wang@umassmed.edu" <shixia.wang@umassmed.edu>, "yhe@ipbcams.ac.cn" <yhe@ipbcams.ac.cn>, "Pinghui.feng@usc.edu" <Pinghui.feng@usc.edu>, "jutao.guo@bblumberg.org" <jutao.guo@bblumberg.org>, "lin.liu@okstate.edu" <lin.liu@okstate.edu>, "hua.zhu@rutgers.edu" <hua.zhu@rutgers.edu>, "Jinhong.chang@bblumberg.org" <Jinhong.chang@bblumberg.org>, "jianzhu1012@gmail.com" <jianzhu1012@gmail.com>, "ronghai@ucr.edu" <ronghai@ucr.edu>, "jun.zhu@nih.gov" <jun.zhu@nih.gov>, "jliu4@uams.edu" <jliu4@uams.edu>, "xiangpeng.kong@med.nyu.edu" <xiangpeng.kong@med.nyu.edu>, "haoquanwu@outlook.com" <haoquanwu@outlook.com>, "Wenjun.liu@defence.gov.au" <Wenjun.liu@defence.gov.au>, "Liang.shan@wustl.edu" <Liang.shan@wustl.edu>, "hliao@duke.edu" <hliao@duke.edu>, "Yuan, Yan" <yuan2@upenn.edu>, "zxiang@umn.edu" <zxiang@umn.edu>, "hongmin.li@health.ny.gov" <hongmin.li@health.ny.gov>, "pzheng@ihv.umaryland.edu" <pzheng@ihv.umaryland.edu>, "yaliu@ihv.umaryland.edu" <yaliu@ihv.umaryland.edu>

Cc: "Liu, Shan-Lu" <liu.6244@osu.edu>

Subject: ACVA email list

Dear colleagues,

This is a test for our new mailing list.

Attached please also find a group photo (high resolution – sorry for the large size) of our first meeting held in College Park, Maryland on July 15, 2018. It was unfortunate that many of you were unable to make it. If you want to learn more about the meeting or see more photos, kindly let me know.

Thank you, and hope you all have a great summer.

Shan-Lu Liu

Re: New email list

From: wenzheho <wenzheho@temple.edu>
To: Liu, Shan-Lu <liu.6244@osu.edu>
Cc: zhengzhiming4@gmail.com, haitguo@iupui.edu, tzhou@mail.nih.gov, GCheng@mednet.ucla.edu, liangy@umn.edu, rli@vcu.edu, wjma@ksu.edu, xjmeng@vt.edu, Zhijian.Chen@UTSouthwestern.edu, mluo@gsu.edu, zhangyj@umd.edu, xzhu1@umd.edu, jqiu@kumc.edu, lijun@uic.edu, fengwei.bai@usm.edu, andyu@iupui.edu, reachxw@vt.edu, gluo@uab.edu, ldu@nybc.org, hxu@tulane.edu, liu_fy@berkeley.edu, shitao.li@okstate.edu, Shan.lu@umassmed.edu, haihu@UTMB.edu, Qfeng4@central.uh.edu, tang@bio.fsu.edu, feng.li@sdsta.edu, ruilu@lsu.edu, sxiang2@unl.edu, qiye.tang@howard.edu, dingsw@ucr.edu, guohua@missouri.edu, bling@tulane.edu, junwang@pharmacy.arizona.edu, lifang@umn.edu, wang518@umd.edu, gaos8@upmc.edu, pewang@uchc.edu, xiangy@uthscsa.edu, fzhu@bio.fsu.edu, chen.liang@mcgill.ca, lyuan@vt.edu, fgao@duke.edu, wangjw28@163.com, xfyu1@zju.edu.cn, bzhao@partners.org, jianw@musc.edu, zyang@ksu.edu, yu.cong@nih.gov, weiming.yuan@usc.edu, Zongdi.feng@nationwidechildrens.org, juh13@psu.edu, hengx@missouri.edu, lsu@med.unc.edu, ywu8@gmu.edu, jwu@whu.edu.cn, tshuo@uic.edu, Shibojiang@fudan.edu.cn, sjiang@nybc.org, pinwang@usc.edu, rzhao@som.umaryland.edu, shuylong@mail.sysu.edu.cn, xuefeng.liu@georgetown.edu, yuxingli@som.umaryland.edu, shixia.wang@umassmed.edu, yhe@ipbcams.ac.cn, Pinghui.feng@usc.edu, juttao.guo@bblumberg.org, lin.liu@okstate.edu, hua.zhu@rutgers.edu, Jinhong.chang@bblumberg.org, jianzhu1012@gmail.com, ronghai@ucr.edu, jun.zhu@nih.gov, jliu4@uams.edu, xiangpeng.kong@med.nyu.edu, haoquanwu@outlook.com, Wenjun.liu@defence.gov.au, Liang.shan@wustl.edu, hliao@duke.edu, yuan2@upenn.edu, zxing@umn.edu, hongmin.li@health.ny.gov, pzheng@ihv.umaryland.edu, yaliu@ihv.umaryland.edu, jxw103@case.edu, xiangguo.qiu@canada.ca

Sent: July 19, 2018 7:36:09 PM CDT
Received: July 19, 2018 7:38:19 PM CDT

Thanks!

Sent from my iPhone

On Jul 19, 2018, at 4:40 PM, Liu, Shan-Lu <liu.6244@osu.edu> wrote:

All,

A quick note - from now on, **please use this new email list if you want to write or reply to all** – some email addresses have been modified or corrected thus updated.

Thank you.

Shan-Lu

Re: Re: Initial editorial feedback for manuscript NRMICRO-17-293S

From: zlshi <zlshi@wh.iov.cn>
To: lifang <lifang@umn.edu>
Sent: July 24, 2018 9:28:43 PM CDT
Received: July 24, 2018 9:28:57 PM CDT

Sure. I'll forward your email to the committee organizers.

SHI Zhengli, Ph. D
Senior Scientist & Professor
Wuhan Institute of Virology, Chinese Academy of Sciences
44 Xiao Hong Shan
430071 Wuhan, Hubei
China
Tel & Fax: (0086) 27 87197240
Email: zlshi@wh.iov.cn

From: [Fang Li](#)
Date: 2018-07-25 10:12
To: [zlshi](#)
Subject: Re: Re: Initial editorial feedback for manuscript NRMICRO-17-293S

Thanks, Zhengli.

You once mentioned that your institute will hold a virology conference in late October, right? I am interested in attending it and also giving a seminar on my recent cryo-EM work. Will that work?

Best,
Fang

On Tue, Jul 24, 2018 at 8:05 PM, zlshi <zlshi@wh.iov.cn> wrote:

Dear Fang,

Thank you for your contribution. I'll let you know when there is any change from you.

Best regards,
Zhengli,

SHI Zhengli, Ph. D
Senior Scientist & Professor
Wuhan Institute of Virology, Chinese Academy of Sciences
44 Xiao Hong Shan
430071 Wuhan, Hubei

China

Tel & Fax: (0086) 27 87197240

Email: zlshi@wh.iov.cn

From: Fang Li

Date: 2018-07-25 08:46

To: 石正丽

Subject: Re: Re: Fw: Initial editorial feedback for manuscript NRMICRO-17-293S

Dear Zhengli,

Please see attached. Let me know if you would like me to make any changes.

Thanks,

Fang

On Tue, Jul 17, 2018 at 7:52 PM, 石正丽 <zlshi@wh.iov.cn> wrote:

I don't have specific plan. I think you just need to add a paragraph on the interactions between [REDACTED] Thanks.

-----原始邮件-----

发件人:"Fang Li" <lifang@umn.edu>

发送时间:2018-07-18 00:12:02 (星期三)

收件人: "zlshi@wh.iov.cn" <zlshi@wh.iov.cn>

抄送:

主题: Re: Fw: Initial editorial feedback for manuscript NRMICRO-17-293S

Hi Zhengli,

So should I write a paragraph on the interactions between [REDACTED] ?

Could you be more specific about the plan?

thanks,

Fang

On Mon, Jul 16, 2018 at 8:40 PM, zlshi@wh.iov.cn <zlshi@wh.iov.cn> wrote:

Dear Fang,

I forward you again the email from the editor. She asked us to add MERS-CoV progress in the manuscript. Please help us to complete this section. Thanks.

Best regards,
Zhengli,

zlshi@wh.iov.cn

From: ursula.hofer1
Date: 2018-06-06 20:36
To: zlshi
Subject: Initial editorial feedback for manuscript NRMICRO-17-293S

Dear Zenghli,

Manuscript number: NRMICRO-17-293S

Title: Genetic evolution and pathogenesis of SARS-related coronaviruses

Authors: Zheng-Li Shi, Jie Cui, and Fang Li

Submission date for revisions: 9th July 2018

I hope this e-mail finds you well. Below and in the attached edited manuscript, I have provided some initial editorial feedback on your article before peer review. At this stage, my aim is to focus on the overall structure, flow and clarity of the manuscript, so my edits and comments are intended to improve these aspects before the article is seen by referees. Please feel free to discuss any of the suggested changes with me.

You are above our word limit and the current article is narrower than we had expected, so my suggestion would be to make your article a proper review instead of progress article. Regular reviews can have up to 4500 words in the main text (excluding abstract, boxes, figure legends, tables and references). So, this would give you the space to expand on background information about coronaviruses, which might be helpful for unfamiliar readers, and to also include the origin and evolution of MERS coronavirus. Considering the broad microbiology audience that we have, we felt both points, background information and a broad scope, were important. I've made some suggestions for both the text and the display items in the attached word file.

I would be grateful if you could return a revised version of the article to me by 9th July 2018.

If at any time you think you will be unable to meet this deadline, please contact me at your earliest convenience to discuss a new date.

Please use the following link to upload your revised manuscript:

[REDACTED]
[REDACTED]
[REDACTED]

Thank you very much for all your hard work on this piece so far. Please don't hesitate to contact me if you have any questions or wish to discuss any points in this letter. Finally, I would be very grateful if you could acknowledge receipt of this e-mail and confirm whether you will be able to return your revised draft by the suggested date.

Best wishes,
Ursula

Ursula Hofer, MD PhD
Chief Editor, Nature Reviews Microbiology
[4 Crinan Street](#)
[London](#)
[N1 9XW](#)
[e-mail:ursula.hofer1@nature.com](mailto:ursula.hofer1@nature.com)
tel: +44 (0)20 7014 6648
<http://www.nature.com/nrmicro>

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<http://www.msi.umn.edu/~lifang>

--

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--

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Associate Professor
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University of Minnesota Twin Cities
612-625-6149, lifang@umn.edu
<http://www.msi.umn.edu/~lifang>

Re: Re: new figure and table

From: 石正丽 <zlshi@wh.iov.cn>
To: Fang Li <lifang@umn.edu>
Sent: August 2, 2018 9:15:27 PM CDT
Received: August 2, 2018 9:15:39 PM CDT

Dear Fang,

I've received all your emails. Thank you for the contribution. I'll let you know when I need further information.

Best regards,

Zhengli,

-----原始邮件-----

发件人:"Fang Li" <lifang@umn.edu>
发送时间:2018-08-03 05:53:49 (星期五)
收件人: "Zhengli Shi" <zlshi@wh.iov.cn>
抄送:
主题: Re: new figure and table

Please see attached the legends for the above figure and table. Thanks.

On Thu, Aug 2, 2018 at 4:09 PM, Fang Li <lifang@umn.edu> wrote:

On Thu, Aug 2, 2018 at 4:09 PM, Fang Li <lifang@umn.edu> wrote:

please see attached. Thanks.

--

Fang Li, Ph.D.
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--

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--

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612-625-6149, lifang@umn.edu
<http://www.msi.umn.edu/~lifang>

Invitation to contribute an article: [Viruses] journal Special Issue on "MERS-CoV"

From: Du, Lanying <LDu@nybc.org>
To: zhaojincun@gird.cn
Cc: Fang Li <lifang@umn.edu>, Allison Yang/MDPI AG (allison.yang@mdpi.com) <allison.yang@mdpi.com>, viruses@mdpi.com
Sent: August 16, 2018 10:23:42 AM CDT
Received: August 16, 2018 10:23:49 AM CDT

Dr. Jincun Zhao
State Key Laboratory of Respiratory Disease
Guangzhou Institute of Respiratory Disease
First Affiliated Hospital of Guangzhou Medical University
Guangzhou, China

Dear Dr. Zhao,

The following Special Issue of which Dr. Fang Li and I are serving as Guest Editors will be published in *Viruses* (IF 3.761, <http://www.mdpi.com/journal/viruses>), and is now open to receive submissions of full research articles and comprehensive review papers for peer-review and possible publication:

Special Issue: MERS-CoV

Website: http://www.mdpi.com/journal/viruses/special_issues/MERS_CoV

Deadline for submissions: 30 November 2018

Given your interesting work and contributions in the MERS-CoV field, we invite you and your colleagues to submit a research or review article for this special issue, in which over ten of the leading experts will describe their work, ideas, and findings. Please feel free to select your topic.

Viruses is an Open Access journal and indexed by Web of Science, PubMed and other databases. It will charge a modest processing fee to publish your manuscript. *Viruses* places a high priority on rapid publication. All papers accepted for publication will be immediately published.

You may send your manuscript now and until the deadline 30 November 2018. For further details on the submission process, please see the instructions for authors at the journal website (<http://www.mdpi.com/journal/viruses/instructions>).

If you accept our invitation, please send a tentative title or short abstract to us (lifang@umn.edu; LDu@nybc.org) and the Editorial Office (viruses@mdpi.com) in advance.

Please do not hesitate to contact us if you need any further information.

We hope to get your positive reply soon.

Best regards,

Fang Li
Lanying Du
Guest Editors
Viruses

Fang Li, Ph.D.
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University of Minnesota Twin Cities
[612-625-6149](tel:612-625-6149), lifang@umn.edu.

<http://www.msi.umn.edu/~lifang>

Lanying Du, Ph.D.
Associate Member & Co-Head
Viral Immunology Laboratory
Lindsley F. Kimball Research Institute
New York Blood Center
310 East 67th Street
New York, NY 10065, USA
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Re: [Viruses] Manuscript ID: viruses-326414 - Academic Editor - Final Decision Request

From: Fang Li <lifang@umn.edu>
To: Wynne Wang <wynne.wang@mdpi.com>
Cc: Lanying Du <LDu@nybc.org>
Sent: August 16, 2018 4:47:57 PM CDT
Received: August 16, 2018 4:47:57 PM CDT

I recommend the manuscript be accepted for publication. Thanks.

On Mon, Aug 13, 2018 at 8:36 PM, Viruses Editorial Office <viruses@mdpi.com> wrote:

Dear Fang, dear Lanying,

We have received the second revised version of the manuscript below and are kindly asking you to give us a *final decision*. The authors have addressed all the reviewers' comments. You can find the revised manuscript file, the referees' comments, and the authors' response at the following link (attached too):

http://susy.mdpi.com/user/decision/process_form/667448/h2bKw8Ea

For your convenience, below is the summary of review reports:

Reviewer 1: major/minor (the author has addressed all comments)

Reviewer 2: major/minor (the author has addressed all comments)

Reviewer 3: accept (the author has addressed all comments)

If you have any queries regarding this manuscript, please do not hesitate to contact us.

Manuscript ID: viruses-326414

Type of manuscript: Article

Title: A human DPP4-knockin mouse model susceptible to infection by authentic and pseudotyped MERS-CoV

Authors: Changfa Fan, Xi Wu, Qiang Liu, Qianqian Li, Susu Liu, Jianjun Lu, Yanwei Yang, Yuan Cao, Weijin Huang, Chunnan Liang, Tianlei Ying, Shibo Jiang, Youchun Wang *

Received: 24 June 2018

E-mails: fancf@nifdc.org.cn, wuxi@nifdc.org.cn, liuqiang@nifdc.org.cn, 980932706@qq.com, liususu@nifdc.org.cn, lujianjun@nifdc.org.cn, yangyanwei@nifdc.org.cn, caoyuan0512@163.com, huangweijin@nifdc.org.cn, chunnan_liang@nifdc.org.cn, tlying@fudan.edu.cn, shibojiang@fudan.edu.cn, wangyc@nifdc.org.cn

Submitted to section: Animal Viruses,

http://www.mdpi.com/journal/viruses/sections/animal_viruses

MERS-CoV

http://www.mdpi.com/journal/viruses/special_issues/MERS_CoV

Thank you very much in advance and we look forward to hearing from you soon.

Kind regards,

Ms. Wynne Wang

Assistant Editor

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<http://www.msi.umn.edu/~lifang>

Re: Invitation to contribute an article: [Viruses] journal Special Issue on "MERS-CoV"

From: 赵金存 <zhaojincun@gird.cn>
To: Du, Lanying <LDu@nybc.org>
Cc: Fang Li <lifang@umn.edu>, Allison Yang/MDPI AG (allison.yang@mdpi.com) <allison.yang@mdpi.com>, viruses@mdpi.com
Sent: August 16, 2018 9:22:26 PM CDT
Received: August 16, 2018 9:23:27 PM CDT

Dear Lanying,

Thank you for your invitation.

We are finishing up a manucripint soon, I will let you know if it fits in Viruses.

Thanks!

Jincun

--

Jincun Zhao Ph.D.
State Key Laboratory of Respiratory Disease
Guangzhou Institute of Respiratory Health
Guangzhou Medical University
195 Dongfeng Xi Road, Yuexiu District, Guangzhou, Guangdong 510182

At 2018-08-16 23:23:42, "Du, Lanying" <LDu@nybc.org> wrote:

Dr. Jincun Zhao
State Key Laboratory of Respiratory Disease
Guangzhou Institute of Respiratory Disease
First Affiliated Hospital of Guangzhou Medical University
Guangzhou, China

Dear Dr. Zhao,

The following Special Issue of which Dr. Fang Li and I are serving as Guest Editors will be published in *Viruses* (IF 3.761, <http://www.mdpi.com/journal/viruses>), and is now open to receive submissions of full research articles and comprehensive review papers for peer-review and possible publication:

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You may send your manuscript now and until the deadline 30 November 2018. For further details on the submission process, please see the instructions for authors at the journal website (<http://www.mdpi.com/journal/viruses/instructions>).

If you accept our invitation, please send a tentative title or short abstract to us (lifang@umn.edu; LDu@nybc.org) and the Editorial Office (viruses@mdpi.com) in advance.

Please do not hesitate to contact us if you need any further information.

We hope to get your positive reply soon.

Best regards,

Fang Li

Lanying Du

Guest Editors

Viruses

Fang Li, Ph.D.

Associate Professor

Department of Veterinary and Biomedical Sciences

University of Minnesota Twin Cities

[612-625-6149](tel:612-625-6149), lifang@umn.edu.

<http://www.msi.umn.edu/~lifang>

Lanying Du, Ph.D.

Associate Member & Co-Head

Viral Immunology Laboratory

Lindsley F. Kimball Research Institute

New York Blood Center

310 East 67th Street

New York, NY 10065, USA

Tel: 212-570-3459;

Email: ldu@nybc.org.



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Fw: NIH Automated Email: Progress Report for Grant 5 R01 AI139092-02, Due by 03/15/2019

From: Du, Lanying <LDu@nybc.org>
To: Fang Li <lifang@umn.edu>, stanley-perlman@uiowa.edu, Jiang Zhu <jiang@scripps.edu>
Sent: January 15, 2019 6:42:18 AM CST
Received: January 15, 2019 6:42:24 AM CST

From: Du, Lanying
Sent: Tuesday, January 15, 2019 7:39 AM
To: Fang Li; 'Perlman, Stanley'; 'Jiang Zhu'
Subject: Fw: NIH Automated Email: Progress Report for Grant 5 R01 AI139092-02, Due by 03/15/2019

Hi all,

Our first progress report is due on Mar. 15, 2019. Below are several key questions, among others, to be addressed in the report. Please let me know if you have any changes on effort, greater than 25% carryover, and publications during the report period.

Our grant manager Theresa will send you a list of documents required for this report.

Can we have a conference call next week or the week after next to update the project?

Best regards,

Lanying

C.1 PUBLICATIONS

Are there publications or manuscripts accepted for publication in a journal or other publication (e.g., book, one-time publication, monograph) during the reporting period resulting directly from this award?

D.2.a Level of Effort

Will there be, in the next budget period, either (1) a reduction of 25% or more in the level of effort from what was approved by the agency for the PD/PI(s) or other senior/key personnel designated in the Notice of Award, or (2) a reduction in the level of effort below the minimum amount of effort required by the Notice of Award?

G.10 ESTIMATED UNOBLIGATED BALANCE

G.10.a Is it anticipated that an estimated unobligated balance (including prior year carryover) will be greater than 25% of the current year's total approved budget?

From: era-notify@mail.nih.gov <era-notify@mail.nih.gov>

Sent: Tuesday, January 15, 2019 6:02 AM

To: Du, Lanying

Subject: NIH Automated Email: Progress Report for Grant 5 R01 AI139092-02, Due by 03/15/2019

*** This is an automated notification - Please do not reply to this message. ***

The progress report for NIH Grant Number is due by 03/15/2019.

The next budget period start date for the above-referenced award is 05/01/ 2019. The due date for Progress Reports for grants excluded from the Streamlined Non-Competing Award Process (SNAP) authorities grants is the 1st of the month preceding the month in which the current budget period ends (e.g., if the budget period ends 11/30, the due date is 10/1). If the 1st falls on a weekend or Federal holiday, the due date is automatically extended to the next business day. If you are unsure whether the award is excluded from SNAP authorities, check the Notice of Award (NoA) under Section III Terms and Conditions.

NOTE: NIH POLICY REQUIRES ELECTRONIC SUBMISSION OF ALL ANNUAL PROGRESS REPORTS USING THE RPPR MODULE IN eRA COMMONS (see [NOT-OD-15-014](http://not-od-15-014)). RPPR instructions and resoures can be found at <http://grants.nih.gov/grants/rppr/index.htm>.

Questions regarding the eRA Commons should be addressed to:

eRA Commons Help Desk

Web: <http://era.nih.gov/help/> (Preferred method of contact)

Toll-free: 1-866-504-9552

Phone: 301-402-7469

Hours: Mon-Fri, 7 a.m. to 8 p.m. Eastern Time

Please submit the progress report by the due date noted above. If you have already submitted the progress report, disregard this notice.

Thank you.



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TC: January 31, 2019, Thursday; 3-4 pm, CDT: (1-2 pm PDT; 4-5 pm EST)

From: Du, Lanying <LDu@nybc.org>
To: Perlman, Stanley (stanley-perlman@uiowa.edu) <stanley-perlman@uiowa.edu>, Fang Li <lifang@umn.edu>, Jiang Zhu <jiang@scripps.edu>
Sent: January 28, 2019 12:37:33 PM CST
Received: January 28, 2019 12:37:43 PM CST

Hi all,

Let's have a conference call this Thursday. Below is the Call-in information.

Date and time:

January 31, 2019, Thursday; 3-4 pm, CDT: (1-2 pm PDT; 4-5 pm EST)

Call-in number:

USA Toll-Free: [REDACTED] followed by [REDACTED]

Best,
Lanying



From: Du, Lanying
Sent: Tuesday, January 15, 2019 7:39 AM
To: Fang Li; 'Perlman, Stanley'; 'Jiang Zhu'
Subject: Fw: NIH Automated Email: Progress Report for Grant 5 R01 AI139092-02, Due by 03/15/2019

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CoV project

From: Du, Lanying <LDu@nybc.org>
To: Perlman, Stanley (stanley-perlman@uiowa.edu) <stanley-perlman@uiowa.edu>, Fang Li <lifang@umn.edu>, Jiang Zhu (jiang@scripps.edu) <jiang@scripps.edu>
Sent: January 28, 2019 12:47:51 PM CST
Received: January 28, 2019 12:48:00 PM CST

Date and time:

January 31, 2019, Thursday; 3-4 pm, CDT: (1-2 pm PDT; 4-5 pm EST)

Call-in number:

USA Toll-Free: [REDACTED] followed by [REDACTED]



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[Viruses] Special Issue "MERS-CoV "- Status Report

From: Allison Yang/MDPI <allison.yang@mdpi.com>
To: LDu@nybc.org, lifang@umn.edu
Cc: viruses@mdpi.com, liu.6244@osu.edu
Sent: January 30, 2019 3:03:23 AM CST
Received: January 30, 2019 3:03:33 AM CST
Attachments: MERS-CoV - planned papers_20190130.xlsx

Dear Lanying, dear Fang,

I am sending you the January update on your Special Issue "MERS-CoV".

Please find below the current status of the SI and attached the "planned papers" file.

Submission deadline: 30 November 2018 (closed)

Published papers: 12

Processing papers: 2

Planned papers: 4

12 papers have been published in this issue, that's great! David Veessler and Bart L. Haagmans promise to submit by the end of January, Emmie de Wit is a newly agreed author in January, while I still have not heard from Jason McLellan. I will check back with them and hope that they can submit in February.

Thank you, feel free to let me know if you have any questions.

Best,
Allison

RE: [EXTERNAL] Re: CoV project

From: Jiang Zhu <jiang@scripps.edu>
To: Fang Li <lifang@umn.edu>, Du, Lanying <LDu@nybc.org>
Cc: Perlman, Stanley (stanley-perlman@uiowa.edu) <stanley-perlman@uiowa.edu>
Sent: February 1, 2019 10:30:14 AM CST
Received: February 1, 2019 10:30:22 AM CST

Hi Fang,

Thanks for sending this paper. Actually, our neck domain is quite similar to their PA domain, but we only selected proteins of viral origin as the neck.

In addition to VLPs, we tested one [REDACTED] for multivalent display of antigens. At the end, these nanoparticles turned out to work much better than VLPs. [REDACTED]

We can certainly display various components of the S spike on these nanoparticles. Let us finish the test of RBD-neck-nanoparticles. If they work, we can immediately extend the design to other S subunits.

Best regards
Jiang

From: Fang Li <lifang@umn.edu>
Sent: Thursday, January 31, 2019 1:29 PM
To: Du, Lanying <LDu@nybc.org>
Cc: Perlman, Stanley (stanley-perlman@uiowa.edu) <stanley-perlman@uiowa.edu>; Jiang Zhu <jiang@scripps.edu>
Subject: [EXTERNAL] Re: CoV project

[External] This Message originated outside your organization.

mers nanoparticle paper as attached.

On Mon, Jan 28, 2019 at 12:48 PM Du, Lanying <LDu@nybc.org> wrote:

Date and time:

January 31, 2019, Thursday; 3-4 pm, CDT: (1-2 pm PDT; 4-5 pm EST)

Call-in number:

USA Toll-Free: [REDACTED]; followed by [REDACTED]

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--

Fang Li, Ph.D.
Associate Professor
Department of Veterinary and Biomedical Sciences
University of Minnesota Twin Cities
612-625-6149, lifang@umn.edu
<http://www.msi.umn.edu/~lifang>

FW: Request Progress Report for Grant 5 R01 AI139092-02, Due by 03/15/2019

From: Walton, Theresa <TWalton@nybc.org>
To: Fang Li <lifang@umn.edu>
Cc: Brett Carlson <carls234@umn.edu>, Du, Lanying <LDu@nybc.org>
Sent: February 1, 2019 11:18:07 AM CST
Received: February 1, 2019 11:18:26 AM CST
Attachments: 2590-fp1.pdf, 2590-fp6.pdf, 2590-fp7.pdf, non-competing_othersupport.pdf

Good Afternoon Dr. Li,

We are preparing the progress report for grant # 5 R01 AI139092-02 below is a list of items/documents we will need to complete the report. Please send the requested items to us by **February 18, 2019**.

Attachments

- PHS 2590 Face Page (Form Page 1, attached) signed by Institutional Official
- A PHS 2590 Checklist Page (Form Page 6, attached)
- All Personnel Report (Form Page 7, attached) Will there be, in the next budget period, either (1) a reduction of 25% or more in the level of effort from what was approved by the agency for the PD/PI(s) or other senior/key personnel designated in the Notice of Award, or (2) a reduction in the level of effort below the minimum amount of effort required by the Notice of Award?
- Biosketches for any **NEW key personnel** as needed.
- Other Support if there has been a change in Active Support of any Key Personnel (sample attached)

Scientific Progress made including any publications (please provide the below in word documents) if applicable

B. Accomplishments

Section C. Products (which includes all publications)

PUBLICATIONS

Are there publications or manuscripts accepted for publication in a journal or other publication (e.g., book, one-time publication, monograph) during the reporting period resulting directly from this award?

G.10 ESTIMATED UNOBLIGATED BALANCE

G.10.a Is it anticipated that an estimated unobligated balance (including prior year carryover) will be greater than 25% of the current year's total approved budget?

Please let me know if you have any questions.

Thanks,
Theresa R. Walton, MPA
Manager, Grants & Contract Proposals

Office of Sponsored Programs
New York Blood Center
310 East 67th Street
New York, NY 10065
T: 212-570-3150
twalton@nybc.org

From: era-notify@mail.nih.gov <era-notify@mail.nih.gov>

Sent: Tuesday, January 15, 2019 6:02 AM

To: Du, Lanying <LDu@nybc.org>

Subject: NIH Automated Email: Progress Report for Grant 5 R01 AI139092-02, Due by 03/15/2019

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1. 2590-fp1.pdf

Type: application/pdf
Size: 241 KB (247,184 bytes)

2. 2590-fp6.pdf

Type: application/pdf
Size: 197 KB (202,734 bytes)

3. 2590-fp7.pdf

Type: application/pdf
Size: 618 KB (633,201 bytes)

4. non-competing_othersupport.pdf

Type: application/pdf
Size: 87 KB (89,949 bytes)

Department of Health and Human Services
Public Health Services

| | | | |
|-------------------------|------|----------|--------------|
| Review Group | Type | Activity | Grant Number |
| Total Project Period | | | |
| From: | | Through: | |
| Requested Budget Period | | | |
| From: | | Through: | |

Grant Progress Report

1. TITLE OF PROJECT

2a. PROGRAM DIRECTOR / PRINCIPAL INVESTIGATOR
(Name and address, street, city, state, zip code)

2b. E-MAIL ADDRESS

2c. DEPARTMENT, SERVICE, LABORATORY, OR EQUIVALENT

2d. MAJOR SUBDIVISION

2e. Tel: Fax:

3a. APPLICANT ORGANIZATION
(Name and address, street, city, state, zip code)

3b. Tel: Fax:

3c. DUNS:

4. ENTITY IDENTIFICATION NUMBER

6. HUMAN SUBJECTS No Yes

| | | |
|---|---|--|
| 6a. Research Exempt <input type="checkbox"/> No <input type="checkbox"/> Yes | If Exempt ("Yes" in 6a): Exemption No. | If Not Exempt ("No" in 6a): IRB approval date |
|---|---|--|

5. NAME, TITLE AND ADDRESS OF ADMINISTRATIVE OFFICIAL

6b. Federal Wide Assurance No.

Tel: Fax:

6c. NIH-Defined Phase III
Clinical Trial No Yes

E-MAIL:

7. VERTEBRATE ANIMALS No Yes

10. PROJECT/PERFORMANCE SITE(S)

7a. If "Yes," IACUC approval Date

Organizational Name:

7b. Animal Welfare Assurance No.

DUNS:

8. COSTS REQUESTED FOR NEXT BUDGET PERIOD

Street 1:

8a. DIRECT \$ 8b. TOTAL \$

Street 2:

9. INVENTIONS AND PATENTS No Yes

City: County:

If "Yes, Previously Reported
 Not Previously Reported

State: Province:

Country: Zip/Postal Code:

Congressional Districts:

11. NAME AND TITLE OF OFFICIAL SIGNING FOR APPLICANT ORGANIZATION (Item 13)

TEL: FAX: E-MAIL:

12. Corrections to Page 1 Face Page

| | | |
|--|---|------|
| 13. APPLICANT ORGANIZATION CERTIFICATION AND ACCEPTANCE: I certify that the statements herein are true, complete and accurate to the best of my knowledge, and accept the obligation to comply with Public Health Services terms and conditions if a grant is awarded as a result of this application. I am aware that any false, fictitious, or fraudulent statements or claims may subject me to criminal, civil, or administrative penalties. | SIGNATURE OF OFFICIAL NAMED IN 11. (In ink) | DATE |
|--|---|------|

Program Director/Principal Investigator (Last, first, middle):

GRANT NUMBER

CHECKLIST

1. PROGRAM INCOME (See instructions.)

All applications must indicate whether program income is anticipated during the period(s) for which grant support is requested. If program income is anticipated, use the format below to reflect the amount and source(s).

| Budget Period | Anticipated Amount | Source(s) |
|---------------|--------------------|-----------|
| | | |

2. ASSURANCES/CERTIFICATIONS (See instructions.)

In signing the application Face Page, the authorized organizational representative agrees to comply with the policies, assurances and/or certifications listed in the application instructions when applicable. Descriptions of individual assurances/certifications are provided in Part III of the PHS 398, and listed in Part I, 4.1 under Item 14. If unable to certify compliance, where applicable, provide an explanation and place it after the Progress Report (Form Page 5).

3. FACILITIES AND ADMINISTRATIVE (F&A) COSTS

Indicate the applicant organization's most recent F&A cost rate established with the appropriate DHHS Regional Office, or, in the case of for-profit organizations, the rate established with the appropriate PHS Agency Cost Advisory Office.

F&A costs will **not** be paid on construction grants, grants to Federal organizations, grants to individuals, and conference grants. Follow any additional instructions provided for Research Career Awards, Institutional National Research Service Awards, Small Business Innovation Research/Small Business Technology Transfer Grants, foreign grants, and specialized grant applications.

- HHS Agreement dated: _____ No Facilities and Administrative Costs Requested.
- No HHS Agreement, but rate established with _____ Date _____

CALCULATION*

Enter Rate as a decimal (e.g., 0.25 for 25%, 0.495 for 49.5%)

Entire proposed budget period: Amount of base \$ _____ x Rate applied 0.00% % = F&A costs \$ _____
Add to total direct costs from Form Page 2 and enter new total on Face Page, Item 8b.

*Check appropriate box(es):

- Salary and wages base Modified total direct cost base Other base (Explain)
- Off-site, other special rate, or more than one rate involved (Explain)

Explanation (Attach separate sheet, if necessary.):

Program Director/Principal Investigator (Last, First, Middle):

ALL PERSONNEL REPORT

GRANT NUMBER

Place this form at the end of the signed original copy of the application. Do not duplicate.

Always list the PD/PI(s). In addition, list all other personnel who participated in the project during the current budget period for at least one person month or more, regardless of the source of compensation (a person month equals approximately 160 hours or 8.3% of annualized effort). Use the following abbreviated categories for describing Role on Project:

- PD/PI
- Co-Investigator
- Faculty
- Postdoctoral (scholar, fellow, or other postdoctoral position)
- Technician
- Staff Scientist (doctoral level)
- Statistician
- Graduate Student (research assistant)
- Non-student Research Assistant
- Undergraduate Student
- High School Student
- Consultant
- Other (please specify)

If personnel are supported by a Reentry or Diversity Supplement please indicate such after the Role on Project, using the following abbreviations: RS - Reentry Supplement; DS - Diversity Supplement.

Use Cal (calendar), Acad, or Summer to enter months devoted to project.

| Commons ID | Name | Degree(s) | SSN (last 4 digits) | Role on Project | DoB (MM /YY) | Cal | Acad | Summer |
|------------|------|-----------|---------------------------|-----------------|-----------------|-----|------|--------|
| | | | | | | | | |

PHS 2590/RPPR OTHER SUPPORT FORMAT PAGE

Submit other support for all new senior/key personnel, and updated other support for all senior/key personnel for whom there has been a change since the last reporting period.

Provide only active support for all new senior/key personnel. Provide updated other supported for all senior/key personnel for whom there has been a change in other support. If a previously active grant has terminated and/or if a previously pending grant is now active, update by annotating accordingly.

Other Support includes all financial resources, whether Federal, non-Federal, commercial or institutional, available in direct support of an individual's research endeavors, including but not limited to research grants, cooperative agreements, contracts, and/or institutional awards. Training awards, prizes, or gifts do not need to be included. Effort devoted to projects must be reported in person months; indicate calendar, academic, and/or summer months associated with each project.

Use the suggested format shown below and continuation pages as necessary. The sample format below provides guidance regarding the type and extent of information that should be provided.

Format

| NAME OF INDIVIDUAL | | |
|---|---|---|
| <u>ACTIVE/INACTIVE</u> | | |
| Project Number or Name (PD/PI name) | Dates of Approved/Proposed Project Annual Direct Costs | Person Months (Calendar/Academic/ Summer) |
| Source of Support Title of Project or Subproject | | |
| The major goals of this project are... | | |
| <u>OVERLAP</u> (summarized for each individual) | | |

Examples

NEW SENIOR/KEY PERSONNEL (D.2.b)

BENNETT, P.

ACTIVE

| | | |
|--|----------------------|--------------|
| Investigator Award (Bennett) | 9/1/2015 – 8/31/2020 | 6.0 calendar |
| Howard Hughes Medical Institute | \$581,317 | |
| Gene Cloning and Targeting for Neurological Disease Genes | | |
| This award supports the PI's program to map and clone the gene(s) implicated in the development of Alzheimer's disease and to target expression of the cloned gene(s) to relevant cells. | | |

| | | |
|---|----------------------|--------------|
| 5 R01 HG 000000-07 (Daumier) | 3/1/2009 – 2/28/2018 | 3.6 calendar |
| NIH/NHGRI | \$196,639 | |
| Identification of the Risk Factor Genes for Alzheimer's Disease | | |

The major goals of this project are to identify of new Alzheimer's disease genes and predicting Alzheimer's disease.

| | | |
|--|----------------------|--------------|
| (THIS AWARD) | | |
| 2 R01 HL 000000-14 (Anderson) | 3/1/2002 – 2/28/2017 | 1.2 calendar |
| NIH/NHLBI | \$186,529 | |
| Chloride and Sodium Transport in Airway Epithelial Cells | | |

OVERLAP No Overlap

RICHARDS, L.

No Other Support

CHANGES IN OTHER SUPPORT (D.2.c)**ANDERSON, R.R.**ACTIVE

(THIS AWARD)

| | | |
|--|----------------------|--------------|
| 2 R01 HL 000000-14 (Anderson) | 3/1/2002 – 2/28/2017 | 3.6 calendar |
| NIH/NHLBI | \$186,529 | |
| Chloride and Sodium Transport in Airway Epithelial Cells | | |

The major goals of this project are to define the biochemistry of chloride and sodium transport in airway epithelial cells and clone the gene(s) involved in transport.

| | | |
|---------------------------|----------------------|--------------|
| 5 R01 HL 00000-04 (Baker) | 4/1/2012 – 3/31/2016 | 1.2 calendar |
| NIH/NHLBI | \$122,717 | |
| Ion Transport in Lungs | | |

The major goal of this project is to study chloride and sodium transport in normal and diseased lungs.

| | | |
|--|----------------------|--------------|
| R000 (Anderson) | 9/1/2001 – 8/31/2016 | 1.2 calendar |
| Cystic Fibrosis Foundation | \$43,123 | |
| Gene Transfer of CFTR to the Airway Epithelium | | |

The major goals of this project are to identify and isolate airway epithelium progenitor cells and express human CFTR in airway epithelial cells.

| | | |
|--|----------------------|--------------|
| (NEW) | | |
| R01 DK000000-01 (Zimmerman) | 9/1/2015 – 8/31/2019 | 1.2 calendar |
| NIH/NIDDK | \$187,265 | |
| Cystic Fibrosis Related Diabetes and Lung Function | | |

The major goals of this project are to determine how CFRD contributes to lung function decline.

OVERLAP No OverlapINACTIVE

| | | |
|--|------------------------|--------------|
| DCB 950000 (Anderson) | 12/1/2008 – 11/30/2011 | 2.4 calendar |
| National Science Foundation | \$82,163 | |
| Liposome Membrane Composition and Function | | |

The major goals of this project are to define biochemical properties of liposome membrane components and maximize liposome uptake into cells.

HERNANDEZ, M.ACTIVE

| | | |
|--|----------------------|--------------|
| 5 R01 CA 00000-08 (Hernandez) | 4/1/2007 – 3/31/2017 | 3.6 academic |
| NIH/NCI | \$110,532 | 3.0 summer |
| Gene Therapy for Small Cell Lung Carcinoma | | |

The major goals of this project are to use viral strategies to express the normal p53 gene in human SCLC cell lines and to study the effect on growth and invasiveness of the lines.

(NEW)

| | | |
|--|----------------------|--------------|
| 5 P01 CA 00000-02 (Chen) | 7/1/2011 – 6/30/2016 | 1.8 academic |
| NIH/NCI | \$104,428 (sub only) | |
| Mutations in p53 in Progression of Small Cell Lung Carcinoma | | |

The major goals of this subproject are to define the p53 mutations in SCLC and their contribution to tumor progression and metastasis.

| | | |
|--------------------------------|----------------------|--------------|
| BE 00000 (Hernandez) | 9/1/1999 – 8/31/2016 | 1.8 academic |
| American Cancer Society | \$86,732 | |
| p53 Mutations in Breast Cancer | | |

The major goals of this project are to define the spectrum of p53 mutations in human breast cancer samples and correlate the results with clinical outcome.

(THIS AWARD)

| | | |
|--|----------------------|--------------|
| 2 R01 HL 000000-13 (Anderson) | 3/1/2002 – 2/28/2017 | 0.6 calendar |
| NIH/NHLBI | \$186,529 | |
| Chloride and Sodium Transport in Airway Epithelial Cells | | |

OVERLAP There was scientific overlap between aim 2 of 5 R01 CA 00000-08 and aim 4 of project 2 in 5 P01 CA 00000-02. In conjunction with agency staff, it was decided to remove aim 4 of project 2 from the P01 and adjust the budget and PI level of effort accordingly.

LFKRI upcoming Seminar Series -Scheduled for Friday, March 22nd - New York Blood Center, 310 E67th Street, NY

From: DeVard, Theresa <TDeVard@nybc.org>
To: lifang@umn.edu
Cc: Du, Lanying <LDu@nybc.org>
Sent: March 11, 2019 11:52:59 AM CDT
Received: March 11, 2019 11:53:16 AM CDT
Attachments: BLANK W9.pdf, ACH2 Authorization Agreement.pdf
Greetings Dr. Fang Li, Ph.D.,

I hope that my e-mail finds you well.

I will be assisting you with LFKRI upcoming Seminar Series -scheduled for Friday, March 22nd at 11:00am.

To get started, please provide me with the topic of your talk, CV and if you require any special IT needs (i.e.: mac set-up).

I will see that hotel accommodations are arranged for 2 nights, March 21st and March 22nd. Once finalized, you will receive a confirmation via e-mail. For any travel reimbursement, please complete and send back the attached forms W9 and ACH form which is optional.

Best,
Theresa

Theresa DeVard, Executive Assistant

New York Blood Center

310 East 67th Street

New York, NY 10065

Email: tdevard@nybc.org

Office: 212.570.3136

[REDACTED]

Fax: 212 570-3195

 **New York** Blood Center



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1. BLANK W9.pdf

Type: application/pdf
Size: 116 KB (119,331 bytes)

2. ACH2 Authorization Agreement.pdf

Type: application/pdf
Size: 209 KB (214,181 bytes)

Request for Taxpayer Identification Number and Certification

Give Form to the
requester. Do not
send to the IRS.

| | | |
|---|--|---|
| Print or type See Specific Instructions on page 2. | 1 Name (as shown on your income tax return). Name is required on this line; do not leave this line blank. | |
| | 2 Business name/disregarded entity name, if different from above | |
| | 3 Check appropriate box for federal tax classification; check only one of the following seven boxes: <input type="checkbox"/> Individual/sole proprietor or single-member LLC <input type="checkbox"/> Limited liability company. Enter the tax classification (C=C corporation, S=S corporation, P=partnership) ▶ _____ Note. For a single-member LLC that is disregarded, do not check LLC; check the appropriate box in the line above for the tax classification of the single-member owner. <input type="checkbox"/> Other (see instructions) ▶ | 4 Exemptions (codes apply only to certain entities, not individuals; see instructions on page 3): Exempt payee code (if any) _____ Exemption from FATCA reporting code (if any) _____ <i>(Applies to accounts maintained outside the U.S.)</i> |
| | 5 Address (number, street, and apt. or suite no.) | Requester's name and address (optional) |
| | 6 City, state, and ZIP code | |
| | 7 List account number(s) here (optional) | |

Part I Taxpayer Identification Number (TIN)

Enter your TIN in the appropriate box. The TIN provided must match the name given on line 1 to avoid backup withholding. For individuals, this is generally your social security number (SSN). However, for a resident alien, sole proprietor, or disregarded entity, see the Part I instructions on page 3. For other entities, it is your employer identification number (EIN). If you do not have a number, see *How to get a TIN* on page 3.

Note. If the account is in more than one name, see the instructions for line 1 and the chart on page 4 for guidelines on whose number to enter.

| | |
|---------------------------------------|---|
| Social security number | |
| | - |
| | - |
| | |
| OR | |
| Employer identification number | |
| | - |
| | |
| | |

Part II Certification

Under penalties of perjury, I certify that:

1. The number shown on this form is my correct taxpayer identification number (or I am waiting for a number to be issued to me); and
2. I am not subject to backup withholding because: (a) I am exempt from backup withholding, or (b) I have not been notified by the Internal Revenue Service (IRS) that I am subject to backup withholding as a result of a failure to report all interest or dividends, or (c) the IRS has notified me that I am no longer subject to backup withholding; and
3. I am a U.S. citizen or other U.S. person (defined below); and
4. The FATCA code(s) entered on this form (if any) indicating that I am exempt from FATCA reporting is correct.

Certification instructions. You must cross out item 2 above if you have been notified by the IRS that you are currently subject to backup withholding because you have failed to report all interest and dividends on your tax return. For real estate transactions, item 2 does not apply. For mortgage interest paid, acquisition or abandonment of secured property, cancellation of debt, contributions to an individual retirement arrangement (IRA), and generally, payments other than interest and dividends, you are not required to sign the certification, but you must provide your correct TIN. See the instructions on page 3.

| | | |
|------------------|----------------------------|--------|
| Sign Here | Signature of U.S. person ▶ | Date ▶ |
|------------------|----------------------------|--------|

General Instructions

Section references are to the Internal Revenue Code unless otherwise noted.

Future developments. Information about developments affecting Form W-9 (such as legislation enacted after we release it) is at www.irs.gov/fw9.

Purpose of Form

An individual or entity (Form W-9 requester) who is required to file an information return with the IRS must obtain your correct taxpayer identification number (TIN) which may be your social security number (SSN), individual taxpayer identification number (ITIN), adoption taxpayer identification number (ATIN), or employer identification number (EIN), to report on an information return the amount paid to you, or other amount reportable on an information return. Examples of information returns include, but are not limited to, the following:

- Form 1099-INT (interest earned or paid)
- Form 1099-DIV (dividends, including those from stocks or mutual funds)
- Form 1099-MISC (various types of income, prizes, awards, or gross proceeds)
- Form 1099-B (stock or mutual fund sales and certain other transactions by brokers)
- Form 1099-S (proceeds from real estate transactions)
- Form 1099-K (merchant card and third party network transactions)

- Form 1098 (home mortgage interest), 1098-E (student loan interest), 1098-T (tuition)
- Form 1099-C (canceled debt)
- Form 1099-A (acquisition or abandonment of secured property)

Use Form W-9 only if you are a U.S. person (including a resident alien), to provide your correct TIN.

If you do not return Form W-9 to the requester with a TIN, you might be subject to backup withholding. See What is backup withholding? on page 2.

By signing the filled-out form, you:

1. Certify that the TIN you are giving is correct (or you are waiting for a number to be issued),
2. Certify that you are not subject to backup withholding, or
3. Claim exemption from backup withholding if you are a U.S. exempt payee. If applicable, you are also certifying that as a U.S. person, your allocable share of any partnership income from a U.S. trade or business is not subject to the withholding tax on foreign partners' share of effectively connected income, and
4. Certify that FATCA code(s) entered on this form (if any) indicating that you are exempt from the FATCA reporting, is correct. See *What is FATCA reporting?* on page 2 for further information.

Note. If you are a U.S. person and a requester gives you a form other than Form W-9 to request your TIN, you must use the requester's form if it is substantially similar to this Form W-9.

Definition of a U.S. person. For federal tax purposes, you are considered a U.S. person if you are:

- An individual who is a U.S. citizen or U.S. resident alien;
- A partnership, corporation, company, or association created or organized in the United States or under the laws of the United States;
- An estate (other than a foreign estate); or
- A domestic trust (as defined in Regulations section 301.7701-7).

Special rules for partnerships. Partnerships that conduct a trade or business in the United States are generally required to pay a withholding tax under section 1446 on any foreign partners' share of effectively connected taxable income from such business. Further, in certain cases where a Form W-9 has not been received, the rules under section 1446 require a partnership to presume that a partner is a foreign person, and pay the section 1446 withholding tax. Therefore, if you are a U.S. person that is a partner in a partnership conducting a trade or business in the United States, provide Form W-9 to the partnership to establish your U.S. status and avoid section 1446 withholding on your share of partnership income.

In the cases below, the following person must give Form W-9 to the partnership for purposes of establishing its U.S. status and avoiding withholding on its allocable share of net income from the partnership conducting a trade or business in the United States:

- In the case of a disregarded entity with a U.S. owner, the U.S. owner of the disregarded entity and not the entity;
- In the case of a grantor trust with a U.S. grantor or other U.S. owner, generally, the U.S. grantor or other U.S. owner of the grantor trust and not the trust; and
- In the case of a U.S. trust (other than a grantor trust), the U.S. trust (other than a grantor trust) and not the beneficiaries of the trust.

Foreign person. If you are a foreign person or the U.S. branch of a foreign bank that has elected to be treated as a U.S. person, do not use Form W-9. Instead, use the appropriate Form W-8 or Form 8233 (see Publication 515, Withholding of Tax on Nonresident Aliens and Foreign Entities).

Nonresident alien who becomes a resident alien. Generally, only a nonresident alien individual may use the terms of a tax treaty to reduce or eliminate U.S. tax on certain types of income. However, most tax treaties contain a provision known as a "saving clause." Exceptions specified in the saving clause may permit an exemption from tax to continue for certain types of income even after the payee has otherwise become a U.S. resident alien for tax purposes.

If you are a U.S. resident alien who is relying on an exception contained in the saving clause of a tax treaty to claim an exemption from U.S. tax on certain types of income, you must attach a statement to Form W-9 that specifies the following five items:

1. The treaty country. Generally, this must be the same treaty under which you claimed exemption from tax as a nonresident alien.
2. The treaty article addressing the income.
3. The article number (or location) in the tax treaty that contains the saving clause and its exceptions.
4. The type and amount of income that qualifies for the exemption from tax.
5. Sufficient facts to justify the exemption from tax under the terms of the treaty article.

Example. Article 20 of the U.S.-China income tax treaty allows an exemption from tax for scholarship income received by a Chinese student temporarily present in the United States. Under U.S. law, this student will become a resident alien for tax purposes if his or her stay in the United States exceeds 5 calendar years. However, paragraph 2 of the first Protocol to the U.S.-China treaty (dated April 30, 1984) allows the provisions of Article 20 to continue to apply even after the Chinese student becomes a resident alien of the United States. A Chinese student who qualifies for this exception (under paragraph 2 of the first protocol) and is relying on this exception to claim an exemption from tax on his or her scholarship or fellowship income would attach to Form W-9 a statement that includes the information described above to support that exemption.

If you are a nonresident alien or a foreign entity, give the requester the appropriate completed Form W-8 or Form 8233.

Backup Withholding

What is backup withholding? Persons making certain payments to you must under certain conditions withhold and pay to the IRS 28% of such payments. This is called "backup withholding." Payments that may be subject to backup withholding include interest, tax-exempt interest, dividends, broker and barter exchange transactions, rents, royalties, nonemployee pay, payments made in settlement of payment card and third party network transactions, and certain payments from fishing boat operators. Real estate transactions are not subject to backup withholding.

You will not be subject to backup withholding on payments you receive if you give the requester your correct TIN, make the proper certifications, and report all your taxable interest and dividends on your tax return.

Payments you receive will be subject to backup withholding if:

1. You do not furnish your TIN to the requester,
2. You do not certify your TIN when required (see the Part II instructions on page 3 for details),

3. The IRS tells the requester that you furnished an incorrect TIN,

4. The IRS tells you that you are subject to backup withholding because you did not report all your interest and dividends on your tax return (for reportable interest and dividends only), or

5. You do not certify to the requester that you are not subject to backup withholding under 4 above (for reportable interest and dividend accounts opened after 1983 only).

Certain payees and payments are exempt from backup withholding. See *Exempt payee code* on page 3 and the separate Instructions for the Requester of Form W-9 for more information.

Also see *Special rules for partnerships* above.

What is FATCA reporting?

The Foreign Account Tax Compliance Act (FATCA) requires a participating foreign financial institution to report all United States account holders that are specified United States persons. Certain payees are exempt from FATCA reporting. See *Exemption from FATCA reporting code* on page 3 and the Instructions for the Requester of Form W-9 for more information.

Updating Your Information

You must provide updated information to any person to whom you claimed to be an exempt payee if you are no longer an exempt payee and anticipate receiving reportable payments in the future from this person. For example, you may need to provide updated information if you are a C corporation that elects to be an S corporation, or if you no longer are tax exempt. In addition, you must furnish a new Form W-9 if the name or TIN changes for the account; for example, if the grantor of a grantor trust dies.

Penalties

Failure to furnish TIN. If you fail to furnish your correct TIN to a requester, you are subject to a penalty of \$50 for each such failure unless your failure is due to reasonable cause and not to willful neglect.

Civil penalty for false information with respect to withholding. If you make a false statement with no reasonable basis that results in no backup withholding, you are subject to a \$500 penalty.

Criminal penalty for falsifying information. Willfully falsifying certifications or affirmations may subject you to criminal penalties including fines and/or imprisonment.

Misuse of TINs. If the requester discloses or uses TINs in violation of federal law, the requester may be subject to civil and criminal penalties.

Specific Instructions

Line 1

You must enter one of the following on this line; **do not** leave this line blank. The name should match the name on your tax return.

If this Form W-9 is for a joint account, list first, and then circle, the name of the person or entity whose number you entered in Part I of Form W-9.

a. **Individual.** Generally, enter the name shown on your tax return. If you have changed your last name without informing the Social Security Administration (SSA) of the name change, enter your first name, the last name as shown on your social security card, and your new last name.

Note. ITIN applicant: Enter your individual name as it was entered on your Form W-7 application, line 1a. This should also be the same as the name you entered on the Form 1040/1040A/1040EZ you filed with your application.

b. **Sole proprietor or single-member LLC.** Enter your individual name as shown on your 1040/1040A/1040EZ on line 1. You may enter your business, trade, or "doing business as" (DBA) name on line 2.

c. **Partnership, LLC that is not a single-member LLC, C Corporation, or S Corporation.** Enter the entity's name as shown on the entity's tax return on line 1 and any business, trade, or DBA name on line 2.

d. **Other entities.** Enter your name as shown on required U.S. federal tax documents on line 1. This name should match the name shown on the charter or other legal document creating the entity. You may enter any business, trade, or DBA name on line 2.

e. **Disregarded entity.** For U.S. federal tax purposes, an entity that is disregarded as an entity separate from its owner is treated as a "disregarded entity." See Regulations section 301.7701-2(c)(2)(iii). Enter the owner's name on line 1. The name of the entity entered on line 1 should never be a disregarded entity. The name on line 1 should be the name shown on the income tax return on which the income should be reported. For example, if a foreign LLC that is treated as a disregarded entity for U.S. federal tax purposes has a single owner that is a U.S. person, the U.S. owner's name is required to be provided on line 1. If the direct owner of the entity is also a disregarded entity, enter the first owner that is not disregarded for federal tax purposes. Enter the disregarded entity's name on line 2, "Business name/disregarded entity name." If the owner of the disregarded entity is a foreign person, the owner must complete an appropriate Form W-8 instead of a Form W-9. This is the case even if the foreign person has a U.S. TIN.

Line 2

If you have a business name, trade name, DBA name, or disregarded entity name, you may enter it on line 2.

Line 3

Check the appropriate box in line 3 for the U.S. federal tax classification of the person whose name is entered on line 1. Check only one box in line 3.

Limited Liability Company (LLC). If the name on line 1 is an LLC treated as a partnership for U.S. federal tax purposes, check the "Limited Liability Company" box and enter "P" in the space provided. If the LLC has filed Form 8832 or 2553 to be taxed as a corporation, check the "Limited Liability Company" box and in the space provided enter "C" for C corporation or "S" for S corporation. If it is a single-member LLC that is a disregarded entity, do not check the "Limited Liability Company" box; instead check the first box in line 3 "Individual/sole proprietor or single-member LLC."

Line 4, Exemptions

If you are exempt from backup withholding and/or FATCA reporting, enter in the appropriate space in line 4 any code(s) that may apply to you.

Exempt payee code.

- Generally, individuals (including sole proprietors) are not exempt from backup withholding.
- Except as provided below, corporations are exempt from backup withholding for certain payments, including interest and dividends.
- Corporations are not exempt from backup withholding for payments made in settlement of payment card or third party network transactions.
- Corporations are not exempt from backup withholding with respect to attorneys' fees or gross proceeds paid to attorneys, and corporations that provide medical or health care services are not exempt with respect to payments reportable on Form 1099-MISC.

The following codes identify payees that are exempt from backup withholding. Enter the appropriate code in the space in line 4.

- 1—An organization exempt from tax under section 501(a), any IRA, or a custodial account under section 403(b)(7) if the account satisfies the requirements of section 401(f)(2)
- 2—The United States or any of its agencies or instrumentalities
- 3—A state, the District of Columbia, a U.S. commonwealth or possession, or any of their political subdivisions or instrumentalities
- 4—A foreign government or any of its political subdivisions, agencies, or instrumentalities
- 5—A corporation
- 6—A dealer in securities or commodities required to register in the United States, the District of Columbia, or a U.S. commonwealth or possession
- 7—A futures commission merchant registered with the Commodity Futures Trading Commission
- 8—A real estate investment trust
- 9—An entity registered at all times during the tax year under the Investment Company Act of 1940
- 10—A common trust fund operated by a bank under section 584(a)
- 11—A financial institution
- 12—A middleman known in the investment community as a nominee or custodian
- 13—A trust exempt from tax under section 664 or described in section 4947

The following chart shows types of payments that may be exempt from backup withholding. The chart applies to the exempt payees listed above, 1 through 13.

| IF the payment is for . . . | THEN the payment is exempt for . . . |
|--|---|
| Interest and dividend payments | All exempt payees except for 7 |
| Broker transactions | Exempt payees 1 through 4 and 6 through 11 and all C corporations. S corporations must not enter an exempt payee code because they are exempt only for sales of noncovered securities acquired prior to 2012. |
| Barter exchange transactions and patronage dividends | Exempt payees 1 through 4 |
| Payments over \$600 required to be reported and direct sales over \$5,000 ¹ | Generally, exempt payees 1 through 5 ² |
| Payments made in settlement of payment card or third party network transactions | Exempt payees 1 through 4 |

¹ See Form 1099-MISC, Miscellaneous Income, and its instructions.

² However, the following payments made to a corporation and reportable on Form 1099-MISC are not exempt from backup withholding: medical and health care payments, attorneys' fees, gross proceeds paid to an attorney reportable under section 6045(f), and payments for services paid by a federal executive agency.

Exemption from FATCA reporting code. The following codes identify payees that are exempt from reporting under FATCA. These codes apply to persons submitting this form for accounts maintained outside of the United States by certain foreign financial institutions. Therefore, if you are only submitting this form for an account you hold in the United States, you may leave this field blank. Consult with the person requesting this form if you are uncertain if the financial institution is subject to these requirements. A requester may indicate that a code is not required by providing you with a Form W-9 with "Not Applicable" (or any similar indication) written or printed on the line for a FATCA exemption code.

- A—An organization exempt from tax under section 501(a) or any individual retirement plan as defined in section 7701(a)(37)
- B—The United States or any of its agencies or instrumentalities
- C—A state, the District of Columbia, a U.S. commonwealth or possession, or any of their political subdivisions or instrumentalities
- D—A corporation the stock of which is regularly traded on one or more established securities markets, as described in Regulations section 1.1472-1(c)(1)(i)
- E—A corporation that is a member of the same expanded affiliated group as a corporation described in Regulations section 1.1472-1(c)(1)(i)
- F—A dealer in securities, commodities, or derivative financial instruments (including notional principal contracts, futures, forwards, and options) that is registered as such under the laws of the United States or any state
- G—A real estate investment trust
- H—A regulated investment company as defined in section 851 or an entity registered at all times during the tax year under the Investment Company Act of 1940
- I—A common trust fund as defined in section 584(a)
- J—A bank as defined in section 581
- K—A broker
- L—A trust exempt from tax under section 664 or described in section 4947(a)(1)
- M—A tax exempt trust under a section 403(b) plan or section 457(g) plan

Note. You may wish to consult with the financial institution requesting this form to determine whether the FATCA code and/or exempt payee code should be completed.

Line 5

Enter your address (number, street, and apartment or suite number). This is where the requester of this Form W-9 will mail your information returns.

Line 6

Enter your city, state, and ZIP code.

Part I. Taxpayer Identification Number (TIN)

Enter your TIN in the appropriate box. If you are a resident alien and you do not have and are not eligible to get an SSN, your TIN is your IRS individual taxpayer identification number (ITIN). Enter it in the social security number box. If you do not have an ITIN, see *How to get a TIN* below.

If you are a sole proprietor and you have an EIN, you may enter either your SSN or EIN. However, the IRS prefers that you use your SSN.

If you are a single-member LLC that is disregarded as an entity separate from its owner (see *Limited Liability Company (LLC)* on this page), enter the owner's SSN (or EIN, if the owner has one). Do not enter the disregarded entity's EIN. If the LLC is classified as a corporation or partnership, enter the entity's EIN.

Note. See the chart on page 4 for further clarification of name and TIN combinations.

How to get a TIN. If you do not have a TIN, apply for one immediately. To apply for an SSN, get Form SS-5, Application for a Social Security Card, from your local SSA office or get this form online at www.ssa.gov. You may also get this form by calling 1-800-772-1213. Use Form W-7, Application for IRS Individual Taxpayer Identification Number, to apply for an ITIN, or Form SS-4, Application for Employer Identification Number, to apply for an EIN. You can apply for an EIN online by accessing the IRS website at www.irs.gov/businesses and clicking on Employer Identification Number (EIN) under Starting a Business. You can get Forms W-7 and SS-4 from the IRS by visiting IRS.gov or by calling 1-800-TAX-FORM (1-800-829-3676).

If you are asked to complete Form W-9 but do not have a TIN, apply for a TIN and write "Applied For" in the space for the TIN, sign and date the form, and give it to the requester. For interest and dividend payments, and certain payments made with respect to readily tradable instruments, generally you will have 60 days to get a TIN and give it to the requester before you are subject to backup withholding on payments. The 60-day rule does not apply to other types of payments. You will be subject to backup withholding on all such payments until you provide your TIN to the requester.

Note. Entering "Applied For" means that you have already applied for a TIN or that you intend to apply for one soon.

Caution: A disregarded U.S. entity that has a foreign owner must use the appropriate Form W-8.

Part II. Certification

To establish to the withholding agent that you are a U.S. person, or resident alien, sign Form W-9. You may be requested to sign by the withholding agent even if items 1, 4, or 5 below indicate otherwise.

For a joint account, only the person whose TIN is shown in Part I should sign (when required). In the case of a disregarded entity, the person identified on line 1 must sign. Exempt payees, see *Exempt payee code* earlier.

Signature requirements. Complete the certification as indicated in items 1 through 5 below.

- 1. Interest, dividend, and barter exchange accounts opened before 1984 and broker accounts considered active during 1983.** You must give your correct TIN, but you do not have to sign the certification.
- 2. Interest, dividend, broker, and barter exchange accounts opened after 1983 and broker accounts considered inactive during 1983.** You must sign the certification or backup withholding will apply. If you are subject to backup withholding and you are merely providing your correct TIN to the requester, you must cross out item 2 in the certification before signing the form.
- 3. Real estate transactions.** You must sign the certification. You may cross out item 2 of the certification.
- 4. Other payments.** You must give your correct TIN, but you do not have to sign the certification unless you have been notified that you have previously given an incorrect TIN. "Other payments" include payments made in the course of the requester's trade or business for rents, royalties, goods (other than bills for merchandise), medical and health care services (including payments to corporations), payments to a nonemployee for services, payments made in settlement of payment card and third party network transactions, payments to certain fishing boat crew members and fishermen, and gross proceeds paid to attorneys (including payments to corporations).
- 5. Mortgage interest paid by you, acquisition or abandonment of secured property, cancellation of debt, qualified tuition program payments (under section 529), IRA, Coverdell ESA, Archer MSA or HSA contributions or distributions, and pension distributions.** You must give your correct TIN, but you do not have to sign the certification.

What Name and Number To Give the Requester

| For this type of account: | Give name and SSN of: |
|---|---|
| 1. Individual | The individual |
| 2. Two or more individuals (joint account) | The actual owner of the account or, if combined funds, the first individual on the account ¹ |
| 3. Custodian account of a minor (Uniform Gift to Minors Act) | The minor ² |
| 4. a. The usual revocable savings trust (grantor is also trustee) b. So-called trust account that is not a legal or valid trust under state law | The grantor-trustee ¹ The actual owner ¹ |
| 5. Sole proprietorship or disregarded entity owned by an individual | The owner ³ |
| 6. Grantor trust filing under Optional Form 1099 Filing Method 1 (see Regulations section 1.671-4(b)(2)(i)(A)) | The grantor* |
| For this type of account: | Give name and EIN of: |
| 7. Disregarded entity not owned by an individual | The owner |
| 8. A valid trust, estate, or pension trust | Legal entity ⁴ |
| 9. Corporation or LLC electing corporate status on Form 8832 or Form 2553 | The corporation |
| 10. Association, club, religious, charitable, educational, or other tax-exempt organization | The organization |
| 11. Partnership or multi-member LLC | The partnership |
| 12. A broker or registered nominee | The broker or nominee |
| 13. Account with the Department of Agriculture in the name of a public entity (such as a state or local government, school district, or prison) that receives agricultural program payments | The public entity |
| 14. Grantor trust filing under the Form 1041 Filing Method or the Optional Form 1099 Filing Method 2 (see Regulations section 1.671-4(b)(2)(i)(B)) | The trust |

¹ List first and circle the name of the person whose number you furnish. If only one person on a joint account has an SSN, that person's number must be furnished.

² Circle the minor's name and furnish the minor's SSN.

³ You must show your individual name and you may also enter your business or DBA name on the "Business name/disregarded entity" name line. You may use either your SSN or EIN (if you have one), but the IRS encourages you to use your SSN.

⁴ List first and circle the name of the trust, estate, or pension trust. (Do not furnish the TIN of the personal representative or trustee unless the legal entity itself is not designated in the account title.) Also see *Special rules for partnerships* on page 2.

*Note. Grantor also must provide a Form W-9 to trustee of trust.

Note. If no name is circled when more than one name is listed, the number will be considered to be that of the first name listed.

Secure Your Tax Records from Identity Theft

Identity theft occurs when someone uses your personal information such as your name, SSN, or other identifying information, without your permission, to commit fraud or other crimes. An identity thief may use your SSN to get a job or may file a tax return using your SSN to receive a refund.

To reduce your risk:

- Protect your SSN,
- Ensure your employer is protecting your SSN, and
- Be careful when choosing a tax preparer.

If your tax records are affected by identity theft and you receive a notice from the IRS, respond right away to the name and phone number printed on the IRS notice or letter.

If your tax records are not currently affected by identity theft but you think you are at risk due to a lost or stolen purse or wallet, questionable credit card activity or credit report, contact the IRS Identity Theft Hotline at 1-800-908-4490 or submit Form 14039.

For more information, see Publication 4535, Identity Theft Prevention and Victim Assistance.

Victims of identity theft who are experiencing economic harm or a system problem, or are seeking help in resolving tax problems that have not been resolved through normal channels, may be eligible for Taxpayer Advocate Service (TAS) assistance. You can reach TAS by calling the TAS toll-free case intake line at 1-877-777-4778 or TTY/TDD 1-800-829-4059.

Protect yourself from suspicious emails or phishing schemes. Phishing is the creation and use of email and websites designed to mimic legitimate business emails and websites. The most common act is sending an email to a user falsely claiming to be an established legitimate enterprise in an attempt to scam the user into surrendering private information that will be used for identity theft.

The IRS does not initiate contacts with taxpayers via emails. Also, the IRS does not request personal detailed information through email or ask taxpayers for the PIN numbers, passwords, or similar secret access information for their credit card, bank, or other financial accounts.

If you receive an unsolicited email claiming to be from the IRS, forward this message to phishing@irs.gov. You may also report misuse of the IRS name, logo, or other IRS property to the Treasury Inspector General for Tax Administration (TIGTA) at 1-800-366-4484. You can forward suspicious emails to the Federal Trade Commission at: spam@uce.gov or contact them at www.ftc.gov/idtheft or 1-877-IDTHEFT (1-877-438-4338).

Visit IRS.gov to learn more about identity theft and how to reduce your risk.

Privacy Act Notice

Section 6109 of the Internal Revenue Code requires you to provide your correct TIN to persons (including federal agencies) who are required to file information returns with the IRS to report interest, dividends, or certain other income paid to you; mortgage interest you paid; the acquisition or abandonment of secured property; the cancellation of debt; or contributions you made to an IRA, Archer MSA, or HSA. The person collecting this form uses the information on the form to file information returns with the IRS, reporting the above information. Routine uses of this information include giving it to the Department of Justice for civil and criminal litigation and to cities, states, the District of Columbia, and U.S. commonwealths and possessions for use in administering their laws. The information also may be disclosed to other countries under a treaty, to federal and state agencies to enforce civil and criminal laws, or to federal law enforcement and intelligence agencies to combat terrorism. You must provide your TIN whether or not you are required to file a tax return. Under section 3406, payers must generally withhold a percentage of taxable interest, dividend, and certain other payments to a payee who does not give a TIN to the payer. Certain penalties may also apply for providing false or fraudulent information.



ACH Authorization Agreement

EMPLOYEE INFORMATION

Employee Name: _____

Address: _____

City: _____ State: _____ Zip: _____

E-Mail Address for Remittance Advice: _____

SSN: _____

BANKING INFORMATION

Bank Name: _____

Name on Account: _____

Address: _____

City: _____ State: _____ Zip: _____

Phone: _____

Routing Number: _____ Account Number _____

VENDOR AUTHORIZATION

Signature: _____

Print Name: _____ Title: _____

Date: _____ Phone: _____

The above named Vendor hereby authorizes the New York Blood Center (NYBC) to make electronic funds transfer (EFT) payments to Vendor's account, as indicated above, for payments of goods and/or services. All payment for goods or services by EFT transactions pursuant to this Agreement shall be governed by Article 4A of the Uniform Commercial Code. Vendor acknowledges that Vendor's bank may charge Vendor a fee for receipt of payment via EFT. By the signature of its authorized representative above, Vendor hereby certifies that the representative signing is authorized to execute this Agreement on behalf of Vendor. Vendor may change any portion of the information provided by giving at least thirty (30) days written notice to NYBC. Vendor understands NYBC may suspend this agreement at any time.

Please email completed FORM to KFORDE@NYBC.ORG

Re: LFKRI upcoming Seminar Series -Scheduled for Friday, March 22nd - New York Blood Center, 310 E67th Street, NY

From: Fang Li <lifang@umn.edu>
To: DeVard, Theresa <TDeVard@nybc.org>
Cc: Du, Lanying <LDu@nybc.org>
Sent: March 11, 2019 4:00:07 PM CDT
Attachments: FangLi_CV_March2019_NYBC.pdf

Hi Theresa,

Thanks for your email and help. Please see attached my CV. The title of my talk is: "SARS and MERS coronaviruses: cross-species transmission and vaccine design"

I will probably need IT help on mac set up.

Best,
Fang

On Mon, Mar 11, 2019 at 11:53 AM DeVard, Theresa <TDeVard@nybc.org> wrote:

Greetings Dr. Fang Li, Ph.D.,

I hope that my e-mail finds you well.

I will be assisting you with LFKRI upcoming Seminar Series -scheduled for Friday, March 22nd at 11:00am.

To get started, please provide me with the topic of your talk, CV and if you require any special IT needs (i.e.: mac set-up).

I will see that hotel accommodations are arranged for 2 nights, March 21st and March 22nd. Once finalized, you will receive a confirmation via e-mail. For any travel reimbursement, please complete and send back the attached forms W9 and ACH form which is optional.

Best,

Theresa

Theresa DeVard, Executive Assistant

New York Blood Center

310 East 67th Street

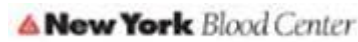
New York, NY 10065

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Office: 212.570.3136



Fax: 212 570-3195



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--

Fang Li, Ph.D.
Associate Professor
Department of Veterinary and Biomedical Sciences
University of Minnesota Twin Cities
612-625-6149, lifang@umn.edu
<http://www.msi.umn.edu/~lifang>

1. FangLi_CV_March2019_NYBC.pdf

Type: application/pdf
Size: 176 KB (181,004 bytes)

CURRICULUM VITAE

FANG LI

PROFESSIONAL ADDRESS

Department of Veterinary and Biomedical Sciences
College of Veterinary Medicine
1988 Finch Avenue

Animal Science/Veterinary Medicine Building
Saint Paul, MN 55108-6009
Phone: 612-625-6149
Email: lifang@umn.edu
Web: <http://www.msi.umn.edu/~lifang>

IDENTIFYING INFORMATION

Education

| Degree | Institution | Date Degree Granted |
|--|--|---------------------|
| B.S. | Beijing University Biochemistry & Molecular Biology | 1996 |
| Ph.D. [Advisor: Dr. Thomas Steitz] | Yale University Molecular Biophysics & Biochemistry | 2002 |
| Postdoctoral Fellow [Mentor: Dr. Thomas Steitz] | Yale University Molecular Biophysics & Biochemistry | 2002-2003 |
| Postdoctoral Fellow [Mentor: Dr. Steven Harrison] | Harvard University/Boston Children's Hospital | 2003-2006 |

Academic Appointments

University of Minnesota, Twin Cities Campus (2007-present)

| | |
|---|--------------|
| Assistant Professor (tenure track), Department of Pharmacology | 2007-2014 |
| Associate Professor (with tenure), Department of Pharmacology | 2014-2017 |
| Associate Professor (with tenure), Department of Veterinary & Biomedical Sciences | 2017-present |

RESEARCH SUPPORT

Active

National Institutes of Health 06/7/2016 – 05/31/2021
R01AI089728 (competitively renewed in 2016)

Receptor Recognition and Cell Entry of Coronaviruses

Role: Principal Investigator

Total amount: \$2,322,200

Direct cost: \$300,000/year

Goal: This research investigates the molecular and structural mechanisms for the receptor recognition and cell entry of coronaviruses. It explores novel principles governing viral evolution, receptor recognition, cell entry, host ranges, cross-species infections, and tissue tropisms. These studies are critical for evaluating the emerging disease potentials of coronaviruses and for preventing, controlling and treating the spread of coronaviruses in humans or other animals.

National Institutes of Health 04/1/2015 – 03/31/2020
R01AI110700

Mechanisms of MERS-CoV Entry, Cross-species Transmission and Pathogenesis

Role: Principal Investigator (The other PI: Ralph Baric, University of North Carolina)

Total amount: \$1,862,000 to Fang Li

Direct cost: \$245,000/year to Fang Li

Goal: This research investigates genetic pathways regulating MERS coronavirus cross species transmission and receptor homolog usage, establishes robust animal models of human disease, and discovers critical reagents for therapeutic and vaccine testing.

National Institutes of Health 05/21/2018 – 04/30/2023
R01AI139092

Structure-based design of coronavirus subunit vaccines

Role: Co-Investigator (PI: Lanying Du, New York Blood Center)

Total amount: \$922,801 to Fang Li

Direct cost: \$120,000/year to Fang Li

Goal: This research establishes that artificially exposed unfavorable epitopes on viral subunit vaccines pose a severe intrinsic limitation to viral subunit vaccine designs. It further develops novel structure-based approaches to overcome this limitation in vaccine design. It produces highly effective subunit vaccines to combat the infections of highly pathogenic coronaviruses such as MERS and SARS coronaviruses, and also has implications for subunit vaccine design against other life-threatening viruses.

Pending

National Institutes of Health 10/01/2019 – 09/30/2024
R01

Cyclic peptide protease inhibitors for the treatment of prostate cancer

Role: Co-Investigator (PI: Aaron LeBeau, University of Minnesota)

Goal: This research is to develop clinically relevant therapeutics by targeting a cell surface protease overexpressed in aggressive variant prostate carcinoma with novel cyclic peptides. This approach has significant clinical potential to result in an effective treatment modality for a form of prostate cancer that is incurable.

Completed

National Institutes of Health
R01AI089728

05/15/2010 – 04/30/2015

Receptor Recognition Mechanisms of Coronaviruses

Role: Principal Investigator

Total amount: \$1,887,500

Direct cost: \$250,000/year

Goal: This research investigates how coronaviruses recognize their receptors and how they interact with receptors from different hosts. It explores novel principles governing viral evolution, virus-receptor interactions, viral host ranges and cross-species infections, and may lead to new approaches in the prevention and treatment of coronavirus infections in humans and other animals.

University of Minnesota
AHC Faculty Research Development Grant

01/01/2009-12/31/2011

Receptor recognition and cross-species infections by human coronaviruses

Role: Principal Investigator

Total amount: \$244,725

Direct cost: \$81,575/year

Goal: This research elucidates mechanisms whereby the SARS and NL63 viruses recognize their common receptor. It deciphers how two apparently different viruses recognize the same protein receptor, a major puzzle in virology. This research also elucidates mechanisms whereby the SARS and NL63 viruses jump between different hosts, and sheds light on their animal reservoirs.

University of Minnesota
AHC Faculty Research Development Grant

09/1/2016 – 08/31/2018

Development of biological and structural approaches to Zika virus drug discovery

Role: Co-Principal Investigator (The other co-PI: Robert Geraghty, University of Minnesota)

Total amount: \$60,000 to Fang Li

Direct cost: \$30,000/year to Fang Li

Goal: This research develops and implements the tools necessary to identify small molecule inhibitors of Zika virus, and also elucidates the structure/function of the viral RNA-dependent RNA polymerase.

PUBLICATIONS

Publication Summary

As the *primary author* (first or correspondence), I have published 34 papers, including 1 in *Science*, 4 in *PNAS*, 1 in *Cell*, 1 in *Nature Communications*, 13 in *Journal of Virology*, 6 in *Journal of Biological Chemistry*, 1 in *PLOS Pathogens*, 1 in *Structure*, and 1 in *Annual Review of Virology*. I have published 13 other papers as a *middle author*.

List of Peer Reviewed Publications

1. Cui, J., **Li, F.**, Shi, Z.L. (2019) Origin and evolution of pathogenic coronaviruses. *Nature Reviews Microbiology*, 17, 181-192 (PMID: 30531947)

2. Zheng, Y., Shang, J., Yang, Y., Liu, C., Wan, Y., Geng, Q., Wang, M., Baric, R., **Li, F.** (2018) Lysosomal proteases are a determinant of coronavirus tropism. *Journal of Virology*, e01504-18 (PMID: 30258004)
3. Algaissi, A., Agrawal, A.S., Han, S., Peng, B.H., Luo, C., **Li, F.**, Chan, T.S., Couch, R.B., Tseng, C.K. (2018) Elevated Human Dipeptidyl Peptidase 4 Expression Reduces the Susceptibility of hDPP4 Transgenic Mice to Middle East Respiratory Syndrome Coronavirus Infection and Disease. *Journal of Infectious Diseases*, 219, 829-835 (PMID: 30256968)
4. Gunaratne, G.S., Yang, Y., **Li, F.**, Walseth, T.F., Marchant, J.S. (2018) NAADP-dependent Ca²⁺ signaling regulates Middle East respiratory syndrome-coronavirus pseudovirus translocation through the endolysosomal system. *Cell Calcium*, 75, 30-41 (PMID: 30121440)
5. Zhao, G., He, L., Sun, S., Qiu, H., Tai, W., Chen, J., Li, J., Chen, Y., Guo, Y., Wang, Y., Shang, J., Ji, K., Fan, R., Du, E., Jiang, S., **Li, F.**, Du, L., Zhou, Y. (2018) A novel nanobody targeting Middle East Respiratory Syndrome Coronavirus (MERS-CoV) receptor-binding domain has potent cross-neutralizing activity and protective efficacy against MERS-CoV. *Journal of Virology*, 92, e00116-18 (PMID: 29669833)
6. Shang, J., Zheng, Y., Yang, Y., Liu, C., Geng, Q., Luo, C., Zhang, W., **Li, F.** (2018) Cryo-EM structure of infectious bronchitis coronavirus spike protein reveals structural and functional evolution of coronavirus spike proteins. *PLOS Pathogens*, 14, e1007009 (PMID: 29684066)
7. Luo, C.M., Wang, N., Yang, X.L., Liu, H.Z., Zhang, W., Li, B., Hu, B., Peng, C., Geng, Q.B., Zhu, G.J., **Li, F.** *, Shi, Z.L. * (* co-correspondence) (2018) Discovery of novel bat coronaviruses in south China that use the same receptor as MERS coronavirus. *Journal of Virology*, 92, e00116-18 (PMID: 29669833)
8. Tai, W., He, L., Wang, Y., Sun, S., Zhao, G., Luo, C., Li, P., Zhao, H., Fremont, D.H., **Li, F.**, Jiang, S., Zhou, Y., Du, L. (2018) Critical neutralizing fragment of Zika virus EDIII elicits cross-neutralization and protection against divergent Zika viruses. *Emerging Microbes & Infections*, 7 (PMID: 29362446)
9. Shang, J., Zheng, Y., Yang, Y., Liu, C., Geng, Q., Tai, W., Du, L., Zhou, Y., Zhang, W., **Li, F.** (2018) Cryo-electron microscopy structure of porcine delta coronavirus spike protein in the pre-fusion state. *Journal of Virology*, 92, e01556-17 (PMID: 29070693)
10. Joshi, S., Chen, L., Winter, M., Lin, Y.L., Yang, Y., Shapovalova, M., Smith, P., Liu, C., **Li, F.** *, LeBeau, A. * (* co-correspondence) (2017) The rational design of therapeutic peptides for aminopeptidase N using a substrate-based approach. *Scientific Reports*, 7, 1424 (PMID: 28465619)
11. Peng, G., Yang, Y., Pasquarella, J., Xu, L., Qian, Z., Holms, K.V., **Li, F.** (2017) Structural and molecular evidence suggesting coronavirus-driven evolution of mouse receptor. *Journal of Biological Chemistry*, 292, 2174-2181 (PMID: 28035001)
12. Du, L., Yang, Y., Zhou, Y., Lu, L., **Li, F.**, Jiang, S. (2017) MERS-CoV spike protein: a key target for antivirals. *Expert Opinion On Therapeutic Targets*, 21, 131-143 (PMID: 27936982)
13. Du, L., Tai, W., Yang, Y., Zhao, G., Zhu, Q., Sun, S., Liu, C., Tao, X., Tseng, C., Perlman, S., Jiang, S., Zhou, Y., **Li, F.** (2016) Introduction of neutralizing immunogenicity index to the

- rational design of MERS coronavirus subunit vaccines. *Nature Communications*, 7, 13473 (PMID: 27874853)
14. Tai, W., Wang, Y., Fett, C., Zhao, G., **Li, F.**, Perlman, S., Jiang, S., Zhou, Y., Du, L. (2016) Recombinant receptor-binding domains of multiple Middle East Respiratory Syndrome Coronaviruses (MERS-CoVs) induce cross-neutralizing antibodies against divergent human and camel MERS-coronaviruses and antibody-escape mutant. *Journal of Virology*, 91, e01651-16. (PMID: 27795425)
 15. Tai, W., Zhao, G., Sun, S., Guo, Y., Wang, Y., Tao, X., Tseng, C., **Li, F.**, Jiang, S., Du, L., Zhou, Y. (2016) A recombinant receptor-binding domain of MERS-CoV in trimeric form protects human dipeptidyl peptidase 4 (hDPP4) transgenic mice from MERS-CoV infection. *Virology*, 499, 375-382 (PMID: 27750111)
 16. Liu, C., Ma, Y., Yang, Y., Zheng, Y., Shang, J., Zhou, Y., Jiang, S., Du, L., Li, J., **Li, F.** (2016) Cell entry of porcine epidemic diarrhea coronavirus is activated by lysosomal proteases. *Journal of Biological Chemistry*, 291, 27779-24786 (PMID: 27729455)
 17. **Li, F.** (2016) Structure, function and evolution of coronavirus spike proteins. *Annual Review of Virology*, 3, 237-261 (PMID: 27578435).
 18. Yang, Y., Liu, C., Du, L., Jiang, S., Shi, Z., Baric, R.S., **Li, F.** (2015) Two mutations were critical for bat-to-human transmission of MERS coronavirus. *Journal of Virology*, 89, 9119-9123 (PMID: 26063432)
 19. Liu, C., Tang, J., Ma, Y., Liang, X., Yang, Y., Peng, G., Qi, Q., Jiang, S., Li, J., Du, L., **Li, F.** (2015) Receptor usage and cell entry of porcine epidemic diarrhea coronavirus. *Journal of Virology*, 89, 6121-6125 (PMID: 25787280)
 20. **Li, F.** (2015) Receptor recognition mechanisms of coronaviruses: a decade of structural studies. *Journal of Virology*, 89, 1954-1964 (PMID: 25428871)
 21. Du, L., Zhao, G., Yang, Y., Qiu, H., Wang, L., Kou, Z., Tao, X., Yu, H., Sun, S., Tseng, K.C., Jiang, S., **Li, F.** *, Zhou, Y. * (* co-correspondence) (2014) A conformation-dependent neutralizing monoclonal antibody specifically targeting receptor-binding domain in Middle East respiratory syndrome coronavirus spike protein. *Journal of Virology*, 88, 7045-7053 (PMID: 24719424)
 22. Yang, Y., Du, L., Liu, C., Wang, L., Ma, C., Tang, J., Baric, R.S., Jiang, S., **Li, F.** (2014) Receptor usage and cell entry of bat coronavirus HKU4 provide insight into bat-to-human transmission of MERS coronavirus. *Proceedings of the National Academy of Sciences USA*, 111, 12516-12521 (PMID: 25114257)
 23. Ma, C., Wang, L., Tao, X., Zhang, N., Yang, Y., Tseng, K.C., **Li, F.**, Zhou, Y., Jiang, S., Du, L. (2014) Searching for an ideal vaccine candidate among different MERS coronavirus receptor-binding fragments – the importance of immunofocusing in subunit vaccine design. *Vaccine*, 32, 6170-6176 (PMID: 25240756)
 24. Liu, C., Yang, Y., Chen, L., Lin, Y.L., **Li, F.** (2014) A unified mechanism for aminopeptidase N-based tumor cell motility and tumor-homing therapy. *Journal of Biological Chemistry*, 289, 34520-34529 (PMID: 25359769)

25. Chen, L., **Li, F.** (2013) Structural analysis of the evolutionary origins of influenza virus hemagglutinin and other viral lectins. *Journal of Virology*, 87, 4118-4120 (PMID: 23365425)
26. Yang, Y., Liu, C., Lin, Y.L., **Li F.** (2013) Structural insights into central hypertension regulation by human aminopeptidase A. *Journal of Biological Chemistry*, 288, 25638-25645 (PMID: 23888046)
27. Chen, Y., Rajashankar, K.R., Yang, Y., Agnihothram, S.S., Liu, C., Lin, Y.L., Baric, R.S., **Li, F.** (2013) Crystal structure of the receptor-binding domain from newly emerged middle East respiratory syndrome coronavirus. *Journal of Virology*, 87, 10777-10783 (PMID: 23903833)
28. **Li, F.** (2013) Receptor recognition and cross-species infections of SARS coronavirus. *Antiviral Research*, 100, 246-254 (PMID: 23994189)
29. **Li, F.** (2012) Evidence for a common evolutionary origin of coronavirus spike protein receptor-binding subunits. *Journal of Virology*, 86, 2856-2858 (PMID: 22205723)
30. Wu, K., Peng, G., Wilken, M., Geraghty, R., **Li, F.** (2012) Mechanisms of host receptor adaptation by severe acute respiratory syndrome coronavirus. *Journal of Biological Chemistry*, 287, 8904-8911 (PMID: 22291007)
31. Chen, L., Lin, Y.L., Peng, G., **Li, F.** (2012) Structural basis for multifunctional roles of mammalian aminopeptidase N. *Proceedings of the National Academy of Sciences USA*, 109, 17966-17971 (PMID: 23071329)
32. Peng, G., Xu, L., Lin, Y.L., Chen, L., Pasquarella, J., Holmes, K.V., **Li, F.** (2012) Crystal structure of bovine coronavirus spike protein lectin domain. *Journal of Biological Chemistry*, 287, 41931-41938 (PMID: 23091051)
33. Li, W., **Li, F.** (2011) Cross-crystal averaging with search models to improve molecular replacement phases. *Structure*, 19, 155-161 (PMID: 21300285)
34. Wu, K., Chen, L., Peng, G., Zhou, W., Pennell, C., Mansky, L., Geraghty, R., **Li, F.** (2011) A virus-binding hotspot on human angiotensin-converting enzyme 2 is critical for binding of two different coronaviruses. *Journal of Virology*, 85, 5331-5337 (PMID: 21411533)
35. Peng, G., Sun, D., Rajashankar, K., Qian, Z., Holmes, K., **Li, F.** (2011) Crystal structure of mouse coronavirus receptor-binding domain complexed with its receptor murine CEACAM1a. *Proceedings of the National Academy of Sciences USA*, 108, 10696-10701 (PMID: 21670291)
36. Hou, Y., Peng, C., Yu, M., Li, Y., Han, Z., **Li, F.**, Wang, L.F., Shi, Z. (2010) Angiotensin converting enzyme-2 (ACE2) proteins of different bat species display variable susceptibility to SARS-CoV entry. *Archives of Virology*, 155, 1563-1569 (PMID: 20567988)
37. Wu, K., Li, W., Peng, G., **Li, F.** (2009) Crystal structure of NL63 respiratory coronavirus receptor-binding domain complexed with its human receptor. *Proceedings of the National Academy of Sciences USA*, 106, 19970-19974 (PMID: 19901337)
38. **Li, F.** (2008) Structural analysis of major species barriers between humans and palm civets for SARS coronavirus infections. *Journal of Virology*, 82, 6984-6991 (PMID: 18448527)

39. Huang, I.C., Bosch, B.J., **Li, F.**, Li, W., Lee, K.H., Ghiran, H., Vasilieva, N., Dermody, T.S., Harrison, S.C., Dormitzer, P.R., Farzan, M., Rottier, P.M., Choe, H. (2006) SARS coronavirus, but not human coronavirus NL63, utilizes cathepsin L to infect ACE2-expressing cells. *Journal of Biological Chemistry*, 281, 3198-3203 (PMID: 16339146)
40. Li, W., Wong, S.K., **Li, F.**, Kuhn, J.H., Huang, I.C., Choe, H., Farzan, M. (2006) Animal origins of the severe acute respiratory syndrome coronavirus: insight from ACE2-S-protein interactions. *Journal of Virology*, 80, 4211-4219 (PMID: 16611880)
41. **Li, F.**, Berardi, M., Li, W., Farzan, M., Dormitzer, P.R., Harrison, S.C. (2006) Conformational states of the severe acute respiratory syndrome coronavirus spike protein ectodomain. *Journal of Virology*, 80, 6794-6800 (PMID: 16809285)
42. **Li, F.**, Li, W., Farzan, M., Harrison, S.C. (2006) Interactions between SARS coronavirus and its receptor. *Advances in Experimental Medicine and Biology*, 581, 229-234 (PMID: 17037534)
43. **Li, F.**, Li, W., Farzan, M., Harrison S.C. (2005) Structure of SARS coronavirus spike receptor-binding domain complexed with receptor. *Science*, 309, 1864-1868 (PMID: 16166518)
44. **Li, F.**, Steitz, T.A. (2003) A novel method of determining the number of macromolecules per asymmetric unit from accurate crystal-volume measurements. *Acta Crystallographica Section D: Biological Crystallography*, 59, 1793-1796 (PMID: 14501119)
45. Xiong, Y., **Li, F.**, Wang, J., Weiner, A.M., Steitz, T.A. (2003) Crystal structures of an archaeal class I CCA-adding enzyme and its nucleotide complexes. *Molecular Cell*, 12, 1165-1172 (PMID: 14636575)
46. **Li, F.**, Xiong, Y., Wang, J., Cho, H.D., Tomita, K., Weiner, A.M., Steitz, T.A. (2002) Crystal structures of the *Bacillus stearothermophilus* CCA-adding enzyme and its complexes with ATP or CTP. *Cell*, 111, 815-824 (PMID: 12526808)
47. **Li, F.**, Wang, J., Steitz, T.A. (2000) *Sulfolobus shibatae* CCA-adding enzyme forms a tetramer upon binding two tRNA molecules: a scrunching-shuttling model of CCA specificity. *Journal of Molecular Biology*, 304, 483-492 (PMID: 11090289)

TEACHING AND CURRICULUM DEVELOPMENT

Course List

- CMB 5340
Structural biology in biomedical research
Role: course director and instructor
Graduate lecture course
30 teaching hours per year
2019-present (annually)
- PHCL 4003
Anti-infective drugs – drugs that kill invaders

Role: course co-director and co-instructor
 Undergraduate lecture course
 11 teaching hours per year
 2013-2016 (annually)

- PHCL 8211
Advanced medical pharmacology
 Role: course co-instructor
 Graduate seminar course
 9 teaching hours per year
 2013-2016 (annually)

- PHCL 5112
Graduate Toolkit
 Role: course co-instructor
 Graduate lecture course
 4 teaching hours per year
 2011-2016 (annually)

ADVISING

Graduate students

| Name | Dates | Whereabouts after leaving my lab |
|------------|------------|----------------------------------|
| [REDACTED] | [REDACTED] | [REDACTED] |
| [REDACTED] | [REDACTED] | [REDACTED] |
| [REDACTED] | [REDACTED] | [REDACTED] |
| [REDACTED] | [REDACTED] | [REDACTED] |
| [REDACTED] | [REDACTED] | [REDACTED] |

[REDACTED]

Undergraduate students

| Name | Dates | Whereabouts after leaving my lab |
|------------|------------|----------------------------------|
| [REDACTED] | [REDACTED] | [REDACTED] |
| [REDACTED] | [REDACTED] | [REDACTED] |
| [REDACTED] | [REDACTED] | [REDACTED] |

Research scientists

| Name | Dates | Whereabouts after leaving my lab |
|------------|--------------|----------------------------------|
| [REDACTED] | 2018-present | [REDACTED] |
| [REDACTED] | [REDACTED] | [REDACTED] |

Postdoctoral fellows

| Name | Dates | Whereabouts after leaving my lab |
|-------------|--------------|---|
| [REDACTED] | 2015-present | Current postdoctoral fellow in my lab |
| | 2017-present | Current postdoctoral fellow in my lab |
| | 2018-present | Current postdoctoral fellow in my lab |
| | 2007-2010 | [REDACTED] |
| | 2008-2012 | |
| | 2010-2012 | |
| | 2011-2012 | |
| | 2011-2013 | |
| | 2012-2014 | |
| | | |

FW: Progress Report for Grant 5 R01 AI139092-02, Due by 03/15/2019_need your carryover information ASAP

From: Du, Lanying <LDu@nybc.org>
To: Perlman, Stanley (stanley-perlman@uiowa.edu) <stanley-perlman@uiowa.edu>, Jiang Zhu <jiang@scripps.edu>, Fang Li <lifang@umn.edu>
Sent: March 13, 2019 10:46:41 AM CDT
Received: March 13, 2019 10:46:55 AM CDT

Hi all,

I am in the final step of the progress report. I assume that our total carryover will not be greater than 25%, so I will select "NO" here.

If you think your carryover will be greater than 25% by the budget year end of April 30, 2019, please let me know ASAP. How much your estimated unobligated balance will be, and provide a general description of how the funds will be spent.

I need this information by end of today if possible.

Thanks,
Lanying

G.10 Estimated Unobligated Balance

G.10.a Is it anticipated that an estimated unobligated balance (including prior year carryover) will be greater than 25% of the current year's AHRQ Special Instructions

The "total approved budget" equals the current fiscal year award authorization plus any approved carryover of funds from a prior year(s). The numerator equals the total amount available for carryover and the denominator equals the current year's total approved budget.

If yes, provide the estimated unobligated balance.

G.10.b Provide an explanation for unobligated balance below (Limit is 700 characters or approximately 1/4 of a page.)

Total remaining allowed limit is **700** characters.

G.10.c If authorized to carryover the balance, provide a general description of how it is anticipated that the funds will be spent. To determine carryover authorization, see the [Notice of Award](#) (Limit is 1300 characters or approximately 1/2 of a page.)

Total remaining allowed limit is **1300** characters.

From: era-notify@mail.nih.gov <era-notify@mail.nih.gov>
Sent: Friday, February 15, 2019 6:00 AM
To: Du, Lanying <LDu@nybc.org>
Subject: NIH Automated Email: Progress Report for Grant 5 R01 AI139092-02, Due by 03/15/2019

*** This is an automated notification - Please do not reply to this message. ***

The progress report for NIH Grant Number is due by 03/15/2019.

The next budget period start date for the above-referenced award is 05/01/ 2019. The due date for Progress Reports for grants excluded from the Streamlined Non-Competing Award Process (SNAP) authorities grants is the 1st of the month preceding the month in which the current budget period ends (e.g., if the budget period ends 11/30, the due date is 10/1). If the 1st falls on a weekend or Federal holiday, the due date is automatically extended to the next business day. If you are unsure whether the award is excluded from SNAP authorities, check the Notice of Award (NoA) under Section III Terms and Conditions.

NOTE: NIH POLICY REQUIRES ELECTRONIC SUBMISSION OF ALL ANNUAL PROGRESS REPORTS USING THE RPPR MODULE IN eRA COMMONS (see [NOT-OD-15-014](#)). RPPR instructions and resources can be found at <http://grants.nih.gov/grants/rppr/index.htm>.

Questions regarding the eRA Commons should be addressed to:

eRA Commons Help Desk

Web: <http://era.nih.gov/help/> (Preferred method of contact)

Toll-free: 1-866-504-9552

Phone:301-402-7469

Hours: Mon-Fri, 7 a.m. to 8 p.m. Eastern Time

Please submit the progress report by the due date noted above. If you have already submitted the progress report, disregard this notice.

Thank you.



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RE: Progress Report for Grant 5 R01 AI139092-02, Due by 03/15/2019_need your carryover information ASAP

From: Du, Lanying <LDu@nybc.org>
To: Perlman, Stanley (stanley-perlman@uiowa.edu) <stanley-perlman@uiowa.edu>, Jiang Zhu <jiang@scripps.edu>, Fang Li <lifang@umn.edu>
Sent: March 13, 2019 1:11:28 PM CDT
Received: March 13, 2019 1:11:38 PM CDT

May check with your schools to calculate the total funds that have been invoiced, and make sure your last invoice for year 1 needs to be dated by end of year 1 budget year (e.g., end of April), otherwise it might be charged to year 2.

Based on the funds you have spent, you may calculate the estimated carryover. Let me know if it is greater than 25%.

From: Du, Lanying
Sent: Wednesday, March 13, 2019 11:47 AM
To: Perlman, Stanley (stanley-perlman@uiowa.edu) <stanley-perlman@uiowa.edu>; 'Jiang Zhu' <jiang@scripps.edu>; 'Fang Li' <lifang@umn.edu>
Subject: FW: Progress Report for Grant 5 R01 AI139092-02, Due by 03/15/2019_need your carryover information ASAP

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Open Letter to be published in Science this week

From: Liu, Shan-Lu <liu.6244@osu.edu>
To: zhengzhiming4@gmail.com, haitguo@iupui.edu, tzhou@mail.nih.gov, GCheng@mednet.ucla.edu, liangy@umn.edu, rli@vcu.edu, wjma@ksu.edu, xjmeng@vt.edu, Zhijian.Chen@UTSouthwestern.edu, mluo@gsu.edu, zhangyj@umd.edu, xzhu1@umd.edu, jqiu@kumc.edu, lijun@uic.edu, fengwei.bai@usm.edu, andyu@iupui.edu, reachxw@vt.edu, gluo@uab.edu, ldu@nybc.org, hxu@tulane.edu, liu_fy@berkeley.edu, shitao.li@okstate.edu, Shan.lu@umassmed.edu, haihu@UTMB.edu, wenzheho@temple.edu, Qfeng4@central.uh.edu, tang@bio.fsu.edu, feng.li@sdstate.edu, ruilu@lsu.edu, sxiang2@unl.edu, qiyi.tang@howard.edu, dingsw@ucr.edu, guohua@missouri.edu, bling@tulane.edu, junwang@pharmacy.arizona.edu, lifang@umn.edu, wang518@umd.edu, gaos8@upmc.edu, pewang@uchc.edu, xiangy@uthscsa.edu, fzhu@bio.fsu.edu, chen.liang@mcgill.ca, lyuan@vt.edu, fgao@duke.edu, wangjw28@163.com, xfyu1@zju.edu.cn, bzhao@partners.org, jianw@musc.edu, zyang@ksu.edu, yu.cong@nih.gov, weiming.yuan@usc.edu, Zongdi.feng@nationwidechildrens.org, juh13@psu.edu, hengx@missouri.edu, lsu@med.unc.edu, ywu8@gmu.edu, jwu@whu.edu.cn, tshuo@uic.edu, Shibojiang@fudan.edu.cn, sjiang@nybc.org, pinwang@usc.edu, rzhao@som.umaryland.edu, shuylong@mail.sysu.edu.cn, xuefeng.liu@georgetown.edu, yuxingli@som.umaryland.edu, shixia.wang@umassmed.edu, yhe@ipbcams.ac.cn, Pinghui.feng@usc.edu, ju-tao.guo@bblumberg.org, lin.liu@okstate.edu, hua.zhu@rutgers.edu, Jinhong.chang@bblumberg.org, jianzhu1012@gmail.com, ronghai@ucr.edu, jun.zhu@nih.gov, jliu4@uams.edu, xiangpeng.kong@med.nyu.edu, haoquanwu@outlook.com, Wenjun.liu@defence.gov.au, Liang.shan@wustl.edu, hliao@duke.edu, yuan2@upenn.edu, zxing@umn.edu, hongmin.li@health.ny.gov, pzheng@ihv.umaryland.edu, yaliu@ihv.umaryland.edu, jxw103@case.edu, xiangguo.qiu@canada.ca, Feng Shao <shaofeng@nibs.ac.cn>, zshi@wh.iov.cn, klan@whu.edu.cn, zengmsh@mail.sysu.edu.cn, Nan Yan <Nan.Yan@UTSouthwestern.edu>, Zhang, Rong <rongzhang@wustl.edu>, liliwang@upenn.edu, Linheng Li <LIL@stowers.org>, kli1@uthsc.edu, tsx@case.edu, ssun@mdanderson.org, ysang@tnstate.edu, Liu, Shan-Lu <liu.6244@osu.edu>, zihai@musc.edu, wu@crystal.harvard.edu, Sun.Jie@mayo.edu, peijun@strubi.ox.ac.uk, jiayu@coh.org, bchen@crystal.harvard.edu, Wen, Haitao <Haitao.Wen@osumc.edu>, Qu, Feng <qu.28@osu.edu>, Hezhao.Ji@umanitoba.ca
Sent: March 19, 2019 8:52:32 AM CDT
Received: March 19, 2019 8:54:01 AM CDT

Dear colleagues and friends:

I would like to share the news that our open letter entitled “Racial Profiling Harms Science” will be published in Science this Friday and should become online 2 pm this Thursday. The NIH response letter authored by Francis Collins and his leadership team will be published at the same time. Because both letters are still embargoed until 2 PM this Thursday, I am unable to share their contents at this time. SCBA members should receive an email alert today and tomorrow.

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特别致谢卢山,李子海和郑志明三位教授!

Cheers!

Shan-Lu 善虑

Re: Open Letter to be published in Science this week

From: Jianming Hu <juh13@psu.edu>
To: Shan-Lu Liu <liu.6244@osu.edu>
Cc: zhengzhiming4@gmail.com, Haitao Guo <haitguo@iupui.edu>, tzhou@mail.nih.gov, GCheng@mednet.ucla.edu, liangy@umn.edu, rli@vcu.edu, wjma@ksu.edu, xjmeng@vt.edu, Zhijian.Chen@UTSouthwestern.edu, mluo@gsu.edu, zhangyj@umd.edu, xzhu1@umd.edu, jqiu@kumc.edu, lijun@uic.edu, fengwei.bai@usm.edu, andyu@iupui.edu, reachxw@vt.edu, Guangxiang G Luo <gluo@uab.edu>, ldu@nybc.org, hxu@tulane.edu, liu_fy@berkeley.edu, shitao.li@okstate.edu, Shan.lu@umassmed.edu, haihu@UTMB.edu, wenzheho@temple.edu, Qfeng4@central.uh.edu, tang@bio.fsu.edu, feng.li@sdsu.edu, ruilu@lsu.edu, sxiang2@unl.edu, qiye.tang@howard.edu, dingsw@ucr.edu, guohua@missouri.edu, bling@tulane.edu, junwang@pharmacy.arizona.edu, lifang@umn.edu, wang518@umd.edu, gaos8@upmc.edu, pewang@uchc.edu, xiangy@uthscsa.edu, fzhu@bio.fsu.edu, chen.liang@mcgill.ca, lyuan@vt.edu, fgao@duke.edu, wangjw28@163.com, xfyu1@zju.edu.cn, bzhao@partners.org, jianw@musc.edu, zyang@ksu.edu, yu.cong@nih.gov, weiming.yuan@usc.edu, Zongdi.feng@nationwidechildrens.org, hengx@missouri.edu, lsu@med.unc.edu, ywu8@gmu.edu, jwu@whu.edu.cn, tshuo@uic.edu, Shibojiang@fudan.edu.cn, sjiang@nybc.org, pinwang@usc.edu, rzhao@som.umaryland.edu, shuylong@mail.sysu.edu.cn, xuefeng.liu@georgetown.edu, yuxingli@som.umaryland.edu, shixia.wang@umassmed.edu, yhe@ipbcams.ac.cn, Pinghui.feng@usc.edu, ju-tao.guo@bblumberg.org, lin.liu@okstate.edu, hua.zhu@rutgers.edu, Jinhong.chang@bblumberg.org, jianzhu1012@gmail.com, ronghai@ucr.edu, jun.zhu@nih.gov, jliu4@uams.edu, xiangpeng.kong@med.nyu.edu, haoquanwu@outlook.com, Wenjun.liu@defence.gov.au, Liang.shan@wustl.edu, hliao@duke.edu, yuan2@upenn.edu, zxing@umn.edu, hongmin.li@health.ny.gov, pzheng@ihv.umaryland.edu, yaliu@ihv.umaryland.edu, jxw103@case.edu, xiangguo.qiu@canada.ca, Feng Shao <shaofeng@nibs.ac.cn>, zlshi@wh.iov.cn, klan@whu.edu.cn, zengmsh@mail.sysu.edu.cn, Nan Yan <Nan.Yan@UTSouthwestern.edu>, Zhang, Rong <rongzhang@wustl.edu>, liliwang@upenn.edu, Linheng Li <LIL@stowers.org>, kli1@uthsc.edu, tsx@case.edu, ssun@mdanderson.org, ysang@tstate.edu, zihai@musc.edu, wu@crystal.harvard.edu, Sun.Jie@mayo.edu, peijun@strubi.ox.ac.uk, jiayu@coh.org, bchen@crystal.harvard.edu, Wen, Haitao <Haitao.Wen@osumc.edu>, Qu, Feng <qu.28@osu.edu>, Hezhao.Ji@umanitoba.ca

Sent: March 19, 2019 9:56:50 AM CDT
Received: March 19, 2019 10:02:06 AM CDT
Attachments: smime.p7s

Shan-Lu,
Congratulations!

And many thanks to you and all involved in drafting and revising the letter.

Look forward to reading it in press.

Jianming

On Mar 19, 2019, at 6:52 AM, Liu, Shan-Lu <liu.6244@osu.edu> wrote:

Dear colleagues and friends:

I would like to share the news that our open letter entitled "Racial Profiling Harms Science" will be published in Science this Friday and should become online 2 pm this Thursday. The NIH response letter authored by Francis Collins and his leadership team will be published at the same time. Because both letters are still embargoed until

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特别致谢卢山,李子海和郑志明三位教授!

Cheers!

Shan-Lu 善虑

1. smime.p7s

Type: application/pkcs7-signature
Size: 1 KB (1,644 bytes)

RE: Open Letter to be published in Science this week

From: Qiu, Xiangguo (PHAC/ASPC) <xiangguo.qiu@canada.ca>
To: Liu, Shan-Lu <liu.6244@osu.edu>, zhengzhiming4@gmail.com, haitguo@iupui.edu, tzhou@mail.nih.gov, GCheng@mednet.ucla.edu, liangy@umn.edu, rli@vcu.edu, wjma@ksu.edu, xjmeng@vt.edu, Zhijian.Chen@UTSouthwestern.edu, mluo@gsu.edu, zhangyj@umd.edu, xzhu1@umd.edu, jqiu@kumc.edu, lijun@uic.edu, fengwei.bai@usm.edu, andyu@iupui.edu, reachxw@vt.edu, gluo@uab.edu, ldu@nybc.org, hxu@tulane.edu, liu_fy@berkeley.edu, shitao.li@okstate.edu, Shan.lu@umassmed.edu, haihu@UTMB.edu, wenzheho@temple.edu, Qfeng4@central.uh.edu, tang@bio.fsu.edu, feng.li@sdstate.edu, ruilu@lsu.edu, sxiang2@unl.edu, qiyi.tang@howard.edu, dingsw@ucr.edu, guohua@missouri.edu, bling@tulane.edu, junwang@pharmacy.arizona.edu, lifang@umn.edu, wang518@umd.edu, gaos8@upmc.edu, pewang@uchc.edu, xiangy@uthscsa.edu, fzhu@bio.fsu.edu, chen.liang@mcgill.ca, lyuan@vt.edu, fgao@duke.edu, wangjw28@163.com, xfyu1@zju.edu.cn, bzhao@partners.org, jianw@musc.edu, zyang@ksu.edu, yu.cong@nih.gov, weiming.yuan@usc.edu, Zongdi.feng@nationwidechildrens.org, juh13@psu.edu, hengx@missouri.edu, lsu@med.unc.edu, ywu8@gmu.edu, jwu@whu.edu.cn, tshuo@uic.edu, Shibojiang@fudan.edu.cn, sjiang@nybc.org, pinwang@usc.edu, rzhao@som.umaryland.edu, shuylong@mail.sysu.edu.cn, xuefeng.liu@georgetown.edu, yuxingli@som.umaryland.edu, shixia.wang@umassmed.edu, yhe@ipbcams.ac.cn, Pinghui.feng@usc.edu, ju-tao.guo@bblumberg.org, lin.liu@okstate.edu, hua.zhu@rutgers.edu, Jinhong.chang@bblumberg.org, jianzhu1012@gmail.com, ronghai@ucr.edu, jun.zhu@nih.gov, jliu4@uams.edu, xiangpeng.kong@med.nyu.edu, haoquanwu@outlook.com, Wenjun.liu@defence.gov.au, Liang.shan@wustl.edu, hliao@duke.edu, yuan2@upenn.edu, zxing@umn.edu, hongmin.li@health.ny.gov, pzheng@ihv.umaryland.edu, yaliu@ihv.umaryland.edu, jxw103@case.edu, Feng Shao <shaofeng@nibs.ac.cn>, zlshi@wh.iov.cn, klan@whu.edu.cn, zengmsh@mail.sysu.edu.cn, Nan Yan <Nan.Yan@UTSouthwestern.edu>, Zhang, Rong <rongzhang@wustl.edu>, liliwang@upenn.edu, Linheng Li <LIL@stowers.org>, kli1@uthsc.edu, tsx@case.edu, ssun@mdanderson.org, ysang@tnstate.edu, zihai@musc.edu, wu@crystal.harvard.edu, Sun.Jie@mayo.edu, peijun@strubi.ox.ac.uk, jiayu@coh.org, bchen@crystal.harvard.edu, Wen, Haitao <Haitao.Wen@osumc.edu>, Qu, Feng <qu.28@osu.edu>, Hezhao.Ji@umanitoba.ca

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Shan-Lu,

Congrats!!! Many thanks to you and all involved in drafting and revising the letter.

Look forward to reading it in press.

Best,

Xiangguo

From: Liu, Shan-Lu [mailto:liu.6244@osu.edu]

Sent: 2019-03-19 8:53 AM

To: zhengzhiming4@gmail.com; haitguo@iupui.edu; tzhou@mail.nih.gov; GCheng@mednet.ucla.edu; liangy@umn.edu; rli@vcu.edu; wjma@ksu.edu; xjmeng@vt.edu; Zhijian.Chen@UTSouthwestern.edu; mluo@gsu.edu; zhangyj@umd.edu; xzhu1@umd.edu; jqiu@kumc.edu; lijun@uic.edu; fengwei.bai@usm.edu; andyu@iupui.edu; reachxw@vt.edu; gluo@uab.edu; ldu@nybc.org; hxu@tulane.edu; liu_fy@berkeley.edu; shitao.li@okstate.edu; Shan.lu@umassmed.edu; haihu@UTMB.edu; wenzheho@temple.edu; Qfeng4@central.uh.edu; tang@bio.fsu.edu; feng.li@sdstate.edu; ruilu@lsu.edu; sxiang2@unl.edu; qiyi.tang@howard.edu; dingsw@ucr.edu; guohua@missouri.edu; bling@tulane.edu; junwang@pharmacy.arizona.edu; lifang@umn.edu; wang518@umd.edu; gaos8@upmc.edu; pewang@uchc.edu; xiangy@uthscsa.edu; fzhu@bio.fsu.edu; chen.liang@mcgill.ca; lyuan@vt.edu;

fgao@duke.edu; wangjw28@163.com; xfyu1@zju.edu.cn; bzhaio@partners.org; jianw@musc.edu; zyang@ksu.edu; yu.cong@nih.gov; weiming.yuan@usc.edu; Zongdi.feng@nationwidechildrens.org; juh13@psu.edu; hengx@missouri.edu; lsu@med.unc.edu; ywu8@gmu.edu; jwu@whu.edu.cn; tshuo@uic.edu; Shibojiang@fudan.edu.cn; sjiang@nybc.org; pinwang@usc.edu; rzhaio@som.umaryland.edu; shuylong@mail.sysu.edu.cn; xuefeng.liu@georgetown.edu; yuxingli@som.umaryland.edu; shixia.wang@umassmed.edu; yhe@ipbcams.ac.cn; Pinghui.feng@usc.edu; ju-tao.guo@bblumberg.org; lin.liu@okstate.edu; hua.zhu@rutgers.edu; Jinhong.chang@bblumberg.org; jianzhu1012@gmail.com; ronghai@ucr.edu; jun.zhu@nih.gov; jliu4@uams.edu; xiangpeng.kong@med.nyu.edu; haoquanwu@outlook.com; Wenjun.liu@defence.gov.au; Liang.shan@wustl.edu; hliao@duke.edu; yuan2@upenn.edu; zxing@umn.edu; hongmin.li@health.ny.gov; pzheng@ihv.umaryland.edu; yaliu@ihv.umaryland.edu; jxw103@case.edu; Qiu, Xiangguo (PHAC/ASPC); Feng Shao; zlshi@wh.iov.cn; klan@whu.edu.cn; zengmsh@mail.sysu.edu.cn; Nan Yan; Zhang, Rong; liliwang@upenn.edu; Linheng Li; kli1@uthsc.edu; tsx@case.edu; ssun@mdanderson.org; ysang@tnstate.edu; Liu, Shan-Lu; zihai@musc.edu; wu@crystal.harvard.edu; Sun.Jie@mayo.edu; peijun@strubi.ox.ac.uk; jiyu@coh.org; bchen@crystal.harvard.edu; Wen, Haitao; Qu, Feng; Hezhao.Ji@umanitoba.ca

Subject: Open Letter to be published in Science this week

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特别致谢卢山,李子海和郑志明三位教授!

Cheers!

Shan-Lu 善虑

Re: Open Letter to be published in Science this week

From: Pinghui Feng <pinghuif@usc.edu>
To: Qiu, Xiangguo (PHAC/ASPC) <xiangguo.qiu@canada.ca>, Liu, Shan-Lu <liu.6244@osu.edu>, zhengzhiming4@gmail.com, haitguo@iupui.edu, tzhou@mail.nih.gov, GCheng@mednet.ucla.edu, liangy@umn.edu, rli@vcu.edu, wjma@ksu.edu, xjmeng@vt.edu, Zhijian.Chen@UTSouthwestern.edu, mluo@gsu.edu, zhangyj@umd.edu, xzhu1@umd.edu, jqiu@kumc.edu, lijun@uic.edu, fengwei.bai@usm.edu, andyu@iupui.edu, reachxw@vt.edu, gluo@uab.edu, ldu@nybc.org, hxu@tulane.edu, liu_fy@berkeley.edu, shitao.li@okstate.edu, Shan.lu@umassmed.edu, haihu@UTMB.edu, wenzheho@temple.edu, Qfeng4@central.uh.edu, tang@bio.fsu.edu, feng.li@sdstate.edu, ruilu@lsu.edu, sxiang2@unl.edu, qiye.tang@howard.edu, dingsw@ucr.edu, guohua@missouri.edu, bling@tulane.edu, junwang@pharmacy.arizona.edu, lifang@umn.edu, wang518@umd.edu, gaos8@upmc.edu, pewang@uchc.edu, xiangy@uthscsa.edu, fzhu@bio.fsu.edu, chen.liang@mccgill.ca, lyuan@vt.edu, fgao@duke.edu, wangjw28@163.com, xfyu1@zju.edu.cn, bzhao@partners.org, jianw@musc.edu, zyang@ksu.edu, yu.cong@nih.gov, Weiming Yuan <weiming.yuan@usc.edu>, Zongdi.feng@nationwidechildrens.org, juh13@psu.edu, hengx@missouri.edu, lsu@med.unc.edu, ywu8@gmu.edu, jwu@whu.edu.cn, tshuo@uic.edu, Shibojiang@fudan.edu.cn, sjiang@nybc.org, Pin Wang <pinwang@usc.edu>, rzhao@som.umaryland.edu, shuylong@mail.sysu.edu.cn, xuefeng.liu@georgetown.edu, yuxingli@som.umaryland.edu, shixia.wang@umassmed.edu, yhe@ipbcams.ac.cn, ju-tao.guo@bblumberg.org, lin.liu@okstate.edu, hua.zhu@rutgers.edu, Jinhong.chang@bblumberg.org, jianzhu1012@gmail.com, ronghai@ucr.edu, jun.zhu@nih.gov, jliu4@uams.edu, xiangpeng.kong@med.nyu.edu, haoquanwu@outlook.com, Wenjun.liu@defence.gov.au, Liang.shan@wustl.edu, hliao@duke.edu, yuan2@upenn.edu, zxing@umn.edu, hongmin.li@health.ny.gov, pzheng@ihv.umaryland.edu, yaliu@ihv.umaryland.edu, jxw103@case.edu, Feng Shao <shaofeng@nibs.ac.cn>, zishi@wh.iov.cn, klan@whu.edu.cn, zengmsh@mail.sysu.edu.cn, Nan Yan <Nan.Yan@UTSouthwestern.edu>, Zhang, Rong <rongzhang@wustl.edu>, liliwang@upenn.edu, Linheng Li <LIL@stowers.org>, kli1@uthsc.edu, tsx@case.edu, ssun@mdanderson.org, ysang@tnstate.edu, zihai@musc.edu, wu@crystal.harvard.edu, Sun.Jie@mayo.edu, peijun@strubi.ox.ac.uk, jiayu@coh.org, bchen@crystal.harvard.edu, Wen, Haitao <Haitao.Wen@osumc.edu>, Qu, Feng <qu.28@osu.edu>, Hezhao.Ji@umanitoba.ca

Sent: March 19, 2019 10:29:00 AM CDT
Received: March 19, 2019 10:31:12 AM CDT

Dear Shan-Lu,

Thank your team for your hard work and leadership. Great work!

All the best,

Pinghui

From: Qiu, Xiangguo (PHAC/ASPC) <xiangguo.qiu@canada.ca>

Sent: Tuesday, March 19, 2019 8:16:06 AM

To: Liu, Shan-Lu; zhengzhiming4@gmail.com; haitguo@iupui.edu; tzhou@mail.nih.gov; GCheng@mednet.ucla.edu; liangy@umn.edu; rli@vcu.edu; wjma@ksu.edu; xjmeng@vt.edu; Zhijian.Chen@UTSouthwestern.edu; mluo@gsu.edu; zhangyj@umd.edu; xzhu1@umd.edu; jqiu@kumc.edu; lijun@uic.edu; fengwei.bai@usm.edu; andyu@iupui.edu; reachxw@vt.edu; gluo@uab.edu; ldu@nybc.org; hxu@tulane.edu; liu_fy@berkeley.edu; shitao.li@okstate.edu; Shan.lu@umassmed.edu; haihu@UTMB.edu; wenzheho@temple.edu; Qfeng4@central.uh.edu; tang@bio.fsu.edu; feng.li@sdstate.edu; ruilu@lsu.edu; sxiang2@unl.edu; qiye.tang@howard.edu; dingsw@ucr.edu; guohua@missouri.edu; bling@tulane.edu; junwang@pharmacy.arizona.edu; lifang@umn.edu; wang518@umd.edu; gaos8@upmc.edu; pewang@uchc.edu; xiangy@uthscsa.edu; fzhu@bio.fsu.edu; chen.liang@mccgill.ca; lyuan@vt.edu; fgao@duke.edu; wangjw28@163.com; xfyu1@zju.edu.cn; bzhao@partners.org; jianw@musc.edu; zyang@ksu.edu; yu.cong@nih.gov; Weiming Yuan; Zongdi.feng@nationwidechildrens.org; juh13@psu.edu; hengx@missouri.edu; lsu@med.unc.edu; ywu8@gmu.edu; jwu@whu.edu.cn; tshuo@uic.edu; Shibojiang@fudan.edu.cn; sjiang@nybc.org; Pin Wang;

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peijun@strubi.ox.ac.uk; jiayu@coh.org; bchen@crystal.harvard.edu; Wen, Haitao; Qu, Feng;
Hezhao.Ji@umanitoba.ca

Subject: RE: Open Letter to be published in Science this week

Shan-Lu,

Congrats!!! Many thanks to you and all involved in drafting and revising the letter.

Look forward to reading it in press.

Best,

Xiangguo

From: Liu, Shan-Lu [mailto:liu.6244@osu.edu]

Sent: 2019-03-19 8:53 AM

To: zhengzhiming4@gmail.com; haitguo@iupui.edu; tzhou@mail.nih.gov; GCheng@mednet.ucla.edu;
liangy@umn.edu; rli@vcu.edu; wjma@ksu.edu; xjmeng@vt.edu; Zhijian.Chen@UTSouthwestern.edu; mluo@gsu.edu;
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bchen@crystal.harvard.edu; Wen, Haitao; Qu, Feng; Hezhao.Ji@umanitoba.ca

Subject: Open Letter to be published in Science this week

Dear colleagues and friends:

I would like to share the news that our open letter entitled "Racial Profiling Harms Science" will be published in Science this Friday and should become online 2 pm this Thursday. The NIH response letter authored by Francis Collins and his leadership team will be published at the same time. Because both letters are still embargoed until 2 PM this Thursday, I am unable to share their contents at this time. SCBA members should receive an email alert today and tomorrow.

Please note changes have been made during the submission and revision process, and that CAHON and CBIS have joined to sign the letter. I will recap the details of this event sometime in

the future, but in the meantime, I would like to sincerely thank all of you for your patience and support.

特别致谢卢山,李子海和郑志明三位教授!

Cheers!

Shan-Lu 善虑

Re: Open Letter to be published in Science this week

From: Gao, Shou-jiang <gaos8@upmc.edu>
To: Qiu, Xiangguo (PHAC/ASPC) <xiangguo.qiu@canada.ca>, Liu, Shan-Lu <liu.6244@osu.edu>, zhengzhiming4@gmail.com, haitguo@iupui.edu, tzhou@mail.nih.gov, GCheng@mednet.ucla.edu, liangy@umn.edu, rli@vcu.edu, wjma@ksu.edu, xjmeng@vt.edu, Zhijian.Chen@UTSouthwestern.edu, mluo@gsu.edu, zhangyj@umd.edu, xzhu1@umd.edu, jqiu@kumc.edu, lijun@uic.edu, fengwei.bai@usm.edu, andyu@iupui.edu, reachxw@vt.edu, gluo@uab.edu, ldu@nybc.org, hxu@tulane.edu, liu_fy@berkeley.edu, shitao.li@okstate.edu, Shan.lu@umassmed.edu, haihu@UTMB.edu, wenzheho@temple.edu, Qfeng4@central.uh.edu, tang@bio.fsu.edu, feng.li@sdstate.edu, ruilu@lsu.edu, sxiang2@unl.edu, qiye.tang@howard.edu, dingsw@ucr.edu, guohua@missouri.edu, bling@tulane.edu, junwang@pharmacy.arizona.edu, lifang@umn.edu, wang518@umd.edu, pewang@uchc.edu, xiangy@uthscsa.edu, fzhu@bio.fsu.edu, chen.liang@mcgill.ca, lyuan@vt.edu, fgao@duke.edu, wangjw28@163.com, xfyu1@zju.edu.cn, bzhao@partners.org, jianw@musc.edu, zyang@ksu.edu, yu.cong@nih.gov, weiming.yuan@usc.edu, Zongdi.feng@nationwidechildrens.org, juh13@psu.edu, hengx@missouri.edu, lsu@med.unc.edu, ywu8@gmu.edu, jwu@whu.edu.cn, tshuo@uic.edu, Shibojiang@fudan.edu.cn, sjiang@nybc.org, pinwang@usc.edu, rzhao@som.umaryland.edu, shuylong@mail.sysu.edu.cn, xuefeng.liu@georgetown.edu, yuxingli@som.umaryland.edu, shixia.wang@umassmed.edu, yhe@ipbcams.ac.cn, Pinghui.feng@usc.edu, juttao.guo@bblumberg.org, lin.liu@okstate.edu, hua.zhu@rutgers.edu, Jinhong.chang@bblumberg.org, jianzhu1012@gmail.com, ronghai@ucr.edu, jun.zhu@nih.gov, jliu4@uams.edu, xiangpeng.kong@med.nyu.edu, haoquanwu@outlook.com, Wenjun.liu@defence.gov.au, Liang.shan@wustl.edu, hliao@duke.edu, yuan2@upenn.edu, zxing@umn.edu, hongmin.li@health.ny.gov, pzheng@ihv.umaryland.edu, yaliu@ihv.umaryland.edu, jxw103@case.edu, Feng Shao <shaofeng@nibs.ac.cn>, zlshi@wh.iov.cn, klan@whu.edu.cn, zengmsh@mail.sysu.edu.cn, Nan Yan <Nan.Yan@UTSouthwestern.edu>, Zhang, Rong <rongzhang@wustl.edu>, liliwang@upenn.edu, Linheng Li <LIL@stowers.org>, kli1@uthsc.edu, tsx@case.edu, ssun@mdanderson.org, ysang@tnstate.edu, zihai@musc.edu, wu@crystal.harvard.edu, Sun.Jie@mayo.edu, peijun@strubi.ox.ac.uk, jiayu@coh.org, bchen@crystal.harvard.edu, Wen, Haitao <Haitao.Wen@osumc.edu>, Qu, Feng <qu.28@osu.edu>, Hezhao.Ji@umanitoba.ca

Sent: March 19, 2019 10:31:41 AM CDT
Received: March 19, 2019 10:31:53 AM CDT

Dear Shan-Lu,

Thank you and all those who are involved in the process, which allow our voice to be heard by the community. Hope this will have an impact and change the mindset of the policy-makers, and public opinion.

Best,

SJ

Shou-Jiang Gao

From: Qiu, Xiangguo (PHAC/ASPC) <xiangguo.qiu@canada.ca>

Sent: Tuesday, March 19, 2019 11:16:06 AM

To: Liu, Shan-Lu; zhengzhiming4@gmail.com; haitguo@iupui.edu; tzhou@mail.nih.gov; GCheng@mednet.ucla.edu; liangy@umn.edu; rli@vcu.edu; wjma@ksu.edu; xjmeng@vt.edu; Zhijian.Chen@UTSouthwestern.edu; mluo@gsu.edu; zhangyj@umd.edu; xzhu1@umd.edu; jqiu@kumc.edu; lijun@uic.edu; fengwei.bai@usm.edu; andyu@iupui.edu; reachxw@vt.edu; gluo@uab.edu; ldu@nybc.org; hxu@tulane.edu; liu_fy@berkeley.edu; shitao.li@okstate.edu; Shan.lu@umassmed.edu; haihu@UTMB.edu; wenzheho@temple.edu; Qfeng4@central.uh.edu; tang@bio.fsu.edu; feng.li@sdstate.edu; ruilu@lsu.edu; sxiang2@unl.edu; qiye.tang@howard.edu; dingsw@ucr.edu; guohua@missouri.edu; bling@tulane.edu; junwang@pharmacy.arizona.edu; lifang@umn.edu; wang518@umd.edu; Gao, Shou-jiang; pewang@uchc.edu;

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特别致谢卢山,李子海和郑志明三位教授!

Cheers!

Shan-Lu 善虑

Re: Open Letter to be published in Science this week

From: Hao Wu <wu@crystal.harvard.edu>
To: Liu, Shan-Lu <liu.6244@osu.edu>, zhengzhiming4@gmail.com, haitguo@iupui.edu, tzhou@mail.nih.gov, GCheng@mednet.ucla.edu, liangy@umn.edu, rli@vcu.edu, wjma@ksu.edu, xjmeng@vt.edu, Zhijian.Chen@UTSouthwestern.edu, mluo@gsu.edu, zhangyj@umd.edu, xzhu1@umd.edu, jqiu@kumc.edu, lijun@uic.edu, fengwei.bai@usm.edu, andyu@iupui.edu, reachxw@vt.edu, gluo@uab.edu, ldu@nybc.org, hxu@tulane.edu, liu_fy@berkeley.edu, shitao.li@okstate.edu, Shan.lu@umassmed.edu, haihu@UTMB.edu, wenzheho@temple.edu, Qfeng4@central.uh.edu, tang@bio.fsu.edu, feng.li@sdstate.edu, ruilu@lsu.edu, sxiang2@unl.edu, qiyi.tang@howard.edu, dingsw@ucr.edu, guohua@missouri.edu, bling@tulane.edu, junwang@pharmacy.arizona.edu, lifang@umn.edu, wang518@umd.edu, gaos8@upmc.edu, pewang@uchc.edu, xiangy@uthscsa.edu, fzhu@bio.fsu.edu, chen.liang@mcgill.ca, lyuan@vt.edu, fgao@duke.edu, wangjw28@163.com, xfyu1@zju.edu.cn, bzhao@partners.org, jianw@musc.edu, zyang@ksu.edu, yu.cong@nih.gov, weiming.yuan@usc.edu, Zongdi.feng@nationwidechildrens.org, juh13@psu.edu, hengx@missouri.edu, lsu@med.unc.edu, ywu8@gmu.edu, jwu@whu.edu.cn, tshuo@uic.edu, Shibojiang@fudan.edu.cn, sjiang@nybc.org, pinwang@usc.edu, rzhao@som.umaryland.edu, shuylong@mail.sysu.edu.cn, xuefeng.liu@georgetown.edu, yuxingli@som.umaryland.edu, shixia.wang@umassmed.edu, yhe@ipbcams.ac.cn, Pinghui.feng@usc.edu, juttao.guo@bblumberg.org, lin.liu@okstate.edu, hua.zhu@rutgers.edu, Jinhong.chang@bblumberg.org, jianzhu1012@gmail.com, ronghai@ucr.edu, jun.zhu@nih.gov, jliu4@uams.edu, xiangpeng.kong@med.nyu.edu, haoquanwu@outlook.com, Wenjun.liu@defence.gov.au, Liang.shan@wustl.edu, hliao@duke.edu, yuan2@upenn.edu, zxing@umn.edu, hongmin.li@health.ny.gov, pzheng@ihv.umaryland.edu, yaliu@ihv.umaryland.edu, jxw103@case.edu, xiangguo.qiu@canada.ca, Feng Shao <shaofeng@nibs.ac.cn>, zishi@wh.iov.cn, klan@whu.edu.cn, zengmsh@mail.sysu.edu.cn, Nan Yan <Nan.Yan@UTSouthwestern.edu>, Zhang, Rong <rongzhang@wustl.edu>, liliwang@upenn.edu, Linheng Li <LIL@stowers.org>, kli1@uthsc.edu, tsx@case.edu, ssun@mdanderson.org, ysang@tnstate.edu, zihai@musc.edu, Sun.Jie@mayo.edu, peijun@strubi.ox.ac.uk, jiayu@coh.org, bchen@crystal.harvard.edu, Wen, Haitao <Haitao.Wen@osumc.edu>, Qu, Feng <qu.28@osu.edu>, Hezhao.Ji@umanitoba.ca
Sent: March 19, 2019 10:42:54 AM CDT
Received: March 19, 2019 10:43:04 AM CDT
Good news! Thank you all! Best, Hao

From: "Liu, Shan-Lu" <liu.6244@osu.edu>

Date: Tuesday, March 19, 2019 at 9:53 AM

To: "zhengzhiming4@gmail.com" <zhengzhiming4@gmail.com>, "haitguo@iupui.edu" <haitguo@iupui.edu>, "tzhou@mail.nih.gov" <tzhou@mail.nih.gov>, "GCheng@mednet.ucla.edu" <GCheng@mednet.ucla.edu>, "liangy@umn.edu" <liangy@umn.edu>, "rli@vcu.edu" <rli@vcu.edu>, "wjma@ksu.edu" <wjma@ksu.edu>, "xjmeng@vt.edu" <xjmeng@vt.edu>, Zhijian Chen <Zhijian.Chen@UTSouthwestern.edu>, "mluo@gsu.edu" <mluo@gsu.edu>, "zhangyj@umd.edu" <zhangyj@umd.edu>, "xzhu1@umd.edu" <xzhu1@umd.edu>, "jqiu@kumc.edu" <jqiu@kumc.edu>, "lijun@uic.edu" <lijun@uic.edu>, "fengwei.bai@usm.edu" <fengwei.bai@usm.edu>, "andyu@iupui.edu" <andyu@iupui.edu>, "reachxw@vt.edu" <reachxw@vt.edu>, "gluo@uab.edu" <gluo@uab.edu>, "ldu@nybc.org" <ldu@nybc.org>, "hxu@tulane.edu" <hxu@tulane.edu>, "liu_fy@berkeley.edu" <liu_fy@berkeley.edu>, "shitao.li@okstate.edu" <shitao.li@okstate.edu>, "Shan.lu@umassmed.edu" <Shan.lu@umassmed.edu>, "haihu@UTMB.edu" <haihu@UTMB.edu>, "wenzheho@temple.edu" <wenzheho@temple.edu>, "Qfeng4@central.uh.edu" <Qfeng4@central.uh.edu>, "tang@bio.fsu.edu" <tang@bio.fsu.edu>, "feng.li@sdstate.edu" <feng.li@sdstate.edu>, "ruilu@lsu.edu" <ruilu@lsu.edu>,

"sxiang2@unl.edu" <sxiang2@unl.edu>, "qiyi.tang@howard.edu" <qiyi.tang@howard.edu>, "dingsw@ucr.edu" <dingsw@ucr.edu>, "guohua@missouri.edu" <guohua@missouri.edu>, "bling@tulane.edu" <bling@tulane.edu>, "junwang@pharmacy.arizona.edu" <junwang@pharmacy.arizona.edu>, "lifang@umn.edu" <lifang@umn.edu>, "wang518@umd.edu" <wang518@umd.edu>, "gaos8@upmc.edu" <gaos8@upmc.edu>, "pewang@uchc.edu" <pewang@uchc.edu>, "xiangy@uthscsa.edu" <xiangy@uthscsa.edu>, "fzhu@bio.fsu.edu" <fzhu@bio.fsu.edu>, "chen.liang@mcgill.ca" <chen.liang@mcgill.ca>, "lyuan@vt.edu" <lyuan@vt.edu>, "fgao@duke.edu" <fgao@duke.edu>, "wangjw28@163.com" <wangjw28@163.com>, "xfyu1@zju.edu.cn" <xfyu1@zju.edu.cn>, "bzhao@partners.org" <bzhao@partners.org>, "jianw@musc.edu" <jianw@musc.edu>, "zyang@ksu.edu" <zyang@ksu.edu>, "yu.cong@nih.gov" <yu.cong@nih.gov>, "weiming.yuan@usc.edu" <weiming.yuan@usc.edu>, "Zongdi.feng@nationwidechildrens.org" <Zongdi.feng@nationwidechildrens.org>, "juh13@psu.edu" <juh13@psu.edu>, "hengx@missouri.edu" <hengx@missouri.edu>, "lsu@med.unc.edu" <lsu@med.unc.edu>, "ywu8@gmu.edu" <ywu8@gmu.edu>, "jwu@whu.edu.cn" <jwu@whu.edu.cn>, "tshuo@uic.edu" <tshuo@uic.edu>, "Shibojiang@fudan.edu.cn" <Shibojiang@fudan.edu.cn>, "sjiang@nybc.org" <sjiang@nybc.org>, "pinwang@usc.edu" <pinwang@usc.edu>, "rzhao@som.umaryland.edu" <rzhao@som.umaryland.edu>, "shuylong@mail.sysu.edu.cn" <shuylong@mail.sysu.edu.cn>, "xuefeng.liu@georgetown.edu" <xuefeng.liu@georgetown.edu>, "yuxingli@som.umaryland.edu" <yuxingli@som.umaryland.edu>, "shixia.wang@umassmed.edu" <shixia.wang@umassmed.edu>, "yhe@ipbcams.ac.cn" <yhe@ipbcams.ac.cn>, "Pinghui.feng@usc.edu" <Pinghui.feng@usc.edu>, "ju-tao.guo@bblumberg.org" <ju-tao.guo@bblumberg.org>, "lin.liu@okstate.edu" <lin.liu@okstate.edu>, "hua.zhu@rutgers.edu" <hua.zhu@rutgers.edu>, "Jinhong.chang@bblumberg.org" <Jinhong.chang@bblumberg.org>, "jianzhu1012@gmail.com" <jianzhu1012@gmail.com>, "ronghai@ucr.edu" <ronghai@ucr.edu>, "jun.zhu@nih.gov" <jun.zhu@nih.gov>, "jliu4@uams.edu" <jliu4@uams.edu>, "xiangpeng.kong@med.nyu.edu" <xiangpeng.kong@med.nyu.edu>, "haoquanwu@outlook.com" <haoquanwu@outlook.com>, "Wenjun.liu@defence.gov.au" <Wenjun.liu@defence.gov.au>, "Liang.shan@wustl.edu" <Liang.shan@wustl.edu>, "hliao@duke.edu" <hliao@duke.edu>, "yuan2@upenn.edu" <yuan2@upenn.edu>, "zxing@umn.edu" <zxing@umn.edu>, "hongmin.li@health.ny.gov" <hongmin.li@health.ny.gov>, "pzheng@ihv.umaryland.edu" <pzheng@ihv.umaryland.edu>, "yaliu@ihv.umaryland.edu" <yaliu@ihv.umaryland.edu>, "jxw103@case.edu" <jxw103@case.edu>, "xiangguo.qiu@canada.ca" <xiangguo.qiu@canada.ca>, Feng Shao <shaofeng@nibs.ac.cn>, "zlshi@wh.iov.cn" <zlshi@wh.iov.cn>, "klan@whu.edu.cn" <klan@whu.edu.cn>, "zengmsh@mail.sysu.edu.cn" <zengmsh@mail.sysu.edu.cn>, Nan Yan <Nan.Yan@UTSouthwestern.edu>, "Zhang, Rong" <rongzhang@wustl.edu>, "liliwang@upenn.edu" <liliwang@upenn.edu>, Linheng Li <LLL@stowers.org>, "kli1@uthsc.edu" <kli1@uthsc.edu>, Tsan Sam Xiao <tsx@case.edu>, "ssun@mdanderson.org" <ssun@mdanderson.org>, "ysang@tnstate.edu" <ysang@tnstate.edu>, "Liu, Shan-Lu" <liu.6244@osu.edu>, "zihai@musc.edu" <zihai@musc.edu>, "wu@crystal.harvard.edu" <wu@crystal.harvard.edu>, "Sun.Jie@mayo.edu" <Sun.Jie@mayo.edu>, "peijun@strubi.ox.ac.uk" <peijun@strubi.ox.ac.uk>, "jiayu@coh.org" <jiayu@coh.org>, "bchen@crystal.harvard.edu" <bchen@crystal.harvard.edu>, "Wen, Haitao" <Haitao.Wen@osumc.edu>, "Qu, Feng" <qu.28@osu.edu>, "Hezhao.Ji@umanitoba.ca" <Hezhao.Ji@umanitoba.ca>

Subject: Open Letter to be published in Science this week

Dear colleagues and friends:

I would like to share the news that our open letter entitled "Racial Profiling Harms Science" will be published in Science this Friday and should become online 2 pm this Thursday. The NIH response letter authored by Francis Collins and his leadership team will be published at the same time. Because both letters are still embargoed until 2 PM this Thursday, I am unable to share their contents at this time. SCBA members should receive an email alert today and tomorrow.

Please note changes have been made during the submission and revision process, and that CAHON and CBIS have joined to sign the letter. I will recap the details of this event sometime in

the future, but in the meantime, I would like to sincerely thank all of you for your patience and support.

特别致谢卢山,李子海和郑志明三位教授!

Cheers!

Shan-Lu 善虑

RE: Open Letter to be published in Science this week

From: Sang, Yongming (ysang) <ysang@tnstate.edu>
To: Pinghui Feng <pinghuif@usc.edu>, Qiu, Xiangguo (PHAC/ASPC) <xiangguo.qiu@canada.ca>, Liu, Shan-Lu <liu.6244@osu.edu>, zhengzhiming4@gmail.com, haitguo@iupui.edu, tzhou@mail.nih.gov, GCheng@mednet.ucla.edu, liangy@umn.edu, rli@vcu.edu, wjma@ksu.edu, xjmeng@vt.edu, Zhijian.Chen@UTSouthwestern.edu, mluo@gsu.edu, zhangyj@umd.edu, xzhu1@umd.edu, jqiu@kumc.edu, lijun@uic.edu, fengwei.bai@usm.edu, andyu@iupui.edu, reachxw@vt.edu, gluo@uab.edu, ldu@nybc.org, hxu@tulane.edu, liu_fy@berkeley.edu, shitao.li@okstate.edu, Shan.lu@umassmed.edu, haihu@UTMB.edu, wenzheho@temple.edu, Qfeng4@central.uh.edu, tang@bio.fsu.edu, feng.li@sdstate.edu, ruilu@lsu.edu, sxiang2@unl.edu, qiyi.tang@howard.edu, dingsw@ucr.edu, guohua@missouri.edu, bling@tulane.edu, junwang@pharmacy.arizona.edu, lifang@umn.edu, wang518@umd.edu, gaos8@upmc.edu, pewang@uchc.edu, xiangy@uthscsa.edu, fzhu@bio.fsu.edu, chen.liang@mcgill.ca, lyuan@vt.edu, fgao@duke.edu, wangjw28@163.com, xfyu1@zju.edu.cn, bzhao@partners.org, jianw@musc.edu, zyang@ksu.edu, yu.cong@nih.gov, Weiming Yuan <weiming.yuan@usc.edu>, Zongdi.feng@nationwidechildrens.org, juh13@psu.edu, hengx@missouri.edu, lsu@med.unc.edu, ywu8@gmu.edu, jwu@whu.edu.cn, tshuo@uic.edu, Shibojiang@fudan.edu.cn, sjiang@nybc.org, Pin Wang <pinwang@usc.edu>, rzhao@som.umaryland.edu, shuylong@mail.sysu.edu.cn, xuefeng.liu@georgetown.edu, yuxingli@som.umaryland.edu, shixia.wang@umassmed.edu, yhe@ipbcams.ac.cn, ju-tao.guo@bblumberg.org, lin.liu@okstate.edu, hua.zhu@rutgers.edu, Jinhong.chang@bblumberg.org, jianzhu1012@gmail.com, ronghai@ucr.edu, jun.zhu@nih.gov, jliu4@uams.edu, xiangpeng.kong@med.nyu.edu, haoquanwu@outlook.com, Wenjun.liu@defence.gov.au, Liang.shan@wustl.edu, hliao@duke.edu, yuan2@upenn.edu, zxing@umn.edu, hongmin.li@health.ny.gov, pzheng@ihv.umaryland.edu, yaliu@ihv.umaryland.edu, jxw103@case.edu, Feng Shao <shaofeng@nibs.ac.cn>, zshi@wh.iov.cn, klan@whu.edu.cn, zengmsh@mail.sysu.edu.cn, Nan Yan <Nan.Yan@UTSouthwestern.edu>, Zhang, Rong <rongzhang@wustl.edu>, liliwang@upenn.edu, Linheng Li <LIL@stowers.org>, kli1@uthsc.edu, tsx@case.edu, ssun@mdanderson.org, zihai@musc.edu, wu@crystal.harvard.edu, Sun.Jie@mayo.edu, peijun@strubi.ox.ac.uk, jiayu@coh.org, bchen@crystal.harvard.edu, Wen, Haitao <Haitao.Wen@osumc.edu>, Qu, Feng <qu.28@osu.edu>, Hezhao.Ji@umanitoba.ca
Sent: March 19, 2019 10:51:11 AM CDT
Received: March 19, 2019 10:51:23 AM CDT

Hi Shan-Lu,

Great work! Appreciate for your leadership and effort. Regards, Yongming

From: Pinghui Feng <pinghuif@usc.edu>

Sent: Tuesday, March 19, 2019 10:29 AM

To: Qiu, Xiangguo (PHAC/ASPC) <xiangguo.qiu@canada.ca>; Liu, Shan-Lu <liu.6244@osu.edu>; zhengzhiming4@gmail.com; haitguo@iupui.edu; tzhou@mail.nih.gov; GCheng@mednet.ucla.edu; liangy@umn.edu; rli@vcu.edu; wjma@ksu.edu; xjmeng@vt.edu; Zhijian.Chen@UTSouthwestern.edu; mluo@gsu.edu; zhangyj@umd.edu; xzhu1@umd.edu; jqiu@kumc.edu; lijun@uic.edu; fengwei.bai@usm.edu; andyu@iupui.edu; reachxw@vt.edu; gluo@uab.edu; ldu@nybc.org; hxu@tulane.edu; liu_fy@berkeley.edu; shitao.li@okstate.edu; Shan.lu@umassmed.edu; haihu@UTMB.edu; wenzheho@temple.edu; Qfeng4@central.uh.edu; tang@bio.fsu.edu; feng.li@sdstate.edu; ruilu@lsu.edu; sxiang2@unl.edu; qiyi.tang@howard.edu; dingsw@ucr.edu; guohua@missouri.edu; bling@tulane.edu; junwang@pharmacy.arizona.edu; lifang@umn.edu; wang518@umd.edu; gaos8@upmc.edu; pewang@uchc.edu; xiangy@uthscsa.edu; fzhu@bio.fsu.edu; chen.liang@mcgill.ca; lyuan@vt.edu; fgao@duke.edu; wangjw28@163.com; xfyu1@zju.edu.cn; bzhao@partners.org; jianw@musc.edu; zyang@ksu.edu; yu.cong@nih.gov; Weiming Yuan <weiming.yuan@usc.edu>;

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Subject: Re: Open Letter to be published in Science this week

[EXTERNAL]

Dear Shan-Lu,

Thank your team for your hard work and leadership. Great work!

All the best,
Pinghui

From: Qiu, Xiangguo (PHAC/ASPC) <xiangguo.qiu@canada.ca>

Sent: Tuesday, March 19, 2019 8:16:06 AM

To: Liu, Shan-Lu; zhengzhiming4@gmail.com; haitao@iupui.edu; tzhou@mail.nih.gov; GCheng@mednet.ucla.edu; liangy@umn.edu; rli@vcu.edu; wjma@ksu.edu; xjmeng@vt.edu; Zhijian.Chen@UTSouthwestern.edu; mluo@gsu.edu; zhangyj@umd.edu; xzhu1@umd.edu; jqu@kumc.edu; lijun@uic.edu; fengwei.bai@usm.edu; andyu@iupui.edu; reachxw@vt.edu; gluo@uab.edu; ldu@nybc.org; hxu@tulane.edu; liu_fy@berkeley.edu; shitao.li@okstate.edu; Shan.lu@umassmed.edu; haihu@UTMB.edu; wenzheho@temple.edu; Qfeng4@central.uh.edu; tang@bio.fsu.edu; feng.li@sdstate.edu; ruihu@lsu.edu; sxiang2@unl.edu; qiyi.tang@howard.edu; dingsw@ucr.edu; guohua@missouri.edu; bling@tulane.edu; junwang@pharmacy.arizona.edu; lifang@umn.edu; wang518@umd.edu; gaos8@upmc.edu; pewang@uchc.edu; xiangy@uthscsa.edu; fzhu@bio.fsu.edu; chen.liang@mcgill.ca; lyuan@vt.edu; fgao@duke.edu; wangjw28@163.com; xfyu1@zju.edu.cn; bzhao@partners.org; jianw@musc.edu; zyang@ksu.edu; yu.cong@nih.gov; Weiming Yuan; Zongdi.feng@nationwidechildrens.org; juh13@psu.edu; hengx@missouri.edu; lsu@med.unc.edu; ywu8@gmu.edu; jwu@whu.edu.cn; tshuo@uic.edu; Shibojiang@fudan.edu.cn; sjiang@nybc.org; Pin Wang; rzhao@som.umaryland.edu; shuylong@mail.sysu.edu.cn; xuefeng.liu@georgetown.edu; yuxingli@som.umaryland.edu; shixia.wang@umassmed.edu; yhe@ipbcams.ac.cn; Pinghui Feng; ju-tao.guo@bblumberg.org; lin.liu@okstate.edu; hua.zhu@rutgers.edu; Jinhong.chang@bblumberg.org; jianzhu1012@gmail.com; ronghai@ucr.edu; jun.zhu@nih.gov; jliu4@uams.edu; xiangpeng.kong@med.nyu.edu; haoquanwu@outlook.com; Wenjun.liu@defence.gov.au; Liang.shan@wustl.edu; hliao@duke.edu; yuan2@upenn.edu; zxing@umn.edu; hongmin.li@health.ny.gov; pzheng@ihv.umaryland.edu; yaliu@ihv.umaryland.edu; jxw103@case.edu; Feng Shao; zlshi@wh.iov.cn; klan@whu.edu.cn; zengmsh@mail.sysu.edu.cn; Nan Yan; Zhang, Rong; liliwang@upenn.edu; Linheng Li; kli1@uthsc.edu; tsx@case.edu; ssun@mdanderson.org; ysang@tnstate.edu; zihai@musc.edu; wu@crystal.harvard.edu; Sun.Jie@mayo.edu; peijun@strubi.ox.ac.uk; jiayu@coh.org; bchen@crystal.harvard.edu; Wen, Haitao; Qu, Feng; Hezhao.Ji@umanitoba.ca

Subject: RE: Open Letter to be published in Science this week

Shan-Lu,

Congrats!!! Many thanks to you and all involved in drafting and revising the letter.

Look forward to reading it in press.

Best,

Xiangguo

From: Liu, Shan-Lu [<mailto:liu.6244@osu.edu>]

Sent: 2019-03-19 8:53 AM

To: zhengzhiming4@gmail.com; haitao@iupui.edu; tzhou@mail.nih.gov; GCheng@mednet.ucla.edu; liangy@umn.edu; rli@vcu.edu; wjma@ksu.edu; xjmeng@vt.edu; Zhijian.Chen@UTSouthwestern.edu; mlo@gsu.edu; zhangyj@umd.edu; xzhu1@umd.edu; jqu@kumc.edu; lijun@uic.edu; fengwei.bai@usm.edu; andyu@iupui.edu; reachxw@vt.edu; gluo@uab.edu; ldu@nybc.org; hxu@tulane.edu; liu_fy@berkeley.edu; shitao.li@okstate.edu; Shan.lu@umassmed.edu; haihu@UTMB.edu; wenzheho@temple.edu; Qfeng4@central.uh.edu; tang@bio.fsu.edu; feng.li@sdstate.edu; rui@lsu.edu; sxiang2@unl.edu; qiyi.tang@howard.edu; dingsw@ucr.edu; guohua@missouri.edu; bling@tulane.edu; junwang@pharmacy.arizona.edu; lifang@umn.edu; wang518@umd.edu; gaos8@upmc.edu; pewang@uchc.edu; xiangy@uthscsa.edu; fzhu@bio.fsu.edu; chen.liang@mcgill.ca; lyuan@vt.edu; fgao@duke.edu; wangjw28@163.com; xfyu1@zju.edu.cn; bzhao@partners.org; jianw@musc.edu; zyang@ksu.edu; yu.cong@nih.gov; weiming.yuan@usc.edu; Zongdi.feng@nationwidechildrens.org; juh13@psu.edu; hengx@missouri.edu; lsu@med.unc.edu; ywu8@gmu.edu; jwu@whu.edu.cn; tshuo@uic.edu; Shibojiang@fudan.edu.cn; sjiang@nybc.org; pinwang@usc.edu; rzhao@som.umaryland.edu; shuyulong@mail.sysu.edu.cn; xuefeng.liu@georgetown.edu; yuxingli@som.umaryland.edu; shixia.wang@umassmed.edu; yhe@ipbcams.ac.cn; Pinghui.feng@usc.edu; ju-tao.guo@bblumberg.org; lin.liu@okstate.edu; hua.zhu@rutgers.edu; Jinhong.chang@bblumberg.org; jianzhu1012@gmail.com; ronghai@ucr.edu; jun.zhu@nih.gov; jliu4@uams.edu; xiangpeng.kong@med.nyu.edu; haoquanwu@outlook.com; Wenjun.liu@defence.gov.au; Liang.shan@wustl.edu; hliao@duke.edu; yuan2@upenn.edu; zxing@umn.edu; hongmin.li@health.ny.gov; pzheng@ihv.umaryland.edu; yaliu@ihv.umaryland.edu; jxw103@case.edu; Qiu, Xiangguo (PHAC/ASPC); Feng Shao; zishi@wh.iov.cn; kian@whu.edu.cn; zengmsh@mail.sysu.edu.cn; Nan Yan; Zhang, Rong; liliwang@upenn.edu; Linheng Li; kli1@uthsc.edu; tsx@case.edu; ssun@mdanderson.org; ysang@tnstate.edu; Liu, Shan-Lu; zihai@musc.edu; wu@crystal.harvard.edu; Sun.Jie@mayo.edu; peijun@strubi.ox.ac.uk; jiayu@coh.org; bchen@crystal.harvard.edu; Wen, Haitao; Qu, Feng; Hezhao.Ji@umanitoba.ca

Subject: Open Letter to be published in Science this week

Dear colleagues and friends:

I would like to share the news that our open letter entitled "Racial Profiling Harms Science" will be published in Science this Friday and should become online 2 pm this Thursday. The NIH response letter authored by Francis Collins and his leadership team will be published at the same time. Because both letters are still embargoed until 2 PM this Thursday, I am unable to share their contents at this time. SCBA members should receive an email alert today and tomorrow.

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特别致谢卢山,李子海和郑志明三位教授!

Cheers!

Shan-Lu 善虑

RE: Open Letter to be published in Science this week

From: Li, Hongmin (HEALTH) <hongmin.li@health.ny.gov>
To: Liu, Shan-Lu <liu.6244@osu.edu>, zhengzhiming4@gmail.com, haitguo@iupui.edu, tzhou@mail.nih.gov, GCheng@mednet.ucla.edu, liangy@umn.edu, rli@vcu.edu, wjma@ksu.edu, xjmeng@vt.edu, Zhijian.Chen@UTSouthwestern.edu, mluo@gsu.edu, zhangyj@umd.edu, xzhu1@umd.edu, jqiu@kumc.edu, lijun@uic.edu, fengwei.bai@usm.edu, andyu@iupui.edu, reachxw@vt.edu, gluo@uab.edu, ldu@nybc.org, hxu@tulane.edu, liu_fy@berkeley.edu, shitao.li@okstate.edu, Shan.lu@umassmed.edu, haihu@UTMB.edu, wenzheho@temple.edu, Qfeng4@central.uh.edu, tang@bio.fsu.edu, feng.li@sdstate.edu, ruilu@lsu.edu, sxiang2@unl.edu, qiyi.tang@howard.edu, dingsw@ucr.edu, guohua@missouri.edu, bling@tulane.edu, junwang@pharmacy.arizona.edu, lifang@umn.edu, wang518@umd.edu, gaos8@upmc.edu, pewang@uchc.edu, xiangy@uthscsa.edu, fzhu@bio.fsu.edu, chen.liang@mcgill.ca, lyuan@vt.edu, fgao@duke.edu, wangjw28@163.com, xfyu1@zju.edu.cn, bzhao@partners.org, jianw@musc.edu, zyang@ksu.edu, yu.cong@nih.gov, weiming.yuan@usc.edu, Zongdi.feng@nationwidechildrens.org, juh13@psu.edu, hengx@missouri.edu, lsu@med.unc.edu, ywu8@gmu.edu, jwu@whu.edu.cn, tshuo@uic.edu, Shibojiang@fudan.edu.cn, sjiang@nybc.org, pinwang@usc.edu, rzhao@som.umaryland.edu, shuylong@mail.sysu.edu.cn, xuefeng.liu@georgetown.edu, yuxingli@som.umaryland.edu, shixia.wang@umassmed.edu, yhe@ipbcams.ac.cn, Pinghui.feng@usc.edu, juttao.guo@bblumberg.org, lin.liu@okstate.edu, hua.zhu@rutgers.edu, Jinhong.chang@bblumberg.org, jianzhu1012@gmail.com, ronghai@ucr.edu, jun.zhu@nih.gov, jliu4@uams.edu, xiangpeng.kong@med.nyu.edu, haoquanwu@outlook.com, Wenjun.liu@defence.gov.au, Liang.shan@wustl.edu, hliao@duke.edu, yuan2@upenn.edu, zxing@umn.edu, pzheng@ihv.umaryland.edu, yaliu@ihv.umaryland.edu, jxw103@case.edu, xiangguo.qiu@canada.ca, Feng Shao <shaofeng@nibs.ac.cn>, zlshi@wh.iov.cn, klan@whu.edu.cn, zengmsh@mail.sysu.edu.cn, Nan Yan <Nan.Yan@UTSouthwestern.edu>, Zhang, Rong <rongzhang@wustl.edu>, liliwang@upenn.edu, Linheng Li <LIL@stowers.org>, kli1@uthsc.edu, tsx@case.edu, ssun@mdanderson.org, ysang@tnstate.edu, zihai@musc.edu, wu@crystal.harvard.edu, Sun.Jie@mayo.edu, peijun@strubi.ox.ac.uk, jiayu@coh.org, bchen@crystal.harvard.edu, Wen, Haitao <Haitao.Wen@osumc.edu>, Qu, Feng <qu.28@osu.edu>, Hezhao.Ji@umanitoba.ca
Sent: March 19, 2019 10:54:48 AM CDT
Received: March 19, 2019 10:54:59 AM CDT

Great work and accomplishment. Appreciate for your leadership and effort. Thanks for hard work. HM

From: Liu, Shan-Lu <liu.6244@osu.edu>

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tao.guo@bblumberg.org; lin.liu@okstate.edu; hua.zhu@rutgers.edu; Jinhong.chang@bblumberg.org; jianzhu1012@gmail.com; ronghai@ucr.edu; jun.zhu@nih.gov; jliu4@uams.edu; xiangpeng.kong@med.nyu.edu; haoquanwu@outlook.com; Wenjun.liu@defence.gov.au; Liang.shan@wustl.edu; hliao@duke.edu; yuan2@upenn.edu; zxing@umn.edu; Li, Hongmin (HEALTH) <hongmin.li@health.ny.gov>; pzheng@ihv.umaryland.edu; yaliu@ihv.umaryland.edu; jxw103@case.edu; xiangguo.qiu@canada.ca; Feng Shao <shaofeng@nibs.ac.cn>; zlshe@wh.iov.cn; klan@whu.edu.cn; zengmsh@mail.sysu.edu.cn; Nan Yan <Nan.Yan@UTSouthwestern.edu>; Zhang, Rong <rongzhang@wustl.edu>; liliwang@upenn.edu; Linheng Li <LIL@stowers.org>; kli1@uthsc.edu; tsx@case.edu; ssun@mdanderson.org; ysang@tnstate.edu; Liu, Shan-Lu <liu.6244@osu.edu>; zihai@musc.edu; wu@crystal.harvard.edu; Sun.Jie@mayo.edu; peijun@strubi.ox.ac.uk; jiayu@coh.org; bchen@crystal.harvard.edu; Wen, Haitao <Haitao.Wen@osumc.edu>; Qu, Feng <qu.28@osu.edu>; Hezhao.Ji@umanitoba.ca

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特别致谢卢山,李子海和郑志明三位教授!

Cheers!

Shan-Lu 善虑

Re: Open Letter to be published in Science this week

From: Su, Lishan <lishan_su@med.unc.edu>
To: Liu, Shan-Lu <liu.6244@osu.edu>, zhengzhiming4@gmail.com, haitguo@iupui.edu, tzhou@mail.nih.gov, GCheng@mednet.ucla.edu, liangy@umn.edu, rli@vcu.edu, wjma@ksu.edu, xjmeng@vt.edu, Zhijian.Chen@UTSouthwestern.edu, mluo@gsu.edu, zhangyj@umd.edu, xzhu1@umd.edu, jqiu@kumc.edu, lijun@uic.edu, fengwei.bai@usm.edu, andyu@iupui.edu, reachxw@vt.edu, gluo@uab.edu, ldu@nybc.org, hxu@tulane.edu, liu_fy@berkeley.edu, shitao.li@okstate.edu, Shan.lu@umassmed.edu, haihu@UTMB.edu, wenzheho@temple.edu, Qfeng4@central.uh.edu, tang@bio.fsu.edu, feng.li@sdstate.edu, ruilu@lsu.edu, sxiang2@unl.edu, qiyi.tang@howard.edu, dingsw@ucr.edu, guohua@missouri.edu, bling@tulane.edu, junwang@pharmacy.arizona.edu, lifang@umn.edu, wang518@umd.edu, gaos8@upmc.edu, pewang@uchc.edu, xiangy@uthscsa.edu, fzhu@bio.fsu.edu, chen.liang@mcgill.ca, lyuan@vt.edu, fgao@duke.edu, wangjw28@163.com, xfyu1@zju.edu.cn, bzhao@partners.org, jianw@musc.edu, zyang@ksu.edu, yu.cong@nih.gov, weiming.yuan@usc.edu, Zongdi.feng@nationwidechildrens.org, juh13@psu.edu, hengx@missouri.edu, ywu8@gmu.edu, jwu@whu.edu.cn, tshuo@uic.edu, Shibojiang@fudan.edu.cn, sjiang@nybc.org, pinwang@usc.edu, rzhao@som.umaryland.edu, shuylong@mail.sysu.edu.cn, xuefeng.liu@georgetown.edu, yuxingli@som.umaryland.edu, shixia.wang@umassmed.edu, yhe@ipbcams.ac.cn, Pinghui.feng@usc.edu, ju-tao.guo@bblumberg.org, lin.liu@okstate.edu, hua.zhu@rutgers.edu, Jinhong.chang@bblumberg.org, jianzhu1012@gmail.com, ronghai@ucr.edu, jun.zhu@nih.gov, jliu4@uams.edu, xiangpeng.kong@med.nyu.edu, haoquanwu@outlook.com, Wenjun.liu@defence.gov.au, Liang.shan@wustl.edu, hliao@duke.edu, yuan2@upenn.edu, zxing@umn.edu, hongmin.li@health.ny.gov, pzheng@ihv.umaryland.edu, yaliu@ihv.umaryland.edu, jxw103@case.edu, xiangguo.qiu@canada.ca, Feng Shao <shaofeng@nibs.ac.cn>, zlshi@wh.iov.cn, klan@whu.edu.cn, zengmsh@mail.sysu.edu.cn, Nan Yan <Nan.Yan@UTSouthwestern.edu>, Zhang, Rong <rongzhang@wustl.edu>, liliwang@upenn.edu, Linheng Li <LIL@stowers.org>, kli1@uthsc.edu, tsx@case.edu, ssun@mdanderson.org, ysang@tnstate.edu, zihai@musc.edu, wu@crystal.harvard.edu, Sun.Jie@mayo.edu, peijun@strubi.ox.ac.uk, jiayu@coh.org, bchen@crystal.harvard.edu, Wen, Haitao <Haitao.Wen@osumc.edu>, Qu, Feng <qu.28@osu.edu>, Hezhao.Ji@umanitoba.ca
Sent: March 19, 2019 11:06:18 AM CDT
Received: March 19, 2019 11:06:33 AM CDT

Great!
Thanks!

-Lishan

From: "Liu, Shan-Lu" <liu.6244@osu.edu>

Date: Tuesday, March 19, 2019 at 9:52 AM

To: "zhengzhiming4@gmail.com" <zhengzhiming4@gmail.com>, "Guo, Haitao" <haitguo@iupui.edu>, "tzhou@mail.nih.gov" <tzhou@mail.nih.gov>, "Cheng, Genhong" <GCheng@mednet.ucla.edu>, "liangy@umn.edu" <liangy@umn.edu>, "rli@vcu.edu" <rli@vcu.edu>, "wjma@ksu.edu" <wjma@ksu.edu>, "xjmeng@vt.edu" <xjmeng@vt.edu>, "Zhijian.Chen@UTSouthwestern.edu" <Zhijian.Chen@UTSouthwestern.edu>, "mluo@gsu.edu" <mluo@gsu.edu>, "zhangyj@umd.edu" <zhangyj@umd.edu>, "xzhu1@umd.edu" <xzhu1@umd.edu>, "jqiu@kumc.edu" <jqiu@kumc.edu>, "lijun@uic.edu" <lijun@uic.edu>, "fengwei.bai@usm.edu" <fengwei.bai@usm.edu>, "andyu@iupui.edu" <andyu@iupui.edu>, "reachxw@vt.edu" <reachxw@vt.edu>, "gluo@uab.edu" <gluo@uab.edu>, "ldu@nybc.org" <ldu@nybc.org>, "hxu@tulane.edu" <hxu@tulane.edu>, "liu_fy@berkeley.edu" <liu_fy@berkeley.edu>, "shitao.li@okstate.edu" <shitao.li@okstate.edu>, "Shan.lu@umassmed.edu"

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RE: Open Letter to be published in Science this week

From: Wenjun Ma <wma@vet.k-state.edu>
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Sent: March 19, 2019 11:08:45 AM CDT
Received: March 19, 2019 11:08:52 AM CDT

Great news and significant achievement. Hope our voice will be heard by community.

Thanks Shan-Lu and others for leadership and efforts.

Wenjun

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Subject: Open Letter to be published in Science this week

Dear colleagues and friends:

I would like to share the news that our open letter entitled “Racial Profiling Harms Science” will be published in Science this Friday and should become online 2 pm this Thursday. The NIH response letter authored by Francis Collins and his leadership team will be published at the same time. Because both letters are still embargoed until 2 PM this Thursday, I am unable to share their contents at this time. SCBA members should receive an email alert today and tomorrow.

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特别致谢卢山,李子海和郑志明三位教授!

Cheers!

Shan-Lu 善虑

Re: [EXTERNAL] RE: Open Letter to be published in Science this week

From: Sun, Jie, Ph.D. <Sun.Jie@mayo.edu>
To: Wenjun Ma <wma@vet.k-state.edu>, Liu, Shan-Lu <liu.6244@osu.edu>, zhengzhiming4@gmail.com, haitguo@iupui.edu, tzhou@mail.nih.gov, GCheng@mednet.ucla.edu, liangy@umn.edu, rli@vcu.edu, wjma@ksu.edu, xjmeng@vt.edu, Zhijian.Chen@UTSouthwestern.edu, mluo@gsu.edu, zhangyj@umd.edu, xzhu1@umd.edu, jqiu@kumc.edu, lijun@uic.edu, fengwei.bai@usm.edu, andyu@iupui.edu, reachxw@vt.edu, gluo@uab.edu, ldu@nybc.org, hxu@tulane.edu, liu_fy@berkeley.edu, shitao.li@okstate.edu, Shan.lu@umassmed.edu, haihu@UTMB.edu, wenzheho@temple.edu, Qfeng4@central.uh.edu, tang@bio.fsu.edu, feng.li@sdstate.edu, ruilu@lsu.edu, sxiang2@unl.edu, qiyi.tang@howard.edu, dingsw@ucr.edu, guohua@missouri.edu, bling@tulane.edu, junwang@pharmacy.arizona.edu, lifang@umn.edu, wang518@umd.edu, gaos8@upmc.edu, pewang@uchc.edu, xiangy@uthscsa.edu, fzhu@bio.fsu.edu, chen.liang@mcgill.ca, lyuan@vt.edu, fgao@duke.edu, wangjw28@163.com, xfyu1@zju.edu.cn, bzhao@partners.org, jianw@musc.edu, zyang@ksu.edu, yu.cong@nih.gov, weiming.yuan@usc.edu, Zongdi.feng@nationwidechildrens.org, juh13@psu.edu, hengx@missouri.edu, lsu@med.unc.edu, ywu8@gmu.edu, jwu@whu.edu.cn, tshuo@uic.edu, Shibojiang@fudan.edu.cn, sjiang@nybc.org, pinwang@usc.edu, rzhao@som.umaryland.edu, shuylong@mail.sysu.edu.cn, xuefeng.liu@georgetown.edu, yuxingli@som.umaryland.edu, shixia.wang@umassmed.edu, yhe@ipbcams.ac.cn, Pinghui.feng@usc.edu, ju-tao.guo@bblumberg.org, lin.liu@okstate.edu, hua.zhu@rutgers.edu, Jinhong.chang@bblumberg.org, jianzhu1012@gmail.com, ronghai@ucr.edu, jun.zhu@nih.gov, jliu4@uams.edu, xiangpeng.kong@med.nyu.edu, haoquanwu@outlook.com, Wenjun.liu@defence.gov.au, Liang.shan@wustl.edu, hliao@duke.edu, yuan2@upenn.edu, zxing@umn.edu, hongmin.li@health.ny.gov, pzheng@ihv.umaryland.edu, yaliu@ihv.umaryland.edu, jxw103@case.edu, xiangguo.qiu@canada.ca, Feng Shao <shaofeng@nibs.ac.cn>, zshi@wh.iov.cn, klan@whu.edu.cn, zengmsh@mail.sysu.edu.cn, Nan Yan <Nan.Yan@UTSouthwestern.edu>, Zhang, Rong <rongzhang@wustl.edu>, liliwang@upenn.edu, Linheng Li <LIL@stowers.org>, kli1@uthsc.edu, tsx@case.edu, ssun@mdanderson.org, ysang@tnstate.edu, zihai@musc.edu, wu@crystal.harvard.edu, peijun@strubi.ox.ac.uk, jiayu@coh.org, bchen@crystal.harvard.edu, Wen, Haitao <Haitao.Wen@osumc.edu>, Qu, Feng <qu.28@osu.edu>, Hezhao.Ji@umanitoba.ca
Sent: March 19, 2019 11:15:19 AM CDT
Received: March 19, 2019 11:15:28 AM CDT

Congratulations. Thanks Drs. Liu, Li, Lu and Zheng for your leadership and efforts.

All the best,

Jie

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Date: Tuesday, March 19, 2019 at 11:08 AM

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特别致谢卢山,李子海和郑志明三位教授!

Cheers!

Shan-Lu 善虑

RE: Open Letter to be published in Science this week

From: Luo, Guangxiang G <gluo@uab.edu>
To: Liu, Shan-Lu <liu.6244@osu.edu>, zhengzhiming4@gmail.com, haitguo@iupui.edu, tzhou@mail.nih.gov, GCheng@mednet.ucla.edu, liangy@umn.edu, rli@vcu.edu, wjma@ksu.edu, xjmeng@vt.edu, Zhijian.Chen@UTSouthwestern.edu, mluo@gsu.edu, zhangyj@umd.edu, xzhu1@umd.edu, jqiu@kumc.edu, lijun@uic.edu, fengwei.bai@usm.edu, andyu@iupui.edu, reachxw@vt.edu, ldu@nybc.org, hxu@tulane.edu, liu_fy@berkeley.edu, shitao.li@okstate.edu, Shan.lu@umassmed.edu, haihu@UTMB.edu, wenzheho@temple.edu, Qfeng4@central.uh.edu, tang@bio.fsu.edu, feng.li@sdstate.edu, ruilu@lsu.edu, sxiang2@unl.edu, qiyi.tang@howard.edu, dingsw@ucr.edu, guohua@missouri.edu, bling@tulane.edu, junwang@pharmacy.arizona.edu, lifang@umn.edu, wang518@umd.edu, gaos8@upmc.edu, pewang@uchc.edu, xiangy@uthscsa.edu, fzhu@bio.fsu.edu, chen.liang@mcgill.ca, lyuan@vt.edu, fgao@duke.edu, wangjw28@163.com, xfyu1@zju.edu.cn, bzhao@partners.org, jianw@musc.edu, zyang@ksu.edu, yu.cong@nih.gov, weiming.yuan@usc.edu, Zongdi.feng@nationwidechildrens.org, juh13@psu.edu, hengx@missouri.edu, lsu@med.unc.edu, ywu8@gmu.edu, jwu@whu.edu.cn, tshuo@uic.edu, Shibojiang@fudan.edu.cn, sjiang@nybc.org, pinwang@usc.edu, rzhao@som.umaryland.edu, shuylong@mail.sysu.edu.cn, xuefeng.liu@georgetown.edu, yuxingli@som.umaryland.edu, shixia.wang@umassmed.edu, yhe@ipbcams.ac.cn, Pinghui.feng@usc.edu, ju-tao.guo@bblumberg.org, lin.liu@okstate.edu, hua.zhu@rutgers.edu, Jinhong.chang@bblumberg.org, jianzhu1012@gmail.com, ronghai@ucr.edu, jun.zhu@nih.gov, jliu4@uams.edu, xiangpeng.kong@med.nyu.edu, haoquanwu@outlook.com, Wenjun.liu@defence.gov.au, Liang.shan@wustl.edu, hliao@duke.edu, yuan2@upenn.edu, zxing@umn.edu, hongmin.li@health.ny.gov, pzheng@ihv.umaryland.edu, yaliu@ihv.umaryland.edu, jxw103@case.edu, xiangguo.qiu@canada.ca, Feng Shao <shaofeng@nibs.ac.cn>, zishi@wh.iov.cn, klan@whu.edu.cn, zengmsh@mail.sysu.edu.cn, Nan Yan <Nan.Yan@UTSouthwestern.edu>, Zhang, Rong <rongzhang@wustl.edu>, liliwang@upenn.edu, Linheng Li <LIL@stowers.org>, kli1@uthsc.edu, tsx@case.edu, ssun@mdanderson.org, ysang@tnstate.edu, zihai@musc.edu, wu@crystal.harvard.edu, Sun.Jie@mayo.edu, peijun@strubi.ox.ac.uk, jiayu@coh.org, bchen@crystal.harvard.edu, Wen, Haitao <Haitao.Wen@osumc.edu>, Qu, Feng <qu.28@osu.edu>, Hezhao.Ji@umanitoba.ca
Sent: March 19, 2019 11:16:44 AM CDT
Received: March 19, 2019 11:16:49 AM CDT

Congratulations again on the success in advocating for all Chinese and foreign scientists in the US! I wish you would take a bigger role in SCBA in coming years!

From: Liu, Shan-Lu [mailto:liu.6244@osu.edu]

Sent: Tuesday, March 19, 2019 8:53 AM

To: zhengzhiming4@gmail.com; haitguo@iupui.edu; tzhou@mail.nih.gov; GCheng@mednet.ucla.edu; liangy@umn.edu; rli@vcu.edu; wjma@ksu.edu; xjmeng@vt.edu; Zhijian.Chen@UTSouthwestern.edu; mluo@gsu.edu; zhangyj@umd.edu; xzhu1@umd.edu; jqiu@kumc.edu; lijun@uic.edu; fengwei.bai@usm.edu; andyu@iupui.edu; reachxw@vt.edu; Luo, Guangxiang G; ldu@nybc.org; hxu@tulane.edu; liu_fy@berkeley.edu; shitao.li@okstate.edu; Shan.lu@umassmed.edu; haihu@UTMB.edu; wenzheho@temple.edu; Qfeng4@central.uh.edu; tang@bio.fsu.edu; feng.li@sdstate.edu; ruilu@lsu.edu; sxiang2@unl.edu; qiyi.tang@howard.edu; dingsw@ucr.edu; guohua@missouri.edu; bling@tulane.edu; junwang@pharmacy.arizona.edu; lifang@umn.edu; wang518@umd.edu; gaos8@upmc.edu; pewang@uchc.edu; xiangy@uthscsa.edu; fzhu@bio.fsu.edu; chen.liang@mcgill.ca; lyuan@vt.edu; fgao@duke.edu; wangjw28@163.com; xfyu1@zju.edu.cn; bzhao@partners.org; jianw@musc.edu; zyang@ksu.edu; yu.cong@nih.gov; weiming.yuan@usc.edu; Zongdi.feng@nationwidechildrens.org; juh13@psu.edu; hengx@missouri.edu; lsu@med.unc.edu; ywu8@gmu.edu; jwu@whu.edu.cn; tshuo@uic.edu; Shibojiang@fudan.edu.cn; sjiang@nybc.org; pinwang@usc.edu; rzhao@som.umaryland.edu; shuylong@mail.sysu.edu.cn; xuefeng.liu@georgetown.edu; yuxingli@som.umaryland.edu; shixia.wang@umassmed.edu; yhe@ipbcams.ac.cn; Pinghui.feng@usc.edu; ju-tao.guo@bblumberg.org; lin.liu@okstate.edu; hua.zhu@rutgers.edu; Jinhong.chang@bblumberg.org; jianzhu1012@gmail.com;

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Subject: Open Letter to be published in Science this week

Dear colleagues and friends:

I would like to share the news that our open letter entitled “Racial Profiling Harms Science” will be published in Science this Friday and should become online 2 pm this Thursday. The NIH response letter authored by Francis Collins and his leadership team will be published at the same time. Because both letters are still embargoed until 2 PM this Thursday, I am unable to share their contents at this time. SCBA members should receive an email alert today and tomorrow.

Please note changes have been made during the submission and revision process, and that CAHON and CBIS have joined to sign the letter. I will recap the details of this event sometime in the future, but in the meantime, I would like to sincerely thank all of you for your patience and support.

特别致谢卢山,李子海和郑志明三位教授!

Cheers!

Shan-Lu 善虑

Re: Open Letter to be published in Science this week

From: Xuefeng Liu <Xuefeng.Liu@georgetown.edu>
To: Liu, Shan-Lu <liu.6244@osu.edu>
Cc: zhengzhiming4@gmail.com, haitguo@iupui.edu, tzhou@mail.nih.gov, GCheng@mednet.ucla.edu, liangy@umn.edu, rli@vcu.edu, wjma@ksu.edu, xjmeng@vt.edu, Zhijian.Chen@UTSouthwestern.edu <Zhijian.Chen@utsouthwestern.edu>, mluo@gsu.edu, zhangyj@umd.edu, xzhu1@umd.edu, jqiu@kumc.edu, lijun@uic.edu, fengwei.bai@usm.edu, andyu@iupui.edu, reachxw@vt.edu, gluo@uab.edu, ldu@nybc.org, hxu@tulane.edu, liu_fy@berkeley.edu, shitao.li@okstate.edu, Shan.lu@umassmed.edu, haihu@UTMB.edu <haihu@utmb.edu>, wenzheho@temple.edu, Qfeng4@central.uh.edu, tang@bio.fsu.edu, feng.li@sdsu.edu, ruilu@lsu.edu, sxiang2@unl.edu, qiyi.tang@howard.edu, dingsw@ucr.edu, guohua@missouri.edu, bling@tulane.edu, junwang@pharmacy.arizona.edu, lifang@umn.edu, wang518@umd.edu, gaos8@upmc.edu, pewang@uchc.edu, xiangy@uthscsa.edu, fzhu@bio.fsu.edu, chen.liang@mcgill.ca, lyuan@vt.edu, fgao@duke.edu, wangjw28@163.com, xfyu1@zju.edu.cn, bzhao@partners.org, jianw@musc.edu, zyang@ksu.edu, yu.cong@nih.gov, weiming.yuan@usc.edu, Zongdi.feng@nationwidechildrens.org, juh13@psu.edu, hengx@missouri.edu, lsu@med.unc.edu, ywu8@gmu.edu, jwu@whu.edu.cn, tshuo@uic.edu, Shibojiang@fudan.edu.cn, sjiang@nybc.org, pinwang@usc.edu, rzhao@som.umaryland.edu, shuylong@mail.sysu.edu.cn, yuxingli@som.umaryland.edu, shixia.wang@umassmed.edu, yhe@ipbcams.ac.cn, Pinghui.feng@usc.edu, ju-tao.guo@bblumberg.org, lin.liu@okstate.edu, hua.zhu@rutgers.edu, Jinhong.chang@bblumberg.org, jianzhu1012@gmail.com, ronghai@ucr.edu, jun.zhu@nih.gov, jliu4@uams.edu, xiangpeng.kong@med.nyu.edu, haoquanwu@outlook.com, Wenjun.liu@defence.gov.au, Liang.shan@wustl.edu, hliao@duke.edu, yuan2@upenn.edu, zxing@umn.edu, hongmin.li@health.ny.gov, pzheng@ihv.umaryland.edu, yaliu@ihv.umaryland.edu, jxw103@case.edu, xiangguo.qiu@canada.ca, Feng Shao <shaofeng@nibs.ac.cn>, zlshi@wh.iov.cn, klan@whu.edu.cn, zengmsh@mail.sysu.edu.cn, Nan Yan <Nan.Yan@utsouthwestern.edu>, Zhang, Rong <rongzhang@wustl.edu>, liliwang@upenn.edu, Linheng Li <LIL@stowers.org>, kli1@uthsc.edu, tsx@case.edu, ssun@mdanderson.org, ysang@tnstate.edu, zihai@musc.edu, wu@crystal.harvard.edu, Sun.Jie@mayo.edu, peijun@strubi.ox.ac.uk, jiayu@coh.org, bchen@crystal.harvard.edu, Wen, Haitao <Haitao.Wen@osumc.edu>, Qu, Feng <qu.28@osu.edu>, Hezhao.Ji@umanitoba.ca
Sent: March 19, 2019 11:32:05 AM CDT
Received: March 19, 2019 11:32:20 AM CDT

Hi, Shan-Lu, Congrats! Thanks for your great leadership and efforts! Xuefeng

On Tue, Mar 19, 2019 at 9:53 AM Liu, Shan-Lu <liu.6244@osu.edu> wrote:

Dear colleagues and friends:

I would like to share the news that our open letter entitled “Racial Profiling Harms Science” will be published in Science this Friday and should become online 2 pm this Thursday. The NIH response letter authored by Francis Collins and his leadership team will be published at the same time. Because both letters are still embargoed until 2 PM this Thursday, I am unable to share their contents at this time. SCBA members should receive an email alert today and tomorrow.

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特别致谢卢山,李子海和郑志明三位教授!

Cheers!

Shan-Lu 善虑

Re: [Possible SPAM]: Re: Open Letter to be published in Science this week

From: Fengwei Bai <Fengwei.Bai@usm.edu>
To: Tang, Qiyi <qiyi.tang@Howard.edu>, Pinghui Feng <pinghuif@usc.edu>, Qiu, Xiangguo (PHAC/ASPC) <xiangguo.qiu@canada.ca>, Liu, Shan-Lu <liu.6244@osu.edu>, zhengzhiming4@gmail.com, haitguo@iupui.edu, tzhou@mail.nih.gov, GCheng@mednet.ucla.edu, liangy@umn.edu, rli@vcu.edu, wjma@ksu.edu, xjmeng@vt.edu, Zhijian.Chen@UTSouthwestern.edu, mluo@gsu.edu, zhangyj@umd.edu, xzhu1@umd.edu, jqi@kumc.edu, lijun@uic.edu, andyu@iupui.edu, reachxw@vt.edu, gluo@uab.edu, ldu@nybc.org, hxu@tulane.edu, liu_fy@berkeley.edu, shitao.li@okstate.edu, Shan.lu@umassmed.edu, haihu@UTMB.edu, wenzheho@temple.edu, Qfeng4@central.uh.edu, tang@bio.fsu.edu, feng.li@sdstate.edu, ruilu@lsu.edu, sxiang2@unl.edu, dingsw@ucr.edu, guohua@missouri.edu, bling@tulane.edu, junwang@pharmacy.arizona.edu, lifang@umn.edu, wang518@umd.edu, gaos8@upmc.edu, pewang@uchc.edu, xiangy@uthscsa.edu, fzhu@bio.fsu.edu, chen.liang@mcgill.ca, lyuan@vt.edu, fgao@duke.edu, wangjw28@163.com, xfyu1@zju.edu.cn, bzhao@partners.org, jianw@musc.edu, zyang@ksu.edu, yu.cong@nih.gov, Weiming Yuan <weiming.yuan@usc.edu>, Zongdi.feng@nationwidechildrens.org, juh13@psu.edu, hengx@missouri.edu, lsu@med.unc.edu, ywu8@gmu.edu, jwu@whu.edu.cn, tshuo@uic.edu, Shibojiang@fudan.edu.cn, sjiang@nybc.org, Pin Wang <pinwang@usc.edu>, rzhao@som.umaryland.edu, shuyulong@mail.sysu.edu.cn, xuefeng.liu@georgetown.edu, yuxingli@som.umaryland.edu, shixia.wang@umassmed.edu, yhe@ipbcams.ac.cn, ju-tao.guo@bblumberg.org, lin.liu@okstate.edu, hua.zhu@rutgers.edu, Jinhong.chang@bblumberg.org, jianzhu1012@gmail.com, ronghai@ucr.edu, jun.zhu@nih.gov, jliu4@uams.edu, xiangpeng.kong@med.nyu.edu, haoquanwu@outlook.com, Wenjun.liu@defence.gov.au, Liang.shan@wustl.edu, hliao@duke.edu, yuan2@upenn.edu, zxing@umn.edu, hongmin.li@health.ny.gov, pzheng@ihv.umaryland.edu, yaliu@ihv.umaryland.edu, jxw103@case.edu, Feng Shao <shaofeng@nibs.ac.cn>, zshi@wh.iov.cn, klan@whu.edu.cn, zengmsh@mail.sysu.edu.cn, Nan Yan <Nan.Yan@UTSouthwestern.edu>, Zhang, Rong <rongzhang@wustl.edu>, liliwang@upenn.edu, Linheng Li <LIL@stowers.org>, kli1@uthsc.edu, tsx@case.edu, ssun@mdanderson.org, ysang@tnstate.edu, zihai@musc.edu, wu@crystal.harvard.edu, Sun.Jie@mayo.edu, peijun@strubi.ox.ac.uk, jiayu@coh.org, bchen@crystal.harvard.edu, Wen, Haitao <Haitao.Wen@osumc.edu>, Qu, Feng <qu.28@osu.edu>, Hezhao.Ji@umanitoba.ca

Sent: March 19, 2019 11:32:39 AM CDT

Received: March 19, 2019 11:32:50 AM CDT

Dear Shan-Lu,

Thank you for your great effort and leadership to voice out for our community!

Fengwei

--

Fengwei Bai Ph.D

Associate Professor

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University of Southern Mississippi

118 College Dr. #5018

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From: "Tang, Qiyi" <qiyi.tang@Howard.edu>

Date: Tuesday, March 19, 2019 at 10:49 AM

To: Pinghui Feng <pinghuif@usc.edu>, "Qiu, Xiangguo (PHAC/ASPC)" <xiangguo.qiu@canada.ca>, "Liu, Shan-Lu" <liu.6244@osu.edu>, "zhengzhiming4@gmail.com" <zhengzhiming4@gmail.com>, "haitguo@iupui.edu" <haitguo@iupui.edu>, "tzhou@mail.nih.gov" <tzhou@mail.nih.gov>, "GCheng@mednet.ucla.edu" <GCheng@mednet.ucla.edu>, "liangy@umn.edu" <liangy@umn.edu>, "rli@vcu.edu" <rli@vcu.edu>, "wjma@ksu.edu" <wjma@ksu.edu>, "xjmeng@vt.edu" <xjmeng@vt.edu>, "Zhijian.Chen@UTSouthwestern.edu" <Zhijian.Chen@UTSouthwestern.edu>, "mluo@gsu.edu" <mluo@gsu.edu>, "zhangyj@umd.edu" <zhangyj@umd.edu>, "xzhu1@umd.edu" <xzhu1@umd.edu>, "jqiu@kumc.edu" <jqiu@kumc.edu>, "lijun@uic.edu" <lijun@uic.edu>, Fengwei Bai <Fengwei.Bai@usm.edu>, "andyu@iupui.edu" <andyu@iupui.edu>, "reachxw@vt.edu" <reachxw@vt.edu>, "gluo@uab.edu" <gluo@uab.edu>, "ldu@nybc.org" <ldu@nybc.org>, "hxu@tulane.edu" <hxu@tulane.edu>, "liu_fy@berkeley.edu" <liu_fy@berkeley.edu>, "shitao.li@okstate.edu" <shitao.li@okstate.edu>, "Shan.lu@umassmed.edu" <Shan.lu@umassmed.edu>, "haihu@UTMB.edu" <haihu@UTMB.edu>, "wenzheho@temple.edu" <wenzheho@temple.edu>, "Qfeng4@central.uh.edu" <Qfeng4@central.uh.edu>, "tang@bio.fsu.edu" <tang@bio.fsu.edu>, "feng.li@sdsstate.edu" <feng.li@sdsstate.edu>, "ruilu@lsu.edu" <ruilu@lsu.edu>, "sxiang2@unl.edu" <sxiang2@unl.edu>, "dingsw@ucr.edu" <dingsw@ucr.edu>, "guohua@missouri.edu" <guohua@missouri.edu>, "bling@tulane.edu" <bling@tulane.edu>, "junwang@pharmacy.arizona.edu" <junwang@pharmacy.arizona.edu>, "lifang@umn.edu" <lifang@umn.edu>, "wang518@umd.edu" <wang518@umd.edu>, "gaos8@upmc.edu" <gaos8@upmc.edu>, "pewang@uchc.edu" <pewang@uchc.edu>, "xiangy@uthscsa.edu" <xiangy@uthscsa.edu>, "fzhu@bio.fsu.edu" <fzhu@bio.fsu.edu>, "chen.liang@mcgill.ca" <chen.liang@mcgill.ca>, "lyuan@vt.edu" <lyuan@vt.edu>, "fgao@duke.edu" <fgao@duke.edu>, "wangjw28@163.com" <wangjw28@163.com>, "xfyu1@zju.edu.cn" <xfyu1@zju.edu.cn>, "bzhao@partners.org" <bzhao@partners.org>, "jianw@musc.edu" <jianw@musc.edu>, "zyang@ksu.edu" <zyang@ksu.edu>, "yu.cong@nih.gov" <yu.cong@nih.gov>, Weiming Yuan <weiming.yuan@usc.edu>, "Zongdi.feng@nationwidechildrens.org" <Zongdi.feng@nationwidechildrens.org>, "juh13@psu.edu" <juh13@psu.edu>, "hengx@missouri.edu" <hengx@missouri.edu>, "lsu@med.unc.edu" <lsu@med.unc.edu>, "yw8@gmu.edu" <yw8@gmu.edu>, "jwu@whu.edu.cn" <jwu@whu.edu.cn>, "tshuo@uic.edu" <tshuo@uic.edu>, "Shibojiang@fudan.edu.cn" <Shibojiang@fudan.edu.cn>, "sjiang@nybc.org" <sjiang@nybc.org>, Pin Wang <pinwang@usc.edu>, "rzhao@som.umaryland.edu" <rzhao@som.umaryland.edu>, "shuylong@mail.sysu.edu.cn" <shuylong@mail.sysu.edu.cn>, "xuefeng.liu@georgetown.edu" <xuefeng.liu@georgetown.edu>, "yuxingli@som.umaryland.edu" <yuxingli@som.umaryland.edu>, "shixia.wang@umassmed.edu" <shixia.wang@umassmed.edu>, "yhe@ipbcams.ac.cn" <yhe@ipbcams.ac.cn>, "ju-tao.guo@bblumberg.org" <ju-tao.guo@bblumberg.org>, "lin.liu@okstate.edu" <lin.liu@okstate.edu>, "hua.zhu@rutgers.edu" <hua.zhu@rutgers.edu>, "Jinhong.chang@bblumberg.org" <Jinhong.chang@bblumberg.org>, "jianzhu1012@gmail.com" <jianzhu1012@gmail.com>, "ronghai@ucr.edu" <ronghai@ucr.edu>, "jun.zhu@nih.gov" <jun.zhu@nih.gov>, "jliu4@uams.edu" <jliu4@uams.edu>, "xiangpeng.kong@med.nyu.edu" <xiangpeng.kong@med.nyu.edu>, "haoquanwu@outlook.com" <haoquanwu@outlook.com>, "Wenjun.liu@defence.gov.au" <Wenjun.liu@defence.gov.au>, "Liang.shan@wustl.edu" <Liang.shan@wustl.edu>, "hliao@duke.edu" <hliao@duke.edu>, "yuan2@upenn.edu" <yuan2@upenn.edu>, "zxing@umn.edu" <zxing@umn.edu>, "hongmin.li@health.ny.gov" <hongmin.li@health.ny.gov>, "pzheng@ihv.umaryland.edu" <pzheng@ihv.umaryland.edu>, "yaliu@ihv.umaryland.edu" <yaliu@ihv.umaryland.edu>, "jxw103@case.edu" <jxw103@case.edu>, Feng Shao <shaofeng@nibs.ac.cn>, "zlshi@wh.iov.cn" <zlshi@wh.iov.cn>, "klan@whu.edu.cn" <klan@whu.edu.cn>, "zengmsh@mail.sysu.edu.cn" <zengmsh@mail.sysu.edu.cn>, Nan Yan <Nan.Yan@UTSouthwestern.edu>, "Zhang, Rong"

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Subject: Re: [Possible SPAM]: Re: Open Letter to be published in Science this week

Hi Shan-Lu,

Thanks a lot for your effective and continuous efforts and leadership!

Qiyi

Qiyi Tang Ph.D

Associate professor

Department of Microbiology, Adam's building room 3002

Howard University College of Medicine

Chairman of IBC at Howard University

520 W Street NW

Washington, DC 20059, USA

tel: [202 806 3915](tel:2028063915) (office)

From: Pinghui Feng <pinghuif@usc.edu>

Date: Tuesday, March 19, 2019 at 11:30 AM

To: "Qiu, Xiangguo (PHAC/ASPC)" <xiangguo.qiu@canada.ca>, "Liu, Shan-Lu" <liu.6244@osu.edu>, "zhengzhiming4@gmail.com" <zhengzhiming4@gmail.com>, "haitguo@iupui.edu" <haitguo@iupui.edu>, "tzhou@mail.nih.gov" <tzhou@mail.nih.gov>, "GCheng@mednet.ucla.edu" <GCheng@mednet.ucla.edu>, "liangy@umn.edu" <liangy@umn.edu>, "rli@vcu.edu" <rli@vcu.edu>, "wjma@ksu.edu" <wjma@ksu.edu>, "xjmeng@vt.edu" <xjmeng@vt.edu>, "Zhijian.Chen@UTSouthwestern.edu" <Zhijian.Chen@UTSouthwestern.edu>, "mluo@gsu.edu" <mluo@gsu.edu>, "zhangyj@umd.edu" <zhangyj@umd.edu>, "xzhu1@umd.edu" <xzhu1@umd.edu>, "jqiu@kumc.edu" <jqiu@kumc.edu>, "lijun@uic.edu" <lijun@uic.edu>, "fengwei.bai@usm.edu" <fengwei.bai@usm.edu>, "andyu@iupui.edu" <andyu@iupui.edu>, "reachxw@vt.edu" <reachxw@vt.edu>, "gluo@uab.edu" <gluo@uab.edu>, "ldu@nybc.org" <ldu@nybc.org>, "hxu@tulane.edu" <hxu@tulane.edu>, "liu_fy@berkeley.edu" <liu_fy@berkeley.edu>, "shitao.li@okstate.edu" <shitao.li@okstate.edu>, "Shan.lu@umassmed.edu" <Shan.lu@umassmed.edu>, "haihu@UTMB.edu" <haihu@UTMB.edu>, "wenzheho@temple.edu" <wenzheho@temple.edu>, "Qfeng4@central.uh.edu" <Qfeng4@central.uh.edu>, "tang@bio.fsu.edu" <tang@bio.fsu.edu>, "feng.li@sdsu.edu" <feng.li@sdsu.edu>, "ruilu@lsu.edu" <ruilu@lsu.edu>, "sxiang2@unl.edu" <sxiang2@unl.edu>, "Tang, Qiyi" <qiyi.tang@Howard.edu>, "dingsw@ucr.edu" <dingsw@ucr.edu>, "guohua@missouri.edu" <guohua@missouri.edu>, "bling@tulane.edu" <bling@tulane.edu>, "junwang@pharmacy.arizona.edu" <junwang@pharmacy.arizona.edu>, "lifang@umn.edu" <lifang@umn.edu>, "wang518@umd.edu" <wang518@umd.edu>, "gaos8@upmc.edu" <gaos8@upmc.edu>, "pewang@uchc.edu" <pewang@uchc.edu>, "xiangy@uthscsa.edu" <xiangy@uthscsa.edu>, "fzhu@bio.fsu.edu" <fzhu@bio.fsu.edu>, "chen.liang@mcgill.ca" <chen.liang@mcgill.ca>, "lyuan@vt.edu" <lyuan@vt.edu>, "fgao@duke.edu" <fgao@duke.edu>, "wangjw28@163.com" <wangjw28@163.com>, "xfyu1@zju.edu.cn" <xfyu1@zju.edu.cn>, "bzhao@partners.org" <bzhao@partners.org>, "jianw@musc.edu" <jianw@musc.edu>, "zyang@ksu.edu" <zyang@ksu.edu>, "yu.cong@nih.gov" <yu.cong@nih.gov>, Weiming Yuan <weiming.yuan@usc.edu>, "Zongdi.feng@nationwidechildrens.org" <Zongdi.feng@nationwidechildrens.org>, "juh13@psu.edu" <juh13@psu.edu>, "hengx@missouri.edu" <hengx@missouri.edu>, "lsu@med.unc.edu"

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Subject: [Possible SPAM]: Re: Open Letter to be published in Science this week

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Dear Shan-Lu,

Thank your team for your hard work and leadership. Great work!

All the best,

Pinghui

From: Qiu, Xiangguo (PHAC/ASPC) <xiangguo.qiu@canada.ca>

Sent: Tuesday, March 19, 2019 8:16:06 AM

To: Liu, Shan-Lu; zhengzhiming4@gmail.com; haitguo@iupui.edu; tzhou@mail.nih.gov; GCheng@mednet.ucla.edu; liangy@umn.edu; rli@vcu.edu; wjma@ksu.edu; xjmeng@vt.edu; Zhijian.Chen@UTSouthwestern.edu; mluo@gsu.edu; zhangyj@umd.edu; xzhu1@umd.edu; jqiu@kumc.edu; lijun@uic.edu; fengwei.bai@usm.edu; andyu@iupui.edu; reachxw@vt.edu; gluo@uab.edu; ldu@nybc.org; hxu@tulane.edu; liu_fy@berkeley.edu;

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Subject: RE: Open Letter to be published in Science this week

Shan-Lu,
Congrats!!! Many thanks to you and all involved in drafting and revising the letter.
Look forward to reading it in press.

Best,

Xiangguo

From: Liu, Shan-Lu [mailto:liu.6244@osu.edu]

Sent: 2019-03-19 8:53 AM

To: zhengzhiming4@gmail.com; haitguo@iupui.edu; tzhou@mail.nih.gov; GCheng@mednet.ucla.edu; liangy@umn.edu; rli@vcu.edu; wjma@ksu.edu; xjmeng@vt.edu; Zhijian.Chen@UTSouthwestern.edu; mluo@gsu.edu; zhangyj@umd.edu; xzhu1@umd.edu; jqiu@kumc.edu; lijun@uic.edu; fengwei.bai@usm.edu; andyu@iupui.edu; reachxw@vt.edu; gluo@uab.edu; ldu@nybc.org; hxu@tulane.edu; liu_fy@berkeley.edu; shitao.li@okstate.edu; Shan.lu@umassmed.edu; haihu@UTMB.edu; wenzheho@temple.edu; Qfeng4@central.uh.edu; tang@bio.fsu.edu; feng.li@sdstate.edu; ruilu@lsu.edu; sxiang2@unl.edu; qiyi.tang@howard.edu; dingsw@ucr.edu; guohua@missouri.edu; bling@tulane.edu; junwang@pharmacy.arizona.edu; lifang@umn.edu; wang518@umd.edu; gaos8@upmc.edu; pewang@uchc.edu; xiangy@uthscsa.edu; fzhu@bio.fsu.edu; chen.liang@mcgill.ca; lyuan@vt.edu; fgao@duke.edu; wangjw28@163.com; xfyu1@zju.edu.cn; bzhao@partners.org; jianw@musc.edu; zyang@ksu.edu; yu.cong@nih.gov; weiming.yuan@usc.edu; Zongdi.feng@nationwidechildrens.org; juh13@psu.edu; hengx@missouri.edu; lsu@med.unc.edu; ywu8@gmu.edu; jwu@whu.edu.cn; tshuo@uic.edu; Shibojiang@fudan.edu.cn; sjiang@nybc.org; pinwang@usc.edu; rzhao@som.umaryland.edu; shuylong@mail.sysu.edu.cn; xuefeng.liu@georgetown.edu; yuxingli@som.umaryland.edu; shixia.wang@umassmed.edu; yhe@ipbcams.ac.cn; Pinghui.feng@usc.edu; ju-tao.guo@bblumberg.org; lin.liu@okstate.edu; hua.zhu@rutgers.edu; Jinhong.chang@bblumberg.org; jianzhu1012@gmail.com; ronghai@ucr.edu; jun.zhu@nih.gov; jliu4@uams.edu; xiangpeng.kong@med.nyu.edu; haoquanwu@outlook.com; Wenjun.liu@defence.gov.au; Liang.shan@wustl.edu; hliao@duke.edu; yuan2@upenn.edu; zxing@umn.edu; hongmin.li@health.ny.gov; pzheng@ihv.umaryland.edu; yaliu@ihv.umaryland.edu; jxw103@case.edu; Qiu, Xiangguo (PHAC/ASPC); Feng Shao; zlshi@wh.iov.cn; klan@whu.edu.cn; zengmsh@mail.sysu.edu.cn; Nan Yan; Zhang, Rong; liliwang@upenn.edu; Linheng Li; kli1@uthsc.edu; tsx@case.edu; ssun@mdanderson.org; ysang@tnstate.edu; Liu, Shan-Lu; zihai@musc.edu; wu@crystal.harvard.edu; Sun.Jie@mayo.edu; peijun@strubi.ox.ac.uk; jiayu@coh.org; bchen@crystal.harvard.edu; Wen, Haitao; Qu, Feng; Hezhao.Ji@umanitoba.ca

Subject: Open Letter to be published in Science this week

Dear colleagues and friends:

I would like to share the news that our open letter entitled "Racial Profiling Harms Science" will be published in Science this Friday and should become online 2 pm this Thursday. The NIH response letter authored by Francis Collins and his leadership team will be published at the same time. Because both letters are still embargoed until 2 PM this Thursday, I am unable to share their contents at this time. SCBA members should receive an email alert today and tomorrow.

Please note changes have been made during the submission and revision process, and that CAHON and CBIS have joined to sign the letter. I will recap the details of this event sometime in the future, but in the meantime, I would like to sincerely thank all of you for your patience and support.

特别致谢卢山,李子海和郑志明三位教授!

Cheers!

Shan-Lu 善虑

Re: Open Letter to be published in Science this week

From: Zhilong Yang <zyang@ksu.edu>
To: Liu, Shan-Lu <liu.6244@osu.edu>, zhengzhiming4@gmail.com, haitguo@iupui.edu, tzhou@mail.nih.gov, GCheng@mednet.ucla.edu, liangy@umn.edu, rli@vcu.edu, Wenjun Ma <wjma@ksu.edu>, xjmeng@vt.edu, Zhijian.Chen@UTSouthwestern.edu, mlo@gsu.edu, zhangyj@umd.edu, xzhu1@umd.edu, jqu@kumc.edu, lijun@uic.edu, fengwei.bai@usm.edu, andyu@iupui.edu, reachxw@vt.edu, gluo@uab.edu, ldu@nybc.org, hxu@tulane.edu, liu_fy@berkeley.edu, shitao.li@okstate.edu, Shan.lu@umassmed.edu, haihu@UTMB.edu, wenzheho@temple.edu, Qfeng4@central.uh.edu, tang@bio.fsu.edu, feng.li@sdstate.edu, ruiilu@lsu.edu, sxiang2@unl.edu, qiyi.tang@howard.edu, dingsw@ucr.edu, guohua@missouri.edu, bling@tulane.edu, junwang@pharmacy.arizona.edu, lifang@umn.edu, wang518@umd.edu, gaos8@upmc.edu, pewang@uchc.edu, xiangy@uthscsa.edu, fzhu@bio.fsu.edu, chen.liang@mcgill.ca, lyuan@vt.edu, fgao@duke.edu, wangjw28@163.com, xfyu1@zju.edu.cn, bzhao@partners.org, jianw@musc.edu, yu.cong@nih.gov, weiming.yuan@usc.edu, Zongdi.feng@nationwidechildrens.org, juh13@psu.edu, hengx@missouri.edu, lsu@med.unc.edu, ywu8@gmu.edu, jwu@whu.edu.cn, tshuo@uic.edu, Shibojiang@fudan.edu.cn, sjiang@nybc.org, pinwang@usc.edu, rzhao@som.umaryland.edu, shuylong@mail.sysu.edu.cn, xuefeng.liu@georgetown.edu, yuxingli@som.umaryland.edu, shixia.wang@umassmed.edu, yhe@ipbcams.ac.cn, Pinghui.feng@usc.edu, jutao.guo@bblumberg.org, lin.liu@okstate.edu, hua.zhu@rutgers.edu, Jinhong.chang@bblumberg.org, jianzhu1012@gmail.com, ronghai@ucr.edu, jun.zhu@nih.gov, jliu4@uams.edu, xiangpeng.kong@med.nyu.edu, haoquanwu@outlook.com, Wenjun.liu@defence.gov.au, Liang.shan@wustl.edu, hliao@duke.edu, yuan2@upenn.edu, zxing@umn.edu, hongmin.li@health.ny.gov, pzheng@ihv.umaryland.edu, yaliu@ihv.umaryland.edu, jxw103@case.edu, xiangguo.qiu@canada.ca, Feng Shao <shaofeng@nibs.ac.cn>, zshi@wh.iov.cn, kian@whu.edu.cn, zengmsh@mail.sysu.edu.cn, Nan Yan <Nan.Yan@UTSouthwestern.edu>, Zhang, Rong <rongzhang@wustl.edu>, liliwang@upenn.edu, Linheng Li <LIL@stowers.org>, kli1@uthsc.edu, tsx@case.edu, ssun@mdanderson.org, ysang@tnstate.edu, zihai@musc.edu, wu@crystal.harvard.edu, Sun.Jie@mayo.edu, peijun@strubi.ox.ac.uk, jiayu@coh.org, bchen@crystal.harvard.edu, Wen, Haitao <Haitao.Wen@osumc.edu>, Qu, Feng <qu.28@osu.edu>, Hezhao.Ji@umanitoba.ca
Sent: March 19, 2019 11:34:45 AM CDT
Received: March 19, 2019 11:35:06 AM CDT

This is great news! Many thanks to professors Liu, Lu, Li, and Zheng! How can we make the voice be heard by more people in the community? Send the open letter to people in our institutes? What kind of offices would be good to send to?

Zhilong

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Date: Tuesday, March 19, 2019 at 8:52 AM

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Subject: Open Letter to be published in Science this week

Dear colleagues and friends:

I would like to share the news that our open letter entitled "Racial Profiling Harms Science" will be published in Science this Friday and should become online 2 pm this Thursday. The NIH response letter authored by Francis Collins and his leadership team will be published at the same time. Because both letters are still embargoed until 2 PM this Thursday, I am unable to share their contents at this time. SCBA members should receive an email alert today and tomorrow.

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the future, but in the meantime, I would like to sincerely thank all of you for your patience and support.

特别致谢卢山,李子海和郑志明三位教授!

Cheers!

Shan-Lu 善虑

Re: Open Letter to be published in Science this week

From: Rong Hai <ronghai@ucr.edu>
To: Liu, Shan-Lu <liu.6244@osu.edu>
Cc: zhengzhiming4@gmail.com, haitguo@iupui.edu, tzhou@mail.nih.gov, GCheng@mednet.ucla.edu, liangy@umn.edu, rli@vcu.edu, wjma@ksu.edu, xjmeng@vt.edu, Zhijian.Chen@UTSouthwestern.edu <Zhijian.Chen@utsouthwestern.edu>, mluo@gsu.edu, zhangyj@umd.edu, xzhu1@umd.edu, jqiu@kumc.edu, lijun@uic.edu, fengwei.bai@usm.edu, andyu@iupui.edu, reachxw@vt.edu, gluo@uab.edu, ldu@nybc.org, hxu@tulane.edu, liu_fy@berkeley.edu, shitao.li@okstate.edu, Shan.lu@umassmed.edu, haihu@UTMB.edu <haihu@utmb.edu>, wenzheho@temple.edu, Qfeng4@central.uh.edu, tang@bio.fsu.edu, feng.li@sdsu.edu, ruilu@lsu.edu, sxiang2@unl.edu, qiyi.tang@howard.edu, dingsw@ucr.edu, guohua@missouri.edu, bling@tulane.edu, junwang@pharmacy.arizona.edu, lifang@umn.edu, wang518@umd.edu, gaos8@upmc.edu, pewang@uchc.edu, xiangy@uthscsa.edu, fzhu@bio.fsu.edu, chen.liang@mcgill.ca, lyuan@vt.edu, fgao@duke.edu, wangjw28@163.com, xfyu1@zju.edu.cn, bzhao@partners.org, jianw@musc.edu, zyang@ksu.edu, yu.cong@nih.gov, weiming.yuan@usc.edu, Zongdi.feng@nationwidechildrens.org, juh13@psu.edu, hengx@missouri.edu, lsu@med.unc.edu, ywu8@gmu.edu, jwu@whu.edu.cn, tshuo@uic.edu, Shibojiang@fudan.edu.cn, sjiang@nybc.org, pinwang@usc.edu, rzhao@som.umaryland.edu, shuylong@mail.sysu.edu.cn, xuefeng.liu@georgetown.edu, yuxingli@som.umaryland.edu, shixia.wang@umassmed.edu, yhe@ipbcams.ac.cn, Pinghui.feng@usc.edu, juttao.guo@bblumberg.org, lin.liu@okstate.edu, hua.zhu@rutgers.edu, Jinhong.chang@bblumberg.org, jianzhu1012@gmail.com, jun.zhu@nih.gov, jliu4@uams.edu, xiangpeng.kong@med.nyu.edu, haoquanwu@outlook.com, Wenjun.liu@defence.gov.au, Liang.shan@wustl.edu, hliao@duke.edu, yuan2@upenn.edu, zxing@umn.edu, hongmin.li@health.ny.gov, pzheng@ihv.umaryland.edu, yaliu@ihv.umaryland.edu, jxw103@case.edu, xiangguo.qiu@canada.ca, Feng Shao <shaofeng@nibs.ac.cn>, zlshi@wh.iov.cn, klan@whu.edu.cn, zengmsh@mail.sysu.edu.cn, Nan Yan <Nan.Yan@utsouthwestern.edu>, Zhang, Rong <rongzhang@wustl.edu>, liliwang@upenn.edu, Linheng Li <LIL@stowers.org>, kli1@uthsc.edu, tsx@case.edu, ssun@mdanderson.org, ysang@tnstate.edu, zihai@musc.edu, wu@crystal.harvard.edu, Sun.Jie@mayo.edu, peijun@strubi.ox.ac.uk, jiayu@coh.org, bchen@crystal.harvard.edu, Wen, Haitao <Haitao.Wen@osumc.edu>, Qu, Feng <qu.28@osu.edu>, Hezhao.Ji@umanitoba.ca
Sent: March 19, 2019 12:10:48 PM CDT
Received: March 19, 2019 12:11:08 PM CDT

Dear Shan-Lu,

Thank you for your great effort and leadership to speak up for our community!

Also, special thanks for Shan, Zhihai, and Zhiming!!!

Rong

On Tue, Mar 19, 2019 at 6:54 AM Liu, Shan-Lu <liu.6244@osu.edu> wrote:

Dear colleagues and friends:

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特别致谢卢山,李子海和郑志明三位教授!

Cheers!

Shan-Lu 善虑

RE: Open Letter to be published in Science this week

From: Li, Kui <kli1@uthsc.edu>
To: Liu, Shan-Lu <liu.6244@osu.edu>, zhengzhiming4@gmail.com, haitguo@iupui.edu, tzhou@mail.nih.gov, GCheng@mednet.ucla.edu, liangy@umn.edu, rli@vcu.edu, wjma@ksu.edu, xjmeng@vt.edu, Zhijian.Chen@UTSouthwestern.edu, mluo@gsu.edu, zhangyj@umd.edu, xzhu1@umd.edu, jqiu@kumc.edu, lijun@uic.edu, fengwei.bai@usm.edu, andyu@iupui.edu, reachxw@vt.edu, gluo@uab.edu, ldu@nybc.org, hxu@tulane.edu, liu_fy@berkeley.edu, shitao.li@okstate.edu, Shan.lu@umassmed.edu, haihu@UTMB.edu, wenzheho@temple.edu, Qfeng4@central.uh.edu, tang@bio.fsu.edu, feng.li@sdstate.edu, ruilu@lsu.edu, sxiang2@unl.edu, qiyi.tang@howard.edu, dingsw@ucr.edu, guohua@missouri.edu, bling@tulane.edu, junwang@pharmacy.arizona.edu, lifang@umn.edu, wang518@umd.edu, gaos8@upmc.edu, pewang@uchc.edu, xiangy@uthscsa.edu, fzhu@bio.fsu.edu, chen.liang@mccgill.ca, lyuan@vt.edu, fgao@duke.edu, wangjw28@163.com, xfyu1@zju.edu.cn, bzhao@partners.org, jianw@musc.edu, zyang@ksu.edu, yu.cong@nih.gov, weiming.yuan@usc.edu, Zongdi.feng@nationwidechildrens.org, juh13@psu.edu, hengx@missouri.edu, lsu@med.unc.edu, ywu8@gmu.edu, jwu@whu.edu.cn, tshuo@uic.edu, Shibojiang@fudan.edu.cn, sjiang@nybc.org, pinwang@usc.edu, rzhao@som.umaryland.edu, shuylong@mail.sysu.edu.cn, xuefeng.liu@georgetown.edu, yuxingli@som.umaryland.edu, shixia.wang@umassmed.edu, yhe@ipbcams.ac.cn, Pinghui.feng@usc.edu, ju-tao.guo@bblumberg.org, lin.liu@okstate.edu, hua.zhu@rutgers.edu, Jinhong.chang@bblumberg.org, jianzhu1012@gmail.com, ronghai@ucr.edu, jun.zhu@nih.gov, jliu4@uams.edu, xiangpeng.kong@med.nyu.edu, haoquanwu@outlook.com, Wenjun.liu@defence.gov.au, Liang.shan@wustl.edu, hliao@duke.edu, yuan2@upenn.edu, zxing@umn.edu, hongmin.li@health.ny.gov, pzheng@ihv.umaryland.edu, yaliu@ihv.umaryland.edu, jxw103@case.edu, xiangguo.qiu@canada.ca, Feng Shao <shaofeng@nibs.ac.cn>, zlshi@wh.iov.cn, klan@whu.edu.cn, zengmsh@mail.sysu.edu.cn, Nan Yan <Nan.Yan@UTSouthwestern.edu>, Zhang, Rong <rongzhang@wustl.edu>, liliwang@upenn.edu, Linheng Li <LIL@stowers.org>, tsx@case.edu, ssun@mdanderson.org, ysang@tnstate.edu, zihai@musc.edu, wu@crystal.harvard.edu, Sun.Jie@mayo.edu, peijun@strubi.ox.ac.uk, jiayu@coh.org, bchen@crystal.harvard.edu, Wen, Haitao <Haitao.Wen@osumc.edu>, Qu, Feng <qu.28@osu.edu>, Hezhao.Ji@umanitoba.ca
Sent: March 19, 2019 12:37:00 PM CDT
Received: March 19, 2019 12:37:07 PM CDT

Dear Shan-Lu:

Thank you and your team for the hard work and leadership!

Best,
Kui

From: Liu, Shan-Lu <liu.6244@osu.edu>

Sent: Tuesday, March 19, 2019 8:53 AM

To: zhengzhiming4@gmail.com; haitguo@iupui.edu; tzhou@mail.nih.gov; GCheng@mednet.ucla.edu; liangy@umn.edu; rli@vcu.edu; wjma@ksu.edu; xjmeng@vt.edu; Zhijian.Chen@UTSouthwestern.edu; mluo@gsu.edu; zhangyj@umd.edu; xzhu1@umd.edu; jqiu@kumc.edu; lijun@uic.edu; fengwei.bai@usm.edu; andyu@iupui.edu; reachxw@vt.edu; gluo@uab.edu; ldu@nybc.org; hxu@tulane.edu; liu_fy@berkeley.edu; shitao.li@okstate.edu; Shan.lu@umassmed.edu; haihu@UTMB.edu; wenzheho@temple.edu; Qfeng4@central.uh.edu; tang@bio.fsu.edu; feng.li@sdstate.edu; ruilu@lsu.edu; sxiang2@unl.edu; qiyi.tang@howard.edu; dingsw@ucr.edu; guohua@missouri.edu; bling@tulane.edu; junwang@pharmacy.arizona.edu; lifang@umn.edu; wang518@umd.edu; gaos8@upmc.edu; pewang@uchc.edu; xiangy@uthscsa.edu; fzhu@bio.fsu.edu; chen.liang@mccgill.ca; lyuan@vt.edu; fgao@duke.edu; wangjw28@163.com; xfyu1@zju.edu.cn; bzhao@partners.org; jianw@musc.edu; zyang@ksu.edu; yu.cong@nih.gov;

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Cheers!

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Re: Open Letter to be published in Science this week

From: Wang, Penghua <pewang@uchc.edu>
To: Liu, Shan-Lu <liu.6244@osu.edu>, zhengzhiming4@gmail.com, haitguo@iupui.edu, tzhou@mail.nih.gov, GCheng@mednet.ucla.edu, liangy@umn.edu, rli@vcu.edu, wjma@ksu.edu, xjmeng@vt.edu, Zhijian.Chen@UTSouthwestern.edu, mluo@gsu.edu, zhangyj@umd.edu, xzhu1@umd.edu, jqiu@kumc.edu, lijun@uic.edu, fengwei.bai@usm.edu, andyu@iupui.edu, reachxw@vt.edu, gluo@uab.edu, ldu@nybc.org, hxu@tulane.edu, liu_fy@berkeley.edu, shitao.li@okstate.edu, Shan.lu@umassmed.edu, haihu@UTMB.edu, wenzheho@temple.edu, Qfeng4@central.uh.edu, tang@bio.fsu.edu, feng.li@sdstate.edu, ruilu@lsu.edu, sxiang2@unl.edu, qiyi.tang@howard.edu, dingsw@ucr.edu, guohua@missouri.edu, bling@tulane.edu, junwang@pharmacy.arizona.edu, lifang@umn.edu, wang518@umd.edu, gaos8@upmc.edu, xiangy@uthscsa.edu, fzhu@bio.fsu.edu, chen.liang@mcgill.ca, lyuan@vt.edu, fgao@duke.edu, wangjw28@163.com, xfyu1@zju.edu.cn, bzhao@partners.org, jianw@musc.edu, zyang@ksu.edu, yu.cong@nih.gov, weiming.yuan@usc.edu, Zongdi.feng@nationwidechildrens.org, juh13@psu.edu, hengx@missouri.edu, lsu@med.unc.edu, ywu8@gmu.edu, jwu@whu.edu.cn, tshuo@uic.edu, Shibojiang@fudan.edu.cn, sjiang@nybc.org, pinwang@usc.edu, rzhao@som.umaryland.edu, shuylong@mail.sysu.edu.cn, xuefeng.liu@georgetown.edu, yuxingli@som.umaryland.edu, shixia.wang@umassmed.edu, yhe@ipbcams.ac.cn, Pinghui.feng@usc.edu, ju-tao.guo@bblumberg.org, lin.liu@okstate.edu, hua.zhu@rutgers.edu, Jinhong.chang@bblumberg.org, jianzhu1012@gmail.com, ronghai@ucr.edu, jun.zhu@nih.gov, jliu4@uams.edu, xiangpeng.kong@med.nyu.edu, haoquanwu@outlook.com, Wenjun.liu@defence.gov.au, Liang.shan@wustl.edu, hliao@duke.edu, yuan2@upenn.edu, zxing@umn.edu, hongmin.li@health.ny.gov, pzheng@ihv.umaryland.edu, yaliu@ihv.umaryland.edu, jxw103@case.edu, xiangguo.qiu@canada.ca, Feng Shao <shaofeng@nibs.ac.cn>, zishi@wh.iov.cn, klan@whu.edu.cn, zengmsh@mail.sysu.edu.cn, Nan Yan <Nan.Yan@UTSouthwestern.edu>, Zhang, Rong <rongzhang@wustl.edu>, liliwang@upenn.edu, Linheng Li <LIL@stowers.org>, kli1@uthsc.edu, tsx@case.edu, ssun@mdanderson.org, ysang@tnstate.edu, zihai@musc.edu, wu@crystal.harvard.edu, Sun.Jie@mayo.edu, peijun@strubi.ox.ac.uk, jiayu@coh.org, bchen@crystal.harvard.edu, Wen, Haitao <Haitao.Wen@osumc.edu>, Qu, Feng <qu.28@osu.edu>, Hezhao.Ji@umanitoba.ca

Sent: March 19, 2019 1:10:52 PM CDT

Received: March 19, 2019 1:12:11 PM CDT

Hats off to Shan-Lu and the major contributors!

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From: Liu, Shan-Lu <liu.6244@osu.edu>

Sent: Tuesday, March 19, 2019 6:52 AM

To: zhengzhiming4@gmail.com; haitguo@iupui.edu; tzhou@mail.nih.gov; GCheng@mednet.ucla.edu; liangy@umn.edu; rli@vcu.edu; wjma@ksu.edu; xjmeng@vt.edu; Zhijian.Chen@UTSouthwestern.edu; mluo@gsu.edu; zhangyj@umd.edu; xzhu1@umd.edu; jqiu@kumc.edu; lijun@uic.edu; fengwei.bai@usm.edu; andyu@iupui.edu; reachxw@vt.edu; gluo@uab.edu; ldu@nybc.org; hxu@tulane.edu; liu_fy@berkeley.edu; shitao.li@okstate.edu; Shan.lu@umassmed.edu; haihu@UTMB.edu; wenzheho@temple.edu; Qfeng4@central.uh.edu; tang@bio.fsu.edu; feng.li@sdstate.edu; ruilu@lsu.edu; sxiang2@unl.edu; qiyi.tang@howard.edu; dingsw@ucr.edu; guohua@missouri.edu; bling@tulane.edu; junwang@pharmacy.arizona.edu; lifang@umn.edu; wang518@umd.edu; gaos8@upmc.edu; Wang, Penghua;

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tao.guo@bblumberg.org; lin.liu@okstate.edu; hua.zhu@rutgers.edu; Jinhong.chang@bblumberg.org;
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yuan2@upenn.edu; zxing@umn.edu; hongmin.li@health.ny.gov; pzheng@ihv.umaryland.edu;
yaliu@ihv.umaryland.edu; jxw103@case.edu; xiangguo.qiu@canada.ca; Feng Shao; zlshi@wh.iov.cn;
klan@whu.edu.cn; zengmsh@mail.sysu.edu.cn; Nan Yan; Zhang, Rong; liliwang@upenn.edu; Linheng Li;
kli1@uthsc.edu; tsx@case.edu; ssun@mdanderson.org; ysang@tnstate.edu; Liu, Shan-Lu; zihai@musc.edu;
wu@crystal.harvard.edu; Sun.Jie@mayo.edu; peijun@strubi.ox.ac.uk; jiaju@coh.org; bchen@crystal.harvard.edu;
Wen, Haitao; Qu, Feng; Hezhao.Ji@umanitoba.ca

Subject: Open Letter to be published in Science this week

Dear colleagues and friends:

I would like to share the news that our open letter entitled “Racial Profiling Harms Science” will be published in Science this Friday and should become online 2 pm this Thursday. The NIH response letter authored by Francis Collins and his leadership team will be published at the same time. Because both letters are still embargoed until 2 PM this Thursday, I am unable to share their contents at this time. SCBA members should receive an email alert today and tomorrow.

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特别致谢卢山,李子海和郑志明三位教授!

Cheers!

Shan-Lu 善虑

**FW: Travel Invoice for: LI / FANG Travel Date: 21Mar Agency Locator: ELQZDS
Reference: NYB519**

From: DeVard, Theresa <TDeVard@nybc.org>
To: lifang@umn.edu
Cc: Du, Lanying <LDu@nybc.org>
Sent: March 19, 2019 1:24:24 PM CDT
Received: March 19, 2019 1:24:42 PM CDT
Attachments: Printable PDF - ELQZDS - March 21 2019 18181449.pdf

Good Afternoon Dr. Fang,

I hope that this e-mail find you well.

Attached and below is your hotel confirmation.

We are looking forward to your visit and talk.

Best,

Theresa DeVard, Executive Assistant
New York Blood Center
310 East 67th Street
New York, NY 10065
Email: tdevard@nybc.org
Office: 212.570.3136



Fax: 212 570-3195



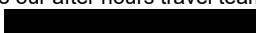
From: Ovation Corporate Travel <no-reply@ovationtravel.com>
Sent: Tuesday, March 19, 2019 2:18 PM
To: DeVard, Theresa <TDeVard@nybc.org>; LSTEELE@OVATIONTRAVEL.COM
Subject: Travel Invoice for: LI / FANG Travel Date: 21Mar Agency Locator: ELQZDS Reference: NYB519



Thank you for choosing Ovation Travel Group.

We value your input and welcome you to provide your feedback [here](#).

| Travel Summary | | Agency Locator: ELQZDS | | | |
|--------------------------------------|---------|------------------------|---------------|-----------------------|-----------|
| Traveler LI/FANG | | | | | |
| Reference number by traveler: NYB519 | | | | | |
| Date | From/To | Flight/Vendor | Depart/Arrive | Class/Type | Status |
| 03/21/2019 | JFK | Bentley Hotel | 03/21-03/23 | See description below | Confirmed |

Travel Assistance Contact Information
For travel assistance 24 hours a day, please call your dedicated number at 212-329-7323.
After business hours, weekends and holidays, you will have the option to be transferred to our after hours travel team.
To reach our after hours team directly in case of emergency, you may call 800-876-4922. 

Travel Documentation Requirements

• A valid, government-issued photo ID is required for all domestic air travel.

HOTEL - Thursday, March 21 2019 [Add to Calendar](#)

Bentley Hotel

Address: 500 East 62nd Street
New York City, NY 10065
United States

Tel: +1 (212) 644-6000
Fax: +1 (212) 207-4800

Check In/Check Out: Thursday, March 21 2019 - Saturday, March 23 2019
Status: Confirmed
Confirmation: 3774SB000068
Number of Persons: 1
Number of Nights: 2
Number of Rooms: 1
Rate per night: This reservation includes a rate change during the stay.
Rate change detail: USD 278.10 Effective 21MAR - 22MAR
USD 287.10 Effective 22MAR - 23MAR
Approximate total: USD 655.56 Includes taxes and surcharges.
Guaranteed: Yes
Description: BCD TRAVEL DELUXE ROOM - 2 DOUBLE BEDS - - DESK - FLATSCREEN - WIFI -
Remarks: CANCEL 24 HOURS PRIOR TO ARRIVAL TO AVOID PENALTY

Invoice / Ticket Receipt

Total Invoiced Amount: \$25.00 USD

Transaction Date: March 18, 2019

Service Fee Information

Service Fee Number: 8900764107571
Service Fee Amount: \$25.00 USD
Form of Payment: [REDACTED]

Important Health Advisory

CDC has issued travel notices for people traveling to regions where Zika virus transmission is ongoing. For more information please visit <http://www.cdc.gov/zika>.

TripCase

Reservation management tool and mobile app

If you prefer to view this reservation on TripCase.com and have a TripCase account, you may do so by forwarding this email to trips@tripcase.com or, if your TripCase email address matches the one we have for this reservation, this trip will automatically appear in the "My Trips" section of your TripCase account.

This invoice was generated Tuesday, March 19, 2019 6:18 PM UTC. Agency Locator: ELQZDS

LIFESAVING INNOVATION SINCE 1964

[Donate Blood](#) | [Volunteer](#) | [Support NYBC](#)

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Re: Open Letter to be published in Science this week

From: Li, Linheng <LIL@stowers.org>
To: Liu, Shan-Lu <liu.6244@osu.edu>, zhengzhiming4@gmail.com, haitguo@iupui.edu, tzhou@mail.nih.gov, GCheng@mednet.ucla.edu, liangy@umn.edu, rli@vcu.edu, wjma@ksu.edu, xjmeng@vt.edu, Zhijian.Chen@UTSouthwestern.edu, mluo@gsu.edu, zhangyj@umd.edu, xzhu1@umd.edu, jqiu@kumc.edu, lijun@uic.edu, fengwei.bai@usm.edu, andyu@iupui.edu, reachxw@vt.edu, gluo@uab.edu, ldu@nybc.org, hxu@tulane.edu, liu_fy@berkeley.edu, shitao.li@okstate.edu, Shan.lu@umassmed.edu, haihu@UTMB.edu, wenzheho@temple.edu, Qfeng4@central.uh.edu, tang@bio.fsu.edu, feng.li@sdstate.edu, ruilu@lsu.edu, sxiang2@unl.edu, qiyi.tang@howard.edu, dingsw@ucr.edu, guohua@missouri.edu, bling@tulane.edu, junwang@pharmacy.arizona.edu, lifang@umn.edu, wang518@umd.edu, gaos8@upmc.edu, pewang@uchc.edu, xiangy@uthscsa.edu, fzhu@bio.fsu.edu, chen.liang@mcgill.ca, lyuan@vt.edu, fgao@duke.edu, wangjw28@163.com, xfyu1@zju.edu.cn, bzhao@partners.org, jianw@musc.edu, zyang@ksu.edu, yu.cong@nih.gov, weiming.yuan@usc.edu, Zongdi.feng@nationwidechildrens.org, juh13@psu.edu, hengx@missouri.edu, lsu@med.unc.edu, ywu8@gmu.edu, jwu@whu.edu.cn, tshuo@uic.edu, Shibojiang@fudan.edu.cn, sjiang@nybc.org, pinwang@usc.edu, rzhao@som.umaryland.edu, shuylong@mail.sysu.edu.cn, xuefeng.liu@georgetown.edu, yuxingli@som.umaryland.edu, shixia.wang@umassmed.edu, yhe@ipbcams.ac.cn, Pinghui.feng@usc.edu, juttao.guo@bblumberg.org, lin.liu@okstate.edu, hua.zhu@rutgers.edu, Jinhong.chang@bblumberg.org, jianzhu1012@gmail.com, ronghai@ucr.edu, jun.zhu@nih.gov, jliu4@uams.edu, xiangpeng.kong@med.nyu.edu, haoquanwu@outlook.com, Wenjun.liu@defence.gov.au, Liang.shan@wustl.edu, hliao@duke.edu, yuan2@upenn.edu, zxing@umn.edu, hongmin.li@health.ny.gov, pzheng@ihv.umaryland.edu, yaliu@ihv.umaryland.edu, jxw103@case.edu, xiangguo.qiu@canada.ca, Feng Shao <shaofeng@nibs.ac.cn>, zshi@wh.iov.cn, klan@whu.edu.cn, zengmsh@mail.sysu.edu.cn, Nan Yan <Nan.Yan@UTSouthwestern.edu>, Zhang, Rong <rongzhang@wustl.edu>, liliwang@upenn.edu, kli1@uthsc.edu, tsx@case.edu, ssun@mdanderson.org, ysang@tnstate.edu, zihai@musc.edu, wu@crystal.harvard.edu, Sun.Jie@mayo.edu, peijun@strubi.ox.ac.uk, jiayu@coh.org, bchen@crystal.harvard.edu, Wen, Haitao <Haitao.Wen@osumc.edu>, Qu, Feng <qu.28@osu.edu>, Hezhao.Ji@umanitoba.ca
Sent: March 19, 2019 1:59:46 PM CDT
Received: March 19, 2019 2:00:03 PM CDT

A Superb job! Congrats.
Linheng

From: "Liu, Shan-Lu" <liu.6244@osu.edu>
Date: Tuesday, March 19, 2019 at 8:53 AM
To: "zhengzhiming4@gmail.com" <zhengzhiming4@gmail.com>, "haitguo@iupui.edu" <haitguo@iupui.edu>, "tzhou@mail.nih.gov" <tzhou@mail.nih.gov>, "GCheng@mednet.ucla.edu" <GCheng@mednet.ucla.edu>, "liangy@umn.edu" <liangy@umn.edu>, "rli@vcu.edu" <rli@vcu.edu>, "wjma@ksu.edu" <wjma@ksu.edu>, "xjmeng@vt.edu" <xjmeng@vt.edu>, "Zhijian.Chen@UTSouthwestern.edu" <Zhijian.Chen@UTSouthwestern.edu>, "mluo@gsu.edu" <mluo@gsu.edu>, "zhangyj@umd.edu" <zhangyj@umd.edu>, "xzhu1@umd.edu" <xzhu1@umd.edu>, "jqiu@kumc.edu" <jqiu@kumc.edu>, "lijun@uic.edu" <lijun@uic.edu>, "fengwei.bai@usm.edu" <fengwei.bai@usm.edu>, "andyu@iupui.edu" <andyu@iupui.edu>, "reachxw@vt.edu" <reachxw@vt.edu>, "gluo@uab.edu" <gluo@uab.edu>, "ldu@nybc.org" <ldu@nybc.org>, "hxu@tulane.edu" <hxu@tulane.edu>, "liu_fy@berkeley.edu" <liu_fy@berkeley.edu>, "shitao.li@okstate.edu" <shitao.li@okstate.edu>, "Shan.lu@umassmed.edu" <Shan.lu@umassmed.edu>, "haihu@UTMB.edu" <haihu@UTMB.edu>, "wenzheho@temple.edu" <wenzheho@temple.edu>,

"Qfeng4@central.uh.edu" <Qfeng4@central.uh.edu>, "tang@bio.fsu.edu" <tang@bio.fsu.edu>, "feng.li@sdsta.edu" <feng.li@sdsta.edu>, "ruilu@lsu.edu" <ruilu@lsu.edu>, "sxiang2@unl.edu" <sxiang2@unl.edu>, "qiyi.tang@howard.edu" <qiyi.tang@howard.edu>, "dingsw@ucr.edu" <dingsw@ucr.edu>, "guohua@missouri.edu" <guohua@missouri.edu>, "bling@tulane.edu" <bling@tulane.edu>, "junwang@pharmacy.arizona.edu" <junwang@pharmacy.arizona.edu>, "lifang@umn.edu" <lifang@umn.edu>, "wang518@umd.edu" <wang518@umd.edu>, "gaos8@upmc.edu" <gaos8@upmc.edu>, "pewang@uchc.edu" <pewang@uchc.edu>, "xiangy@uthscsa.edu" <xiangy@uthscsa.edu>, "fzhu@bio.fsu.edu" <fzhu@bio.fsu.edu>, "chen.liang@mcgill.ca" <chen.liang@mcgill.ca>, "lyuan@vt.edu" <lyuan@vt.edu>, "fgao@duke.edu" <fgao@duke.edu>, "wangjw28@163.com" <wangjw28@163.com>, "xfyu1@zju.edu.cn" <xfyu1@zju.edu.cn>, "bzhao@partners.org" <bzhao@partners.org>, "jianw@musc.edu" <jianw@musc.edu>, "zyang@ksu.edu" <zyang@ksu.edu>, "yu.cong@nih.gov" <yu.cong@nih.gov>, "weiming.yuan@usc.edu" <weiming.yuan@usc.edu>, "Zongdi.feng@nationwidechildrens.org" <Zongdi.feng@nationwidechildrens.org>, "juh13@psu.edu" <juh13@psu.edu>, "hengx@missouri.edu" <hengx@missouri.edu>, "lsu@med.unc.edu" <lsu@med.unc.edu>, "yw8@gmu.edu" <yw8@gmu.edu>, "jwu@whu.edu.cn" <jwu@whu.edu.cn>, "tshuo@uic.edu" <tshuo@uic.edu>, "Shibojiang@fudan.edu.cn" <Shibojiang@fudan.edu.cn>, "sjiang@nybc.org" <sjiang@nybc.org>, "pinwang@usc.edu" <pinwang@usc.edu>, "rzhao@som.umaryland.edu" <rzhao@som.umaryland.edu>, "shuylong@mail.sysu.edu.cn" <shuylong@mail.sysu.edu.cn>, "xuefeng.liu@georgetown.edu" <xuefeng.liu@georgetown.edu>, "yuxingli@som.umaryland.edu" <yuxingli@som.umaryland.edu>, "shixia.wang@umassmed.edu" <shixia.wang@umassmed.edu>, "yhe@ipbcams.ac.cn" <yhe@ipbcams.ac.cn>, "Pinghui.feng@usc.edu" <Pinghui.feng@usc.edu>, "ju-tao.guo@bblumberg.org" <ju-tao.guo@bblumberg.org>, "lin.liu@okstate.edu" <lin.liu@okstate.edu>, "hua.zhu@rutgers.edu" <hua.zhu@rutgers.edu>, "Jinhong.chang@bblumberg.org" <Jinhong.chang@bblumberg.org>, "jianzhu1012@gmail.com" <jianzhu1012@gmail.com>, "ronghai@ucr.edu" <ronghai@ucr.edu>, "jun.zhu@nih.gov" <jun.zhu@nih.gov>, "jliu4@uams.edu" <jliu4@uams.edu>, "xiangpeng.kong@med.nyu.edu" <xiangpeng.kong@med.nyu.edu>, "haoquanwu@outlook.com" <haoquanwu@outlook.com>, "Wenjun.liu@defence.gov.au" <Wenjun.liu@defence.gov.au>, "Liang.shan@wustl.edu" <Liang.shan@wustl.edu>, "hliao@duke.edu" <hliao@duke.edu>, "yuan2@upenn.edu" <yuan2@upenn.edu>, "zxing@umn.edu" <zxing@umn.edu>, "hongmin.li@health.ny.gov" <hongmin.li@health.ny.gov>, "pzheng@ihv.umaryland.edu" <pzheng@ihv.umaryland.edu>, "Liu, Yang" <yaliu@ihv.umaryland.edu>, "jxw103@case.edu" <jxw103@case.edu>, "xiangguo.qiu@canada.ca" <xiangguo.qiu@canada.ca>, Feng Shao <shaofeng@nibs.ac.cn>, "zlshi@wh.iov.cn" <zlshi@wh.iov.cn>, "klan@whu.edu.cn" <klan@whu.edu.cn>, "zengmsh@mail.sysu.edu.cn" <zengmsh@mail.sysu.edu.cn>, Nan Yan <Nan.Yan@UTSouthwestern.edu>, "Zhang, Rong" <rongzhang@wustl.edu>, "liliwang@upenn.edu" <liliwang@upenn.edu>, Linheng Li <LIL@stowers.org>, "kli1@uthsc.edu" <kli1@uthsc.edu>, "tsx@case.edu" <tsx@case.edu>, "ssun@mdanderson.org" <ssun@mdanderson.org>, "ysang@tnstate.edu" <ysang@tnstate.edu>, "Liu, Shan-Lu" <liu.6244@osu.edu>, Zihai Li <zihai@musc.edu>, "wu@crystal.harvard.edu" <wu@crystal.harvard.edu>, "Sun.Jie@mayo.edu" <Sun.Jie@mayo.edu>, "peijun@strubi.ox.ac.uk" <peijun@strubi.ox.ac.uk>, "Yu, Jianhua" <jiaayu@coh.org>, "bchen@crystal.harvard.edu" <bchen@crystal.harvard.edu>, "Wen, Haitao" <Haitao.Wen@osumc.edu>, "Qu, Feng" <qu.28@osu.edu>, "Hezhao.Ji@umanitoba.ca" <Hezhao.Ji@umanitoba.ca>

Subject: Open Letter to be published in Science this week

****CAUTION: Non-Stowers email****

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Cheers!

Shan-Lu 善虑

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From: Wen-Zhe Ho <wenzheho@temple.edu>
To: Liu, Shan-Lu <liu.6244@osu.edu>
Cc: zhengzhiming4@gmail.com, haitguo@iupui.edu, tzhou@mail.nih.gov, GCheng@mednet.ucla.edu, liangy@umn.edu, rli@vcu.edu, wjma@ksu.edu, xjmeng@vt.edu, Zhijian.Chen@UTSouthwestern.edu <Zhijian.Chen@utsouthwestern.edu>, mluo@gsu.edu, zhangyj@umd.edu, xzhu1@umd.edu, jqiu@kumc.edu, lijun@uic.edu, fengwei.bai@usm.edu, andyu@iupui.edu, reachxw@vt.edu, gluo@uab.edu, ldu@nybc.org, hxu@tulane.edu, liu_fy@berkeley.edu, shitao.li@okstate.edu, Shan.lu@umassmed.edu, haihu@UTMB.edu <haihu@utmb.edu>, Qfeng4@central.uh.edu, tang@bio.fsu.edu, feng.li@sdstate.edu, ruilu@lsu.edu, sxiang2@unl.edu, qiyi.tang@howard.edu, dingsw@ucr.edu, guohua@missouri.edu, bling@tulane.edu, junwang@pharmacy.arizona.edu, lifang@umn.edu, wang518@umd.edu, gaos8@upmc.edu, pewang@uchc.edu, xiangy@uthscsa.edu, fzhu@bio.fsu.edu, chen.liang@mcgill.ca, lyuan@vt.edu, fgao@duke.edu, wangjw28@163.com, xfyu1@zju.edu.cn, bzhao@partners.org, jianw@musc.edu, zyang@ksu.edu, yu.cong@nih.gov, weiming.yuan@usc.edu, Zongdi.feng@nationwidechildrens.org, juh13@psu.edu, hengx@missouri.edu, lsu@med.unc.edu, ywu8@gmu.edu, jwu@whu.edu.cn, tshuo@uic.edu, Shibojiang@fudan.edu.cn, sjiang@nybc.org, pinwang@usc.edu, rzhao@som.umaryland.edu, shuylong@mail.sysu.edu.cn, xuefeng.liu@georgetown.edu, yuxingli@som.umaryland.edu, shixia.wang@umassmed.edu, yhe@ipbcams.ac.cn, Pinghui.feng@usc.edu, ju-tao.guo@bblumberg.org, lin.liu@okstate.edu, hua.zhu@rutgers.edu, Jinhong.chang@bblumberg.org, jianzhu1012@gmail.com, ronghai@ucr.edu, jun.zhu@nih.gov, jliu4@uams.edu, xiangpeng.kong@med.nyu.edu, haoquanwu@outlook.com, Wenjun.liu@defence.gov.au, Liang.shan@wustl.edu, hliao@duke.edu, yuan2@upenn.edu, zxing@umn.edu, hongmin.li@health.ny.gov, pzheng@ihv.umaryland.edu, yaliu@ihv.umaryland.edu, jxw103@case.edu, xiangguo.qiu@canada.ca, Feng Shao <shaofeng@nibs.ac.cn>, zlshi@wh.iov.cn, klan@whu.edu.cn, zengmsh@mail.sysu.edu.cn, Nan Yan <Nan.Yan@utsouthwestern.edu>, Zhang Rong <rongzhang@wustl.edu>, liliwang@upenn.edu, Linheng Li <LIL@stowers.org>, kli1@uthsc.edu, tsx@case.edu, ssun@mdanderson.org, ysang@tnstate.edu, zihai@musc.edu, wu@crystal.harvard.edu, Sun.Jie@mayo.edu, peijun@strubi.ox.ac.uk, jiayu@coh.org, bchen@crystal.harvard.edu, Wen, Haitao <Haitao.Wen@osumc.edu>, Qu, Feng <qu.28@osu.edu>, Hezhao.Ji@umanitoba.ca

Sent: March 19, 2019 3:27:24 PM CDT

Received: March 19, 2019 3:27:39 PM CDT

congratulations!

On Tue, Mar 19, 2019 at 9:53 AM Liu, Shan-Lu <liu.6244@osu.edu> wrote:

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特别致谢卢山,李子海和郑志明三位教授!

Cheers!

Shan-Lu 善虑

--

Wenzhe Ho M.D. MPH
Professor
Dept. Pathology & Laboratory Medicine
Dept. Anatomy & Cell Biology
Temple University School of Medicine
MERB 843
3500 N. Broad Street
Philadelphia, PA 19140
Office: 215-707-8858
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Re: Open Letter to be published in Science this week

From: Yuntao Wu <ywu8@gmu.edu>
To: Wen-Zhe Ho <wenzheho@temple.edu>, Liu, Shan-Lu <liu.6244@osu.edu>
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Sent: March 19, 2019 4:25:01 PM CDT
Received: March 19, 2019 4:25:18 PM CDT

Thank you for the great efforts, the leadership, and the will to help our community.

Yuntao Wu, Ph.D

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From: Wen-Zhe Ho <wenzheho@temple.edu>

Date: Tuesday, March 19, 2019 at 4:27 PM

To: "Liu, Shan-Lu" <liu.6244@osu.edu>

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Subject: Re: Open Letter to be published in Science this week
congratulations!

On Tue, Mar 19, 2019 at 9:53 AM Liu, Shan-Lu <liu.6244@osu.edu> wrote:

Dear colleagues and friends:

I would like to share the news that our open letter entitled "Racial Profiling Harms Science" will be published in Science this Friday and should become online 2 pm this Thursday. The NIH response letter authored by Francis Collins and his leadership team will be published at the same time. Because both letters are still embargoed until 2 PM this Thursday, I am unable to

share their contents at this time. SCBA members should receive an email alert today and tomorrow.

Please note changes have been made during the submission and revision process, and that CAHON and CBIS have joined to sign the letter. I will recap the details of this event sometime in the future, but in the meantime, I would like to sincerely thank all of you for your patience and support.

特别致谢卢山,李子海和郑志明三位教授!

Cheers!

Shan-Lu 善虑

--

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Re: Open Letter to be published in Science this week

From: Gao, Shou-jiang <gaos8@upmc.edu>
To: Yuntao Wu <ywu8@gmu.edu>, Wen-Zhe Ho <wenzheho@temple.edu>, Liu, Shan-Lu <liu.6244@osu.edu>
Cc: zhengzhiming4@gmail.com, haitguo@iupui.edu, tzhou@mail.nih.gov, GCheng@mednet.ucla.edu, liangy@umn.edu, rli@vcu.edu, wjma@ksu.edu, xjmeng@vt.edu, Zhijian.Chen@UTSouthwestern.edu <Zhijian.Chen@utsouthwestern.edu>, mluo@gsu.edu, zhangyj@umd.edu, xzhu1@umd.edu, jqiu@kumc.edu, lijun@uic.edu, fengwei.bai@usm.edu, andyu@iupui.edu, reachxw@vt.edu, gluo@uab.edu, ldu@nybc.org, hxu@tulane.edu, liu_fy@berkeley.edu, shitao.li@okstate.edu, Shan.lu@umassmed.edu, haihu@UTMB.edu <haihu@utmb.edu>, Qfeng4@central.uh.edu, tang@bio.fsu.edu, feng.li@sdstaate.edu, ruilu@lsu.edu, sxiang2@unl.edu, qiye.tang@howard.edu, dingsw@ucr.edu, guohua@missouri.edu, bling@tulane.edu, junwang@pharmacy.arizona.edu, lifang@umn.edu, wang518@umd.edu, pewang@uchc.edu, xiangy@uthscsa.edu, fzhu@bio.fsu.edu, chen.liang@mcgill.ca, lyuan@vt.edu, fgao@duke.edu, wangjw28@163.com, xfyu1@zju.edu.cn, bzhao@partners.org, jianw@musc.edu, zyang@ksu.edu, yu.cong@nih.gov, weiming.yuan@usc.edu, Zongdi.feng@nationwidechildrens.org, juh13@psu.edu, hengx@missouri.edu, lsu@med.unc.edu, jwu@whu.edu.cn, tshuo@uic.edu, Shibojiang@fudan.edu.cn, sjiang@nybc.org, pinwang@usc.edu, rzhao@som.umaryland.edu, shuylong@mail.sysu.edu.cn, xuefeng.liu@georgetown.edu, yuxingli@som.umaryland.edu, shixia.wang@umassmed.edu, yhe@ipbcams.ac.cn, Pinghui.feng@usc.edu, ju-tao.guo@bblumberg.org, lin.liu@okstate.edu, hua.zhu@rutgers.edu, Jinhong.chang@bblumberg.org, jianzhu1012@gmail.com, ronghai@ucr.edu, jun.zhu@nih.gov, jliu4@uams.edu, xiangpeng.kong@med.nyu.edu, haoquanwu@outlook.com, Wenjun.liu@defence.gov.au, Liang.shan@wustl.edu, hliao@duke.edu, yuan2@upenn.edu, zxing@umn.edu, hongmin.li@health.ny.gov, pzheng@ihv.umaryland.edu, yaliu@ihv.umaryland.edu, jxw103@case.edu, xiangguo.qiu@canada.ca, Feng Shao <shaofeng@nibs.ac.cn>, zlshi@wh.iov.cn, klan@whu.edu.cn, zengmsh@mail.sysu.edu.cn, Nan Yan <Nan.Yan@utsouthwestern.edu>, Zhang, Rong <rongzhang@wustl.edu>, liliwang@upenn.edu, Linheng Li <LIL@stowers.org>, kli1@uthsc.edu, tsx@case.edu, ssun@mdanderson.org, ysang@tstate.edu, zihai@musc.edu, wu@crystal.harvard.edu, Sun.Jie@mayo.edu, peijun@strubi.ox.ac.uk, jiyu@coh.org, bchen@crystal.harvard.edu, Wen, Haitao <Haitao.Wen@osumc.edu>, Qu, Feng <qu.28@osu.edu>, Hezhao.Ji@umanitoba.ca
Sent: March 20, 2019 10:46:37 AM CDT
Received: March 20, 2019 10:47:02 AM CDT
Attachments: 2019 Hillman Viral Oncology Symposium Program.pdf

Dear Colleagues,

I would like to share with you the attached meeting announcement in case some of you might be interested in attending. Please let me know if you do decide to attend as we will try to find way to entertain you when you are in Pittsburgh.

With kind regards,

SJ

Shou-Jiang Gao

From: Yuntao Wu <ywu8@gmu.edu>

Sent: Tuesday, March 19, 2019 5:25:01 PM

To: Wen-Zhe Ho; Liu, Shan-Lu

Cc: zhengzhiming4@gmail.com; haitguo@iupui.edu; tzhou@mail.nih.gov; GCheng@mednet.ucla.edu; liangy@umn.edu; rli@vcu.edu; wjma@ksu.edu; xjmeng@vt.edu; Zhijian.Chen@UTSouthwestern.edu; mluo@gsu.edu; zhangyj@umd.edu; xzhu1@umd.edu; jqiu@kumc.edu; lijun@uic.edu; fengwei.bai@usm.edu; andyu@iupui.edu; reachxw@vt.edu; gluo@uab.edu; ldu@nybc.org; hxu@tulane.edu; liu_fy@berkeley.edu; shitao.li@okstate.edu; Shan.lu@umassmed.edu; haihu@UTMB.edu; Qfeng4@central.uh.edu; tang@bio.fsu.edu;

feng.li@sdstate.edu; ruilu@lsu.edu; sxiang2@unl.edu; qi.yi.tang@howard.edu; dingsw@ucr.edu; guohua@missouri.edu; bling@tulane.edu; junwang@pharmacy.arizona.edu; lifang@umn.edu; wang518@umd.edu; Gao, Shou-jiang; pewang@uchc.edu; xiangy@uthscsa.edu; fzhu@bio.fsu.edu; chen.liang@mcgill.ca; lyuan@vt.edu; fgao@duke.edu; wangjw28@163.com; xfyu1@zju.edu.cn; bzhao@partners.org; jianw@muscu.edu; zyang@ksu.edu; yu.cong@nih.gov; weiming.yuan@usc.edu; Zongdi.feng@nationwidechildrens.org; juh13@psu.edu; hengx@missouri.edu; lsu@med.unc.edu; jwu@whu.edu.cn; tshuo@uic.edu; Shibojiang@fudan.edu.cn; sjiang@nybc.org; pinwang@usc.edu; rzhao@som.umaryland.edu; shuylong@mail.sysu.edu.cn; xuefeng.liu@georgetown.edu; yuxingli@som.umaryland.edu; shixia.wang@umassmed.edu; yhe@ipbcams.ac.cn; Pinghui.feng@usc.edu; ju-tao.guo@bblumberg.org; lin.liu@okstate.edu; hua.zhu@rutgers.edu; Jinhong.chang@bblumberg.org; jianzhu1012@gmail.com; ronghai@ucr.edu; jun.zhu@nih.gov; jliu4@uams.edu; xiangpeng.kong@med.nyu.edu; haoquanwu@outlook.com; Wenjun.liu@defence.gov.au; Liang.shan@wustl.edu; hliao@duke.edu; yuan2@upenn.edu; zxing@umn.edu; hongmin.li@health.ny.gov; pzheng@ihv.umaryland.edu; yaliu@ihv.umaryland.edu; jxw103@case.edu; xiangguo.qiu@canada.ca; Feng Shao; zshi@wh.iov.cn; klan@whu.edu.cn; zengmsh@mail.sysu.edu.cn; Nan Yan; Zhang, Rong; liliwang@upenn.edu; Linheng Li; kli1@uthsc.edu; tsx@case.edu; ssun@mdanderson.org; ysang@tnstate.edu; zihai@muscu.edu; wu@crystal.harvard.edu; Sun.Jie@mayo.edu; peijun@strubi.ox.ac.uk; jiayu@coh.org; bchen@crystal.harvard.edu; Wen, Haitao; Qu, Feng; Hezhao.Ji@umanitoba.ca

Subject: Re: Open Letter to be published in Science this week

Thank you for the great efforts, the leadership, and the will to help our community.

Yuntao Wu, Ph.D

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To: "Liu, Shan-Lu" <liu.6244@osu.edu>

Cc: "zhengzhiming4@gmail.com" <zhengzhiming4@gmail.com>, "haitguo@iupui.edu" <haitguo@iupui.edu>, "tzhou@mail.nih.gov" <tzhou@mail.nih.gov>, "GCheng@mednet.ucla.edu" <GCheng@mednet.ucla.edu>, "liangy@umn.edu" <liangy@umn.edu>, "rli@vcu.edu" <rli@vcu.edu>, "wjma@ksu.edu" <wjma@ksu.edu>, "ximeng@vt.edu" <ximeng@vt.edu>, "Zhijian.Chen@UTSouthwestern.edu" <Zhijian.Chen@utsouthwestern.edu>, "mluo@gsu.edu" <mluo@gsu.edu>, "zhangyj@umd.edu" <zhangyj@umd.edu>, "xzhu1@umd.edu" <xzhu1@umd.edu>, "jqiu@kumc.edu" <jqiu@kumc.edu>, "Rong, Lijun" <lijun@uic.edu>, "fengwei.bai@usm.edu" <fengwei.bai@usm.edu>, "andyu@iupui.edu" <andyu@iupui.edu>, "reachxw@vt.edu" <reachxw@vt.edu>, "gluo@uab.edu" <gluo@uab.edu>, "ldu@nybc.org" <ldu@nybc.org>, "hxu@tulane.edu" <hxu@tulane.edu>, "liu_fy@berkeley.edu" <liu_fy@berkeley.edu>, "shitao.li@okstate.edu" <shitao.li@okstate.edu>, "Shan.lu@umassmed.edu" <Shan.lu@umassmed.edu>, "haihu@UTMB.edu" <haihu@utmb.edu>, "Qfeng4@central.uh.edu" <Qfeng4@central.uh.edu>, "tang@bio.fsu.edu" <tang@bio.fsu.edu>, "feng.li@sdstate.edu" <feng.li@sdstate.edu>, "ruilu@lsu.edu" <ruilu@lsu.edu>, Shi-Hua Xiang <sxiang2@unl.edu>, "qi.yi.tang@howard.edu" <qi.yi.tang@howard.edu>, "dingsw@ucr.edu" <dingsw@ucr.edu>, "guohua@missouri.edu" <guohua@missouri.edu>, "bling@tulane.edu" <bling@tulane.edu>, "junwang@pharmacy.arizona.edu" <junwang@pharmacy.arizona.edu>, "lifang@umn.edu" <lifang@umn.edu>, "wang518@umd.edu" <wang518@umd.edu>, "gaos8@upmc.edu" <gaos8@upmc.edu>, "pewang@uchc.edu" <pewang@uchc.edu>, "xiangy@uthscsa.edu" <xiangy@uthscsa.edu>, "fzhu@bio.fsu.edu" <fzhu@bio.fsu.edu>, "chen.liang@mcgill.ca" <chen.liang@mcgill.ca>, "lyuan@vt.edu" <lyuan@vt.edu>, "fgao@duke.edu" <fgao@duke.edu>, "wangjw28@163.com" <wangjw28@163.com>, "xfyu1@zju.edu.cn" <xfyu1@zju.edu.cn>, "bzhao@partners.org" <bzhao@partners.org>, "jianw@muscu.edu" <jianw@muscu.edu>, "zyang@ksu.edu" <zyang@ksu.edu>, "yu.cong@nih.gov" <yu.cong@nih.gov>, "weiming.yuan@usc.edu" <weiming.yuan@usc.edu>, "Zongdi.feng@nationwidechildrens.org" <Zongdi.feng@nationwidechildrens.org>, "juh13@psu.edu" <juh13@psu.edu>, "hengx@missouri.edu" <hengx@missouri.edu>, "lsu@med.unc.edu" <lsu@med.unc.edu>, Yuntao Wu <ywu8@gmu.edu>, "jwu@whu.edu.cn" <jwu@whu.edu.cn>, "tshuo@uic.edu" <tshuo@uic.edu>, "Shibojiang@fudan.edu.cn" <Shibojiang@fudan.edu.cn>, "sjiang@nybc.org" <sjiang@nybc.org>, "pinwang@usc.edu" <pinwang@usc.edu>, "Zhao, Richard" <RZhao@som.umaryland.edu>

"shuylong@mail.sysu.edu.cn" <shuylong@mail.sysu.edu.cn>, "xuefeng.liu@georgetown.edu" <xuefeng.liu@georgetown.edu>, "yuxingli@som.umaryland.edu" <yuxingli@som.umaryland.edu>, "shixia.wang@umassmed.edu" <shixia.wang@umassmed.edu>, "yhe@ipbcams.ac.cn" <yhe@ipbcams.ac.cn>, "Pinghui.feng@usc.edu" <Pinghui.feng@usc.edu>, "Ju-tao Guo (Blumberg)" <ju-tao.guo@bblumberg.org>, "lin.liu@okstate.edu" <lin.liu@okstate.edu>, "hua.zhu@rutgers.edu" <hua.zhu@rutgers.edu>, "Jinhong.chang@bblumberg.org" <Jinhong.chang@bblumberg.org>, "jianzhu1012@gmail.com" <jianzhu1012@gmail.com>, "ronghai@ucr.edu" <ronghai@ucr.edu>, "jun.zhu@nih.gov" <jun.zhu@nih.gov>, "jliu4@uams.edu" <jliu4@uams.edu>, "xiangpeng.kong@med.nyu.edu" <xiangpeng.kong@med.nyu.edu>, "haoquanwu@outlook.com" <haoquanwu@outlook.com>, "Wenjun.liu@defence.gov.au" <Wenjun.liu@defence.gov.au>, "Liang.shan@wustl.edu" <Liang.shan@wustl.edu>, "hliao@duke.edu" <hliao@duke.edu>, "yuan2@upenn.edu" <yuan2@upenn.edu>, "zxing@umn.edu" <zxing@umn.edu>, "hongmin.li@health.ny.gov" <hongmin.li@health.ny.gov>, "pzheng@ihv.umaryland.edu" <pzheng@ihv.umaryland.edu>, "yaliu@ihv.umaryland.edu" <yaliu@ihv.umaryland.edu>, "jxw103@case.edu" <jxw103@case.edu>, "xiangguo.qiu@canada.ca" <xiangguo.qiu@canada.ca>, Feng Shao <shaofeng@nibs.ac.cn>, zlshi <zlshi@wh.iov.cn>, "klan@whu.edu.cn" <klan@whu.edu.cn>, "zengmsh@mail.sysu.edu.cn" <zengmsh@mail.sysu.edu.cn>, Nan Yan <Nan.Yan@utsouthwestern.edu>, "Zhang, Rong" <rongzhang@wustl.edu>, "liliwang@upenn.edu" <liliwang@upenn.edu>, Linheng Li <LIL@stowers.org>, "kli1@uthsc.edu" <kli1@uthsc.edu>, "tsx@case.edu" <tsx@case.edu>, "ssun@mdanderson.org" <ssun@mdanderson.org>, "ysang@tnstate.edu" <ysang@tnstate.edu>, "zihai@musc.edu" <zihai@musc.edu>, "wu@crystal.harvard.edu" <wu@crystal.harvard.edu>, "Sun.Jie@mayo.edu" <Sun.Jie@mayo.edu>, "peijun@strubi.ox.ac.uk" <peijun@strubi.ox.ac.uk>, "jiayu@coh.org" <jiayu@coh.org>, "bchen@crystal.harvard.edu" <bchen@crystal.harvard.edu>, "Wen, Haitao" <Haitao.Wen@osumc.edu>, "Qu, Feng" <qu.28@osu.edu>, "Hezhao.Ji@umanitoba.ca" <Hezhao.Ji@umanitoba.ca>

Subject: Re: Open Letter to be published in Science this week
congratulations!

On Tue, Mar 19, 2019 at 9:53 AM Liu, Shan-Lu <liu.6244@osu.edu> wrote:

Dear colleagues and friends:

I would like to share the news that our open letter entitled "Racial Profiling Harms Science" will be published in Science this Friday and should become online 2 pm this Thursday. The NIH response letter authored by Francis Collins and his leadership team will be published at the same time. Because both letters are still embargoed until 2 PM this Thursday, I am unable to share their contents at this time. SCBA members should receive an email alert today and tomorrow.

Please note changes have been made during the submission and revision process, and that CAHON and CBIS have joined to sign the letter. I will recap the details of this event sometime in the future, but in the meantime, I would like to sincerely thank all of you for your patience and support.

特别致谢卢山,李子海和郑志明三位教授!

Cheers!

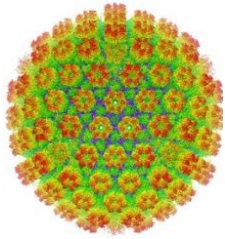
Shan-Lu 善虑

--
Wenzhe Ho M.D. MPH
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Dept. Anatomy & Cell Biology
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Office: 215-707-8858
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<https://medicine.temple.edu/wenzhe-ho>

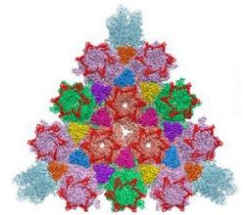
1. 2019 Hillman Viral Oncology Symposium Program.pdf

Type: application/pdf
Size: 250 KB (256,805 bytes)



**University of Pittsburgh Medical Center
Hillman Cancer Center Viral Oncology Symposium**

***Celebrating the 25-year anniversary of the discovery of
Kaposi's sarcoma-associated herpesvirus***



CANCER VIROLOGY PROGRAM (CVP) SYMPOSIUM

Monday, April 15, 2019

Herberman Conference Center, UPMC Shadyside, Pittsburgh PA

8:00 am – 5:30 pm

Presented by UPMC Hillman Cancer Center and the University of Pittsburgh Medical Center

Symposium Goals/Purposes:

This Symposium is designed to provide state-of-the-art information on the etiologies, mechanisms of oncogenesis and molecular biology of cancer viruses, as well as clinical associated viral cancers, and current detection and treatments including immunotherapy and virus-mediated oncolytic therapy to audience of academic and private physicians and basic scientists.

Target Audience:

Local, national and international academic and private physicians and basic scientists as well as other appropriate health care professionals. Participants can earn Continuing Medical Education (CME) Credit.

Symposium Location:

Herberman Conference Center, Hillman Cancer Center, University of Pittsburgh Medical Center, 5115 Centre Avenue, Pittsburgh, Pennsylvania, 15213

Symposium time:

8 am – 5:30 pm, April 15th, 2019

Fee and Registration:

Registration is free but is required for attending the symposium. Breakfast, lunch, coffee and reception will be provided free of charge. Maximum participants are 200, and will be determined at a first come first serve basis. Deadline for registration is April 1st, 2019. Please register at:

<https://ccehs.upmc.com/liveFormalCourses.jsf>

Organization Committee:

Yuan Chang
Robert Ferris
Shou-Jiang Gao
Nara Lee
Patrick Moore
Zhaoxia Qu
Saumendra Sarkar
Kathy Shair
Masashiro Shuda
Gutian Xiao

Sponsor:

UPMC Hillman Cancer Center Cancer Virology Program

Contact:

Dr. Shou-Jiang (SJ) Gao at: gaos8@upmc.edu

Olivia Bennett at bennetto@upmc.edu

Symposium Program:

- 7:30-8:00 Registration and Breakfast
- 8:00-8:05 Opening, Shou-Jiang Gao, PhD, Director, Cancer Virology Program, UPMC Hillman Cancer Center
- 8:05-8:15 Robert Ferris, MD, PhD, Director, UPMC Hillman Cancer Center, Hillman Professor of Oncology, Associate Vice Chancellor for Cancer Research, Co-Director, Tumor Microenvironment Center, Professor of Otolaryngology, of Immunology, and of Radiation Oncology, University of Pittsburgh
"Welcome Speech"
- 8:15-8:30 Arthur S. Levine, MD, Senior Vice Chancellor for the Health Sciences and the John and Gertrude Petersen Dean of Medicine, University of Pittsburgh

Section 1: RNA Biology in Virus Infection, Section Chair: Kathy Shair, PhD

- 8:30-9:00 Bryan R. Cullen, PhD, DSc, James B. Duke Professor, Founding Director, Center for Virology, Duke University School of Medicine
"Epitranscriptomic Regulation of HIV-1 Replication and Gene Expression"
- 9:00-9:20 Nara Lee, PhD, Assistant Professor, Department of Microbiology and Molecular Genetics, University of Pittsburgh School of Medicine
"Why Epstein-Barr Virus Needs Noncoding RNAs to Persist?"
- 9:20-9:50 Erik K. Flemington, PhD, Zimmerman Professor of Cancer Research, Program Leader of the Cancer Genetics Program, and Director of Cancer Crusaders Next Generation Sequence Analysis Core, Tulane Cancer Center
"EBV CircRNAs in Virus Biology and Disease"

9:50-10:00 Break

Section 2: EBV, Lymphomas and Viral Oncolytic Therapy, Section Chair: Nara Lee, PhD

- 10:00-10:30 Richard F. Ambinder, MD, James B. Murphy Professor, Director, Division of Hematologic Malignancies, Johns Hopkins Sidney Kimmel Comprehensive Cancer Center
"Circulating EBV and KSHV DNA for diagnosis and monitoring"
- 10:30-10:50 Kathy Shair, PhD, Assistant Professor, UPMC Hillman Cancer Center
"Elucidating the Significance of EBV Infection in Nasopharyngeal Carcinoma"
- 10:50-11:10 Zhaoxia Qu, PhD, Assistant Professor, UPMC Hillman Cancer Center
"Oncovirus and Oncolytic Virus, a Tale of Two Stories"
- 11:10-11:40 Joseph C. Glorioso III, PhD, Professor, Department of Microbiology and Molecular Genetics, University of Pittsburgh School of Medicine
"Treatment of Glioma Using Tumor Targeted Oncolytic HSV Armed with Immunomodulatory Genes"

11:40-13:00 Lunch

Section 3: Celebrating the 25th Years Anniversary of the Discovery of Kaposi's Sarcoma-Associated Herpesvirus, Section Chair: Shou-Jiang (SJ) Gao, PhD

- 13:00-13:10 Shou-Jiang Gao, PhD, Professor, Pittsburgh Foundation Endowed Chair for Cancer Therapy, and Director, Cancer Virology Program, UPMC Hillman Cancer Center
"Introduction of Speaker"
- 13:10-13:40 Patrick S. Moore, MD, MPH, American Cancer Society Professor and University of Pittsburgh Distinguished Professor, UPMC Hillman Cancer Center
"New Methods--and Old Methods Applied in New Ways--to Find Human Cancer Viruses"

Section 4: KSHV, Cancer Metabolism and Innate Immunity, Section Chair: Shou-Jiang Gao, PhD

- 13:40-14:10 Jae U Jung, PhD, USC Distinguished Professor, Chair of Department of Molecular Microbiology and Immunology, Fletcher Jones Foundation Professor, Hastings Foundation Professor, Director of USC Institute of Emerging Pathogens, University of Southern California
"Viral Oncoprotein-Mediated Regulation of Proline Metabolism for Tumorigenesis"
- 14:10-14:30 Saumendra Sarkar, PhD, Associate Professor, UPMC Hillman Cancer Center
"Revisiting the mechanism of action of OAS-family proteins"
- 14:30-14:50 Masashiro Shuda, PhD, Assistant Professor, UPMC Hillman Cancer Center
"Reversion of a Sox2-Dependent Cancer Cell Phenotype to a Differentiated Neuron-like Phenotype by Inhibition of a Viral Oncoprotein in Human Merkel Cell Carcinoma"
- 14:50-15:20 Pinghui Feng, PhD, Professor of Microbiology and Immunology, and Chair of the Section of Infection and Immunity, Herman Ostrow School of Dentistry of University of Southern California
"Antiviral Activity of a Purine Synthesis Enzyme Reveals a Key Role of Deamidation in Regulating Protein Nuclear Import"

15:20-15:30 Break

Section 5: HPV and MCV, Section Chair: Robert Ferris, MD, PhD

- 15:30-16:00 Paul F. Lambert, PhD, Howard M. Temin Professor and Chair of Oncology, Director-McArdle Laboratory for Cancer Research, Virology Program Leader-University of Wisconsin Carbone Cancer Center, University of Wisconsin School of Medicine and Public Health
"TBD"
- 16:00-16:30 Maura L. Gillison, MD, PhD, Professor, Department of Thoracic/Head and Neck Medical Oncology, Division of Cancer Medicine, The University of Texas MD Anderson Cancer Center
"TBD"
- 16:30-16:50 Tullia C. Bruno, PhD, Research Assistant Professor, UPMC Hillman Cancer Center
"Dissecting the differential function of tumor infiltrating lymphocytes in HPV(+) vs. HPV(-) HNSCC patients"
- 16:50-17:20 Anna R. Giuliano, Ph.D., Senior Member, Founding Director, Center for Infection Research in Cancer (CIRC), Moffitt Cancer Center
"TBD"
- 17:20-17:30 Closing ceremony
- 17:30- Reception

R01 Progress report

From: Baric, Toni C <antoinette_baric@med.unc.edu>
To: lifang@umn.edu
Cc: mdargay@umn.edu, Baric, Ralph S <rbaric@email.unc.edu>
Sent: March 27, 2019 7:40:39 AM CDT
Received: March 27, 2019 7:40:50 AM CDT
Attachments: 2590-fp3 Justification.doc, Baric Other Support.doc, Budget form for NIH Progress Report.xlsx, Ralph Baric All Personnel Report -Yr 3.docx, Scope of Work-Baric.docx

Dear Fang,

Attached are the budget pages from UNC for the progress report. Ralph will provide the science part later. Please let me know if you need anything else.

Best regards,

Toni Baric

Department of Microbiology and Immunology
9025 Burnett Womack
CB# 7292
Chapel Hill, NC 27599-7292
Office: 919-966-3507
tcbaric@med.unc.edu

1. 2590-fp3 Justification.doc

Type: application/vnd.ms-word
Size: 43 KB (44,544 bytes)

2. Baric Other Support.doc

Type: application/vnd.ms-word
Size: 61 KB (62,976 bytes)

3. Budget form for NIH Progress Report.xlsx

Type: application/vnd.openxmlformats-officedocument.spreadsheetml.sheet
Size: 13 KB (14,144 bytes)

4. Ralph Baric All Personnel Report -Yr 3.docx

Type: application/vnd.openxmlformats-officedocument.wordprocessingml.document
Size: 57 KB (58,927 bytes)

5. Scope of Work-Baric.docx

Type: application/vnd.openxmlformats-officedocument.wordprocessingml.document
Size: 22 KB (23,411 bytes)

Program Director/Principal Investigator (Last, First, Middle):

| | |
|-----------------------------|--------------------------|
| BUDGET JUSTIFICATION | GRANT NUMBER AI089728 |
|-----------------------------|--------------------------|

Provide a detailed budget justification for those line items and amounts that represent a significant change from that previously recommended. Use continuation pages if necessary.

N/A

| | | |
|------------------------------|----------------|--------------------|
| CURRENT BUDGET PERIOD | FROM 6/1/18 | THROUGH 5/31/19 |
|------------------------------|----------------|--------------------|

Explain any estimated unobligated balance (including prior year carryover) that is greater than 25% of the current year's total budget.

None

OTHER SUPPORT

BARIC, RALPH S.

ACTIVE:

U19 AI107810 (PI: Baric) 06/21/13-05/31/19 2.16 cal mos
NIH/NIAID \$1,766,262

Characterization of novel genes encoded by RNA and DNA viruses

Using highly pathogenic human respiratory and systemic viruses which cause acute and chronic life-threatening disease outcomes, we test the hypothesis that RNA and DNA viruses encode common and unique mechanisms to manipulate virus replication efficiency and host responses to determine severe disease outcomes.

U19 AI100625 (PI: Baric/Heise-MPI) 08/05/12-08/31/22 1.20 cal mos
NIH/NIAID \$2,662,979

Systems Immunogenetics of Biodefense Pathogens in the Collaborative Cross

Specific Aims: In this proposal, we are utilizing the Collaborative Cross (CC), a novel panel of reproducible, recombinant inbred (RI) mouse lines to identify genes and gene interactions which regulate the induction, kinetics, and magnitude of the innate, inflammatory and adaptive arms of the immune response following virus infection. Specifically, we will develop novel modeling algorithms to predict and validate the causal relationships between natural genetic variation and host signaling networks, immune cell recruitment, and immune function.

****U19 AI142759 CETR** (PI: Whitley) 03/07/19-02/29/24 1.12 cal mos
UAB/NIH/NIAID \$374,220

Antiviral Drug Discovery and Development Center

The specific aims of the proposal will identify small molecule inhibitors of CoV fidelity and RNA capping, define their mechanism of action, and determine their efficacy against SARS-CoV and across CoV families using in vivo mouse models of acute and persistent CoV disease. Role: Investigator

U19 AI109761 CETR (PI: Lipkin) 03/07/14-02/29/20 1.2 cal mos
Columbia/NIH/NIAID \$584,891 (NCE)

Diagnostic and Prognostic Biomarkers for Viral Severe Lung Disease

The overall goal of this program is to develop new platform technologies that use functional genomics as diagnostic and prognostic indicators of severe end stage lung disease following virus infection of the lung. Role: Project Leader, Consortium PI

P01 AI106695/00008956 (PI: Harris) 07/29/15-06/30/19 0.48 cal mos
UCB/NIH \$279,680

Protective immunity following dengue virus natural infections and vaccination

We will perform studies to characterize the B-cell/ antibody (responses in people who receive dengue live attenuated virus vaccines (DLAV). Role: Investigator

R01 AI125198 (PI: DeSilva) 05/08/16-04/30/21 0.60 cal mos
NIH/NIAID \$848,808

Preclinical Assays To Predict Tetravalent Dengue Vaccine Efficacy

Dengue is the most significant mosquito transmitted viral infection of humans. Vaccination is a feasible solution to prevent and control dengue. Although dengue vaccines are under development, we do not know the specific properties of antibodies induced by vaccines that are likely to protect from infection. In this project investigators from the University of North Carolina and Sanofi Pasteur, a leading dengue vaccine developer, will collaborate to define properties of antibodies induced by the Sanofi vaccine that correlate with protection. The main goal of the project is to develop new assays to support the current global effort to develop dengue virus vaccines. Role: Investigator

| | | | |
|---|-----------------------------|-------------------|---------------|
| 48415 | (PI: Desilva) | 06/30/16-12/31/19 | 0.12 cal mos |
| Takeda Vaccines, Inc | | \$330,000 | |
| <u>UNC-Takeda study to characterize human antibody response to DENVax</u> | | | |
| The deSilva and Baric laboratories will jointly characterize the properties of neutralizing antibodies in the serum samples using competition assays with monoclonal antibodies and neutralization assays with recombinant viruses. Role: Investigator | | | |
| R01 AI110700 | (PI: Baric) | 04/20/15-03/31/20 | 0.96 cal mos |
| NIH/NIAID | | \$605,933 | |
| <u>Mechanisms of MERS-CoV Entry, Cross-species Transmission and Pathogenesis</u> | | | |
| The overall goal is to build a comprehensive understanding of the molecular mechanisms guiding group 2c CoV receptor recognition, entry and pathogenesis. | | | |
| Not Assigned | (PI: Baric) | 01/08/16-07/31/19 | 0.36 cal mos |
| Takeda Vaccines, Inc | | \$1,243,048 | |
| <u>In Vitro and In Vivo Characterization of Bivalent DENV Live Virus Vaccines</u> | | | |
| To provide expertise in molecular virology required for creating recombinant dengue viruses for in vitro and in vivo testing. | | | |
| R21 AI135682 | (MPI: Geogiou/Baric) | 02/01/18-1/31/20 | 0.36 cal mos. |
| NIH/NIAID | | \$125,000 | |
| <u>Molecular Analysis of Serum Antibody Constituents in Zika Virus Infection</u> | | | |
| The goals of this project are to assess and quantify the persistence of specific and protective antibodies as well as cross-reactive (possible pathogenic) antibodies in Zika-infected patient blood. The antibodies developed in the project may lead to rapid development of new therapeutics and aid in the design of future vaccine against Zika virus. | | | |
| R01 AI108197 | (MPI: Denison/Baric) | 03/01/18-02/28/23 | 0.60 cal mos |
| Vanderbilt Univ/NIH | | \$532,971 | |
| <u>Determinants of Coronavirus Fidelity in Replication and Pathogenesis</u> | | | |
| To identify common and unique determinants of CoV nsp14-ExoN functions CoV replication, fidelity and IFN sensitivity across CoVs; To determine pathways of adaptation to loss of nsp14-ExoN activity in vitro and in vivo; and To define mechanisms of ExoN-regulated CoV sensitivity to the innate antiviral immune response. | | | |
| R01 AI132178 | (PI: Baric/Sheahan) | 08/09/17-07/31/22 | 0.60 cal mos |
| NIH/NIAID | | \$919,427 | |
| <u>Broad-spectrum antiviral GS-5734 to treat MERS-CoV and related emerging CoV</u> | | | |
| To focus on two areas: novel second generation compounds or compounds not previously provided by Gilead Sciences; and selecting and evaluating drug resistance profiles for SARS-CoV and MERS-CoV mutants in primary human lung cells. | | | |
| R01 AI127845 | (PI: Becker-Dreps) | 09/27/16-08/31/21 | 0.12 cal mos |
| NIH/NIAID | | \$500,513 | |
| <u>Natural history, immunity, and transmission patterns of sapovirus in a Nicaraguan birth cohort</u> | | | |
| To characterize the natural history and risk factors for sapovirus gastroenteritis, elucidate the development of immunity to sapovirus in early childhood and the potential protective effect of maternal immunity, and apply novel genetic and analytic tools to characterize patterns of sapovirus transmission in households and communities. Role: Investigator | | | |
| N005402801 | (PI: Li) | 06/07/16-05/31/21 | 0.36 cal mos |
| Univ Minn/NIH | | \$120,384 | |
| <u>Receptor recognition and cell entry of coronaviruses</u> | | | |
| To investigate how CoVs explore host receptors and host proteases for regulation of their host range, cross-species transmission, tissue tropism, and pathogenesis. Role: Subcontract PI | | | |
| **D43 TW010923 | (PI: Becker-Dreps/Meshnick) | 05/10/18-02/28/23 | 0.24 cal mos. |

NIH \$230,000

Nicaraguan Emerging and Endemic Diseases (NEED)

The goals of this program are to 1) train young Nicaraguan scientists in Infectious Disease Epidemiology at the UNC, 2) create a sustainable supply of scientists in the region by establishing an accredited PhD program in Biomedical Sciences at the Universidad Nacional Autonoma de Nicaragua Leon and 3) foster professional growth and development among trainees and local faculty to ensure academic and research success. Role: Investigator

R21 AI137887 (MPI: Moorman/Heise) 02/05/18-01/31/20 0.12 cal mos
NIH/NIAID \$125,000

Molecular Characterization of Functional RNA Structures in the ZikV genome

Zika virus is an emerging pathogen that is associated with severe congenital neurologic defects, such as microcephaly. The proposed studies will identify new viral virulence determinants that can be targeted to generate safer and more effective Zika virus vaccines and therapeutics. Role: Investigator

****R01AI 107731** (Desilva) 08/05/13-08/31/23 0.60 cal mos
NIH/NIAID \$421,235

Molecular Basis of Dengue Virus Neutralization by Human Antibodies

The goal of this project is to determine the origin and properties of these useful cross protective antibodies. We will also study the properties of antibodies that neutralize Zika viruses. Role: Investigator

****K24AI141744** (Becker-Dreps) 12/06/18-11/30/23 0.12 cal mos
NIH/NIAID \$157,100

The Development of Norovirus Immunity in Early Childhood and Implications for Norovirus Vaccines

To acquire new research skills and carry out a research plan that will allow guidance of the development of pediatric norovirus vaccines. Role: Investigator

Denotes new funding **OVERLAP: None

ORGANIZATIONAL DUNS:

Budget Period:

A. Senior/Key Person

| Project Role | First |
|---------------------|--------------|
| Consortium PI | Ralph |
| | |

B. Other Personnel

| Project Role | First |
|-------------------------------------|--------------|
| Postdoctoral Fellow | Sarah |
| Technician | Drew |
| | |
| Total Number Other Personnel | |

C. Equipment Description

Equipment item

| |
|--|
| |
| |
| |
| |

D. Travel

- 1. Domestic Travel Costs (Includes Canada, Mexico and US Possessions)
- 2. Foreign Travel Costs

E. Participant/Trainee Support Costs

- 1. Tuition/Fees/Health Insurance
- 2. Stipends

- 3. Travel
- 4. Subsistence
- 5. Other (Specify)
- Total Number Participants/Trainees**

F. Other Direct Costs

- 1. Materials and Supplies
- 2. Publication Costs
- 3. Consultant Services
- 4. ADP/Computer Services
- 5. Subaward/Consortium/Contractual Costs
- 6. Equipment or Facility Rental/ User Fees
- 7. Alterations and Renovations
- 8. Maintenance Contracts
- 9. Shipping
- 10. Other (Specify)

G. Direct Costs

H. Indirect Costs

Indirect Cost Type

| |
|----------|
| MTDC 52% |
| |
| |

Cognizant Federal Agency

| | |
|-------------|---|
| Agency Name | <input style="width: 95%; height: 15px;" type="text" value="DHHS, I"/> |
| POC Name | <input style="width: 95%; height: 15px;" type="text" value="Darryl I"/> |
| POC phone # | <input style="width: 95%; height: 15px;" type="text" value="202-40"/> |

I. Total Direct and Indirect Costs

J. Fee**K. Budget Justification**

Send as a separate Word document. Do not include justification on this spreadsheet.
Do NOT send justification as a PDF.

RESEARCH & RELATED BUDGET

608195277

Name of Organization The University of North Carolina at Cha

Start Date: 6/1/18 End Date: 5/31/19

| Middle | Last | Suffix | Base Salary (\$) | Months | | | Requested Salary (\$) |
|--------|-------|--------|------------------|--------|-------|------|-----------------------|
| | | | | Cal. | Acad. | Sum. | |
| S | Baric | PhD | 189,600 | 0.36 | | | 5,688 |
| | | | | | | | |

Total Senior/Key Person

| Middle | Last | Suffix | Base Salary (\$) | Months | | | Requested Salary (\$) |
|--------|--------|--------|------------------|--------|-------|------|-----------------------|
| | | | | Cal. | Acad. | Sum. | |
| | Leist | PhD | 48,216 | 3.60 | | | 14,465 |
| Trevor | Scobey | | 44,463 | 4.20 | | | 15,562 |
| | | | | | | | |

Total Other Personnel

TOTAL SALARY, WAGES AND

| |
|--|
| |
| |
| |
| |

Total Equipment

Total Travel

Total Participant/Trainee

Total Other Direct Cost

Total Direct Costs (A through H)

Indirect Cost

Rate (%)

52.00%

Indirect Cost Base (\$)

79,200

Total Indirect costs

Division of Cost Allocation

Mayes

01-2808

Total Direct and Institutional

apel Hill

| Fringe Benefits (\$) | Funds Requested (\$) |
|----------------------|----------------------|
| 1,578 | 7,266 |
| | 0 |
| on | 7,266 |

| Fringe Benefits (\$) | Funds Requested (\$) |
|----------------------|----------------------|
| 2,640 | 17,105 |
| 5,952 | 21,514 |
| | 0 |
| | 38,619 |

FRINGE (A+B) 45,885

| Funds Requested (\$) |
|----------------------|
| |
| |
| |
| 0 |

| Funds Requested (\$) |
|----------------------|
| 2,000 |
| |
| 2,000 |

| Funds Requested (\$) |
|----------------------|
| |
| |

| |
|--|
| |
| |
| |

Costs 0

Funds Requested (\$)

| |
|--------|
| |
| 24,815 |
| 2,500 |
| |
| |
| |
| |
| 4,000 |
| |
| |

ts 31,315

ru F) 79,200

79200

Funds Requested (\$)

| |
|-------|
| 41184 |
| 0 |
| 0 |

41,184

Funds Requested (\$)

Costs (G+H) 120,384

Funds Requested (\$)

Program Director/Principal Investigator (Last, First, Middle):

ALL PERSONNEL REPORT

GRANT NUMBER

AI089728

Place this form at the end of the signed original copy of the application. Do not duplicate.

Always list the PD/PI(s). In addition, list all other personnel who participated in the project during the current budget period for at least one person month or more, regardless of the source of compensation (a person month equals approximately 160 hours or 8.3% of annualized effort). Use the following abbreviated categories for describing Role on Project:

- PD/PI*
- Co-Investigator
- Faculty
- Postdoctoral (scholar, fellow, or other postdoctoral position)*
- Technician
- Staff Scientist (doctoral level)
- Statistician
- Graduate Student (research assistant)
- Non-student Research Assistant
- Undergraduate Student
- High School Student
- Consultant
- Other (please specify)

If personnel are supported by a Reentry or Diversity Supplement please indicate such after the Role on Project, using the following abbreviations: RS - Reentry Supplement; DS - Diversity Supplement.

*Commons ID required for any personnel holding this Role on Project and for all individuals supported by a Reentry or Diversity Supplement. The Commons ID will be required in the future for all individuals with a graduate student, or undergraduate role. The Commons ID is strongly encouraged, but not required, for all other Project Personnel.

Use Cal (calendar), Acad, or Summer to enter months devoted to project.

| Commons ID* | Name | Degree(s) | SSN (last 4 digits) | Role on Project | DoB (MM /YY) | Cal | Acad | Summer |
|----------------------|---------------|-----------|---------------------|---------------------|--------------|-----|------|--------|
| Ralph_baric | Ralph Baric | PhD | ████ | Co-Investigator | ████ | .36 | | |
| jkocher | Jacob Kocher | PhD | ████ | Postdoctoral Fellow | ████ | 2.5 | | |
| | Drew T Scobey | | ████ | Research Technician | ████ | 2.9 | | |
| ████████████████████ | | PhD | | Postdoctoral Fellow | | 3.3 | | |

Re: R01 Progress report

From: Fang Li <lifang@umn.edu>
To: Baric, Toni C <antoINETTE_baric@med.unc.edu>
Cc: mdargay@umn.edu, Baric, Ralph S <rbaric@email.unc.edu>
Sent: March 29, 2019 11:11:06 AM CDT

Thanks, Toni and Ralph!

On Wed, Mar 27, 2019 at 7:40 AM Baric, Toni C <antoINETTE_baric@med.unc.edu> wrote:

Dear Fang,

Attached are the budget pages from UNC for the progress report. Ralph will provide the science part later. Please let me know if you need anything else.

Best regards,

Toni Baric

Department of Microbiology and Immunology

9025 Burnett Womack

CB# 7292

Chapel Hill, NC 27599-7292

Office: 919-966-3507

tcbaric@med.unc.edu

--

Fang Li, Ph.D.
Associate Professor
Department of Veterinary and Biomedical Sciences
University of Minnesota Twin Cities
612-625-6149, lifang@umn.edu
<http://www.msi.umn.edu/~lifang>

RE: R01 Progress report

From: Baric, Ralph S <rbaric@email.unc.edu>
To: Fang Li <lifang@umn.edu>, Baric, Toni C <antoINETTE_baric@med.unc.edu>
Cc: mdargay@umn.edu
Sent: April 1, 2019 10:30:29 AM CDT
Received: April 1, 2019 10:30:32 AM CDT
Attachments: Baric 2019 Progress Report AI1089728.docx

Hi Fang, I have appended the progress report. Please feel free to cut as appropriate. Hope your doing well. Ralph

From: Fang Li <lifang@umn.edu>
Sent: Friday, March 29, 2019 12:11 PM
To: Baric, Toni C <antoINETTE_baric@med.unc.edu>
Cc: mdargay@umn.edu; Baric, Ralph S <rbaric@email.unc.edu>
Subject: Re: R01 Progress report

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Best regards,

Toni Baric

Department of Microbiology and Immunology
9025 Burnett Womack
CB# 7292
Chapel Hill, NC 27599-7292
Office: 919-966-3507
tbaric@med.unc.edu

--

Fang Li, Ph.D.
Associate Professor
Department of Veterinary and Biomedical Sciences
University of Minnesota Twin Cities
612-625-6149, lifang@umn.edu
<http://www.msi.umn.edu/~lifang>

1. Baric 2019 Progress Report AI1089728.docx

Type: application/vnd.openxmlformats-officedocument.wordprocessingml.document
Size: 17 KB (18,107 bytes)

Introduction. CoVs recognize a variety of host receptors through one or both of its spike S1 domains (S1-NTD and S1-CTD), and are also regulated for cell entry by host proteases that cleave at the S1/S2 boundary. Understanding the receptor recognition and cell entry by CoVs has important implications for virology, medicine, and epidemics. Our studies have elucidated how CoVs explore different host receptors and host proteases to expand their host ranges, and how SARS-CoV and MERS-CoV transmit from animals to humans to cause epidemics. During the past year, the Baric laboratory has made considerable progress in two principle areas of Aims 1-3 of the grant.

van Doremalen N, Schäfer A, Menachery VD, Letko M, Bushmaker T, Fischer RJ, Figueroa DM, Hanley PW, Saturday G, Baric RS, Munster VJ. SARS-Like Coronavirus WIV1-CoV Does Not Replicate in Egyptian Fruit Bats (*Rousettus aegyptiacus*). *Viruses*. 2018 Dec 19;10(12) pii: E727. PMC6316779.

Severe acute respiratory syndrome (SARS)-like WIV1-coronavirus (CoV) was first isolated from *Rhinolophus sinicus* bats and can use the human angiotensin converting enzyme 2 (ACE2) receptor. In the current study, we investigate the ability of WIV1-CoV to infect *Rousettus aegyptiacus* bats. No clinical signs were observed throughout the experiment. Furthermore, only four oropharyngeal swabs and two respiratory tissues, isolated on day 3 post inoculation, were found positive for viral RNA. Two out of twelve bats showed a modest increase in coronavirus specific antibodies post challenge. In conclusion, WIV1-CoV was unable to cause a robust infection in *Rousettus aegyptiacus* bats.

Sheahan TP, Baric RS. Is regulation preventing the development of therapeutics that may prevent future coronavirus pandemics? *Future Virol*. 2018 Mar;13(3):143-146. PMC6289267.

The recent surge of zoonotic EIDs in human populations is driven by a constellation of socioeconomic factors including human population growth, eroding public health infrastructures, changes in land use and agriculture and ease of global travel. HIV, Ebola virus, avian influenza (H5N1, H7N9, etc.), severe acute respiratory syndrome coronavirus (SARS-CoV) and Middle East respiratory syndrome coronavirus (MERS-CoV) are but a few recent examples of highly virulent, zoonotic viral EIDs that have catastrophically affected global economies and public health. Geopolitical flux since the 1990s and the potential for weaponizing EIDs provoked the creation of myriad policies aimed at protecting the USA from bioterrorist threats and the accidental release of potential pandemic pathogens from laboratories. Are these policies effective? Are they impacting countermeasure development for current and future EIDs? How are they shaping the direction of individual research programs, the recruitment of new investigators and the stability of impacted fields?

Cockrell AS, Leist SR, Douglas MG, Baric RS. Modeling pathogenesis of emergent and pre-emergent human coronaviruses in mice. *Mamm Genome*. 2018 Aug; 29(7-8):367-383. PMC6132729.

The emergence of highly pathogenic human coronaviruses (hCoVs) in the last two decades has illuminated their potential to cause high morbidity and mortality in human populations and disrupt global economies. Global pandemic concerns stem from their high mortality rates, capacity for human-to-human spread by respiratory transmission, and complete lack of approved therapeutic countermeasures. Limiting disease may require the development of virus-directed and host-directed therapeutic strategies due to the acute etiology of hCoV infections. Therefore, understanding how hCoV-host interactions cause pathogenic outcomes relies upon mammalian models that closely recapitulate the pathogenesis of hCoVs in humans. Pragmatism has largely been the driving force underpinning mice as highly effective mammalian models for elucidating hCoV-host interactions that govern pathogenesis. Notably, tractable mouse genetics combined with hCoV reverse genetic systems has afforded the concomitant manipulation of virus and host genetics to evaluate virus-host interaction networks in disease. In addition to assessing etiologies of known hCoVs, mouse models have clinically predictive value as tools to appraise potential disease phenotypes associated with pre-emergent CoVs. Knowledge of CoV pathogenic potential before it crosses the species barrier into the human population provides a highly desirable preclinical platform for addressing global pathogen preparedness.

Douglas MG, Kocher JF, Scobey T, Baric RS, Cockrell AS. Adaptive evolution influences the infectious dose of MERS-CoV necessary to achieve severe respiratory disease. *Virology*. 2018 Apr;517:98-107. PMC5869108. We recently established a mouse model (288-330^{+/+}) that developed acute respiratory disease resembling human pathology following infection with a high dose (5×10^6 PFU) of mouse-adapted MERS-CoV (icMERSma1). Although this high dose conferred fatal respiratory disease in mice, achieving similar pathology at lower viral doses may more closely reflect naturally acquired infections. Through continued adaptive evolution of icMERSma1 we generated a novel mouse-adapted MERS-CoV (maM35c4) capable of achieving severe

respiratory disease at doses between 10^3 and 10^5 PFU. Novel mutations were identified in the maM35c4 genome that may be responsible for eliciting etiologies of acute respiratory distress syndrome at 10-1000 fold lower viral doses. Importantly, comparative genetics of the two mouse-adapted MERS strains allowed us to identify specific mutations that remained fixed through an additional 20 cycles of adaptive evolution. Our data indicate that the extent of MERS-CoV adaptation determines the minimal infectious dose required to achieve severe respiratory disease.

Addendum: A second manuscript is in progress where we have made derivative recombinant viruses designed to map the role of S mutations and mutations outside of the S gene in in vivo pathogenesis.

Ongoing Research and Manuscripts in Preparation.

[Redacted text block]

[Redacted text block]

[Redacted text block]

[Redacted text block]

[Redacted text block]

Re: R01 Progress report

From: Fang Li <lifang@umn.edu>
To: Baric, Ralph S <rbaric@email.unc.edu>
Cc: Baric, Toni C <antoinette_baric@med.unc.edu>, mdargay@umn.edu
Sent: April 2, 2019 11:33:27 AM CDT

Thanks, Ralph. Hope things are going well for you as well.

Best,
Fang

On Mon, Apr 1, 2019 at 10:30 AM Baric, Ralph S <rbaric@email.unc.edu> wrote:

Hi Fang, I have appended the progress report. Please feel free to cut as appropriate. Hope your doing well. Ralph

From: Fang Li <lifang@umn.edu>
Sent: Friday, March 29, 2019 12:11 PM
To: Baric, Toni C <antoinette_baric@med.unc.edu>
Cc: mdargay@umn.edu; Baric, Ralph S <rbaric@email.unc.edu>
Subject: Re: R01 Progress report

Thanks, Toni and Ralph!

On Wed, Mar 27, 2019 at 7:40 AM Baric, Toni C <antoinette_baric@med.unc.edu> wrote:

Dear Fang,

Attached are the budget pages from UNC for the progress report. Ralph will provide the science part later. Please let me know if you need anything else.
Best regards,

Toni Baric

Department of Microbiology and Immunology

9025 Burnett Womack

CB# 7292

Chapel Hill, NC 27599-7292

Office: 919-966-3507

tcbaric@med.unc.edu

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Fang Li, Ph.D.
Associate Professor
Department of Veterinary and Biomedical Sciences
University of Minnesota Twin Cities
612-625-6149, lifang@umn.edu
<http://www.msi.umn.edu/~lifang>

SCBA-Virology Division Website

From: Liu, Shan-Lu <liu.6244@osu.edu>
To: zhengzhiming4@gmail.com, haitguo@iupui.edu, tzhou@mail.nih.gov, GCheng@mednet.ucla.edu, liangy@umn.edu, rli@vcu.edu, wjma@ksu.edu, xjmeng@vt.edu, Zhijian.Chen@UTSouthwestern.edu, mluo@gsu.edu, zhangyj@umd.edu, xzhu1@umd.edu, jqiu@kumc.edu, lijun@uic.edu, fengwei.bai@usm.edu, andyu@iupui.edu, reachxw@vt.edu, gluo@uab.edu, ldu@nybc.org, hxu@tulane.edu, liu_fy@berkeley.edu, shitao.li@okstate.edu, Shan.lu@umassmed.edu, haihu@UTMB.edu, wenzheho@temple.edu, Qfeng4@central.uh.edu, tang@bio.fsu.edu, feng.li@sdstate.edu, ruilu@lsu.edu, sxiang2@unl.edu, qiyi.tang@howard.edu, dingsw@ucr.edu, guohua@missouri.edu, bling@tulane.edu, junwang@pharmacy.arizona.edu, lifang@umn.edu, wang518@umd.edu, gaos8@upmc.edu, pewang@uchc.edu, xiangy@uthscsa.edu, fzhu@bio.fsu.edu, chen.liang@mcgill.ca, lyuan@vt.edu, fgao@duke.edu, wangjw28@163.com, xfyu1@zju.edu.cn, bzhao@partners.org, jianw@musc.edu, zyang@ksu.edu, yu.cong@nih.gov, weiming.yuan@usc.edu, Zongdi.feng@nationwidechildrens.org, juh13@psu.edu, hengx@missouri.edu, lsu@med.unc.edu, ywu8@gmu.edu, jwu@whu.edu.cn, tshuo@uic.edu, Shibojiang@fudan.edu.cn, sjiang@nybc.org, pinwang@usc.edu, rzhao@som.umaryland.edu, shuylong@mail.sysu.edu.cn, xuefeng.liu@georgetown.edu, yuxingli@som.umaryland.edu, shixia.wang@umassmed.edu, yhe@ipbcams.ac.cn, Pinghui.feng@usc.edu, ju-tao.guo@bblumberg.org, lin.liu@okstate.edu, hua.zhu@rutgers.edu, Jinhong.chang@bblumberg.org, jianzhu1012@gmail.com, ronghai@ucr.edu, jun.zhu@nih.gov, jliu4@uams.edu, xiangpeng.kong@med.nyu.edu, haoquanwu@outlook.com, Wenjun.liu@defence.gov.au, Liang.shan@wustl.edu, hliao@duke.edu, yuan2@upenn.edu, zxing@umn.edu, hongmin.li@health.ny.gov, pzheng@ihv.umaryland.edu, yaliu@ihv.umaryland.edu, jxw103@case.edu, xiangguo.qiu@canada.ca, Feng Shao <shaofeng@nibs.ac.cn>, zishi@wh.iov.cn, klan@whu.edu.cn, zengmsh@mail.sysu.edu.cn, Nan Yan <Nan.Yan@UTSouthwestern.edu>, Zhang, Rong <rongzhang@wustl.edu>, liliwang@upenn.edu, Linheng Li <LIL@stowers.org>, kli1@uthsc.edu, tsx@case.edu, ssun@mdanderson.org, ysang@tnstate.edu, Liu, Shan-Lu <liu.6244@osu.edu>, zihai@musc.edu, wu@crystal.harvard.edu, Sun.Jie@mayo.edu, peijun@strubi.ox.ac.uk, jiayu@coh.org, bchen@crystal.harvard.edu, Wen, Haitao <Haitao.Wen@osumc.edu>, Qu, Feng <qu.28@osu.edu>, Hezhao.Ji@umanitoba.ca
Sent: April 15, 2019 9:18:57 AM CDT
Received: April 15, 2019 9:20:30 AM CDT

Dear colleagues,

After several weeks of discussion among the advisory board members, and with tremendous effort put by Dr. Renfeng Li, we finally have our SCBA-Virology Division/ACVA website developed, which is now live and ready for viewing <https://sites.google.com/view/scba-virology/home>.

Kindly note that this is a basic website developed by using free “Google sites”, and by no mean is it considered to be comprehensive but simply serves as a platform for the purpose of information. We would welcome any comments and suggestions to make it better. Please share your thoughts within the group or contact me, Renfeng, or Tongqing.

Please also note that currently there are no information available in the “members” page, but we would like to have this section updated soon. We encourage everyone, who is willing to share your information publicly on our website, to send an email to Renfeng Li and Tongqing Zhou with the following information:

Name:
Titles:

Department, school/college, university, address:

Phone:

Email:

Research interests:

Website:

We will offer an option for colleagues, who do not agree to share their information online, to log in from our website for internal use.

Again, I would like to thank Renfeng and all members of the advisory committee for the job well done!

Please contact:

rli@vcu.edu

tzhou@mail.nih.gov

Cheers!

Shan-Lu

tentative schedule

From: Fang Li <lifang@umn.edu>
To: Du, Lanying <LDu@nybc.org>
Sent: April 15, 2019 1:40:30 PM CDT
Attachments: Lanying-Du schedule-April172019.doc

--

Fang Li, Ph.D.
Associate Professor
Department of Veterinary and Biomedical Sciences
University of Minnesota Twin Cities
612-625-6149, lifang@umn.edu
<http://www.msi.umn.edu/~lifang>

1. Lanying-Du schedule-April172019.doc

Type: application/vnd.ms-word
Size: 40 KB (41,472 bytes)


VBS SEMINAR SPEAKER SCHEDULE

Lanying Du, Ph.D.
Head, Laboratory of Viral Immunology, New York Blood Center

Host: Fang Li, [REDACTED]

Hotel reservation:
St Paul Radisson hotel
2540 Cleveland Ave N
Roseville, MN 55113

| | | |
|--|--|--|
| Tuesday, April 17 th 2019 | | |
| 3:45 pm | Fang Li will pick you up from hotel and transport you to VBS | |
| 4:00 pm | Hinh Ly | 295H AS/VM (612)-625-3358 |
| 6:00 pm | Dinner with Yuying Liang, Hinh Ly and Fang Li (Fang Li will transport you to restaurant) | Tea House 2425 University Ave SE, Minneapolis, MN 55414 |
| Wednesday, April 18 th 2019 | | |
| 7:45 am | Breakfast and check out hotel | Hotel |
| 8:30 am | Fang Li will pick you up from hotel and transport you to VBS [REDACTED] will escort you to meetings | |
| 9:30 am | Matthew Aliota | 235C AS/VM (612)-625-3769 |
| 10:15 am | Bruce Walcheck | 295B AS/VM (612)-624-2282 |
| 11:00 am | Peter Larsen | 300B VSB (612)-626-1694 |
| 12:00 pm | Lunch | Room 441 VMC |
| 1:15 pm | Fang Li | [REDACTED] AS/VM [REDACTED] |

| | | |
|---------|---|---|
| 2:00 pm | Fang Li's lab members |  (612)-625-4820 |
| 2:45 pm | Seminar preparation | |
| 3:00 pm | Seminar | 125 AS/VM |
| 4:00 pm | Fang Li will transport you to MSP airport | |

Fwd: schedule of Dr. Lanying Du's visit

From: Fang Li <lifang@umn.edu>
To: Du, Lanying <LDu@nybc.org>
Sent: April 15, 2019 2:56:02 PM CDT
Attachments: Lanying-Du schedule-April172019.doc

----- Forwarded message -----

From: **Fang Li** <lifang@umn.edu>
Date: Mon, Apr 15, 2019 at 2:50 PM
Subject: schedule of Dr. Lanying Du's visit
To: [REDACTED]

Dear all,

Thanks for agreeing to meet this week's seminar speaker Dr. Lanying Du from New York Blood Center. Please see attached the schedule of her visit. If you have any questions, please let me know.

Best,
Fang

--

Fang Li, Ph.D.
Associate Professor
Department of Veterinary and Biomedical Sciences
University of Minnesota Twin Cities
612-625-6149, lifang@umn.edu
<http://www.msi.umn.edu/~lifang>

--

Fang Li, Ph.D.
Associate Professor
Department of Veterinary and Biomedical Sciences
University of Minnesota Twin Cities
612-625-6149, lifang@umn.edu
<http://www.msi.umn.edu/~lifang>

Re: About the billing

From: Dewight Williams <Dewight.Williams@asu.edu>
To: Du, Lanying <LDu@nybc.org> [REDACTED]
Cc: Fang Li <lifang@umn.edu>
Sent: April 25, 2019 5:01:14 PM CDT
Received: April 25, 2019 5:01:20 PM CDT

Hi Lanying,

The request can be associated with your billing information easily on your end as long as your institution is OK with this arrangement. You will just need to submit a PO for the amount of the quote.

Best wishes,

Dewight

From: Du, Lanying <LDu@nybc.org>
Sent: Thursday, April 25, 2019 2:51 PM
To: [REDACTED]; Dewight Williams
Cc: Fang Li
Subject: RE: About the billing

You can put my name and address in the invoice, and email the it to me.

Best,
Lanying

Lanying Du, Ph.D.
Head, Viral Immunology Laboratory
Associate Member, Lindsley F. Kimball Research Institute
New York Blood Center
310 East 67th Street
New York, NY 10065, USA
Tel: 212-570-3459;
Email: ldu@nybc.org.

From: [REDACTED] >
Sent: Thursday, April 25, 2019 5:38 PM
To: Dewight Williams <Dewight.Williams@asu.edu>
Cc: Fang Li <lifang@umn.edu>; Du, Lanying <LDu@nybc.org>
Subject: About the billing

Hi Dewight,

Could you add Dr. Du to our group? We are collaborating this project and she will pay the fee for data collection. Can I use the standard PO generated by Dr. Du? Or, she need to re-request the service?

Thanks,



LIFESAVING INNOVATION SINCE 1964



[Donate Blood](#) | [Volunteer](#) | [Support NYBC](#)

RE: About the billing

From: Du, Lanying <LDu@nybc.org>
To: Dewight Williams <Dewight.Williams@asu.edu>, [REDACTED]
<jshang@umn.edu>
Cc: Fang Li <lifang@umn.edu>
Sent: April 25, 2019 5:10:46 PM CDT
Received: April 25, 2019 5:10:54 PM CDT

Hi Dewight,

That's fine since we are collaborating on the project.

We have been trying to add your university in our ordering system, but looks like it is still not been added. I will let you know if we need further information to add this and let you know. It appears to need your university's Tax ID, but I will confirm.

Best,
Lanying

From: Dewight Williams <Dewight.Williams@asu.edu>
Sent: Thursday, April 25, 2019 6:01 PM
To: Du, Lanying <LDu@nybc.org>; [REDACTED]
Cc: Fang Li <lifang@umn.edu>
Subject: Re: About the billing

Hi Lanying,

The request can be associated with your billing information easily on your end as long as your institution is OK with this arrangement. You will just need to submit a PO for the amount of the quote.

Best wishes,

Dewight

From: Du, Lanying <LDu@nybc.org>
Sent: Thursday, April 25, 2019 2:51 PM
To: [REDACTED] Dewight Williams
Cc: Fang Li
Subject: RE: About the billing

You can put my name and address in the invoice, and email the it to me.

Best,
Lanying

Lanying Du, Ph.D.
Head, Viral Immunology Laboratory
Associate Member, Lindsley F. Kimball Research Institute
New York Blood Center

310 East 67th Street
New York, NY 10065, USA
Tel: 212-570-3459;
Email: ldu@nybc.org.

From: [REDACTED]
Sent: Thursday, April 25, 2019 5:38 PM
To: Dewight Williams <Dewight.Williams@asu.edu>
Cc: Fang Li <lifang@umn.edu>; Du, Lanying <LDu@nybc.org>
Subject: About the billing

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Thanks,



LIFESAVING INNOVATION SINCE 1964



[Donate Blood](#) | [Volunteer](#) | [Support NYBC](#)

This email transmission and any documents, files or previous email messages attached to it may contain information that is confidential or legally privileged. If you are not the intended recipient or a person responsible for delivering this transmission to the intended recipient, you are hereby notified that you must not read this transmission and that any disclosure, copying, printing, distribution or use of this transmission is strictly prohibited. If you have received this transmission in error, please immediately notify the sender by telephone or return email and delete the original transmission and its attachments without reading or saving in any manner.

Re: About the billing

From: [REDACTED]
To: Dewight Williams <Dewight.Williams@asu.edu>
Cc: Fang Li <lifang@umn.edu>, LDu@nybc.org
Sent: April 26, 2019 8:14:45 PM CDT
Received: April 26, 2019 8:15:00 PM CDT

Hi Dewight,

I can ship the sample asap.

[REDACTED]

On Fri, Apr 26, 2019 at 6:35 PM Dewight Williams <Dewight.Williams@asu.edu> wrote:

Hi [REDACTED],

For your request, I'm hoping to squeeze you into a cancellation. In such an occurrence, I would need your samples on hand. When do you anticipate being able to ship your samples?

Dewight

From: [REDACTED]
Sent: Thursday, April 25, 2019 2:38 PM
To: Dewight Williams <Dewight.Williams@asu.edu>
Cc: Fang Li <lifang@umn.edu>; LDu@nybc.org
Subject: About the billing

Hi Dewight,

Could you add Dr. Du to our group? We are collaborating on this project and she will pay the fee for data collection. Can I use the standard PO generated by Dr. Du? Or, does she need to re-request the service?

Thanks,

[REDACTED]

5R01AI139092-02_Year 2 Award Notice

From: Du, Lanying <LDu@nybc.org>
To: Fang Li <lifang@umn.edu>, Perlman, Stanley <stanley-perlman@uiowa.edu>, Jiang Zhu <jiang@scripps.edu>
Sent: May 3, 2019 12:21:00 PM CDT
Received: May 3, 2019 12:21:06 PM CDT
Attachments: NIH_NOA_5R01AI139092-02.PDF

Hi all,

See attached for Year 2 Award Notice. Please be noticed that the total funds for Year 2 (\$845,133) are reduced from Year 1 (\$911,083), so each of us will get little less than in Year 1.

Our research administrator will contact you regarding the agreement and PO-related issues.

By the way, we need to move fast for the project and get more papers published.

Stanley, I will contact you soon for testing serum neutralizing antibodies.

Best,
Lanying



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1. NIH_NOA_5R01AI139092-02.PDF

Type: application/pdf
Size: 88 KB (90,657 bytes)



RESEARCH
Department of Health and Human Services
National Institutes of Health

Notice of Award

Federal Award Date: 04/12/2019



NATIONAL INSTITUTE OF ALLERGY AND INFECTIOUS DISEASES

Grant Number: 5R01AI139092-02

FAIN: R01AI139092

Principal Investigator(s):

Lanying Du, PHD

Project Title: Structure-based design of coronavirus subunit vaccines

Mr. Greene, Barry A., MPA
Executive Director
310 East 67 Street
New York, NY 100656275

Award e-mailed to: researchadmin@nybloodcenter.org

Period Of Performance:

Budget Period: 05/01/2019 – 04/30/2020

Project Period: 05/21/2018 – 04/30/2023

Dear Business Official:

The National Institutes of Health hereby awards a grant in the amount of \$845,133 (see “Award Calculation” in Section I and “Terms and Conditions” in Section III) to NEW YORK BLOOD CENTER in support of the above referenced project. This award is pursuant to the authority of 42 USC 241 42 CFR 52 and is subject to the requirements of this statute and regulation and of other referenced, incorporated or attached terms and conditions.

Acceptance of this award including the “Terms and Conditions” is acknowledged by the grantee when funds are drawn down or otherwise obtained from the grant payment system.

Each publication, press release, or other document about research supported by an NIH award must include an acknowledgment of NIH award support and a disclaimer such as “Research reported in this publication was supported by the National Institute Of Allergy And Infectious Diseases of the National Institutes of Health under Award Number R01AI139092. The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health.” Prior to issuing a press release concerning the outcome of this research, please notify the NIH awarding IC in advance to allow for coordination.

Award recipients must promote objectivity in research by establishing standards that provide a reasonable expectation that the design, conduct and reporting of research funded under NIH awards will be free from bias resulting from an Investigator’s Financial Conflict of Interest (FCOI), in accordance with the 2011 revised regulation at 42 CFR Part 50 Subpart F. The Institution shall submit all FCOI reports to the NIH through the eRA Commons FCOI Module. The regulation does not apply to Phase I Small Business Innovative Research (SBIR) and Small Business Technology Transfer (STTR) awards. Consult the NIH website <http://grants.nih.gov/grants/policy/coi/> for a link to the regulation and additional important information.

If you have any questions about this award, please contact the individual(s) referenced in Section IV.

Sincerely yours,

Tseday G Girma
Grants Management Officer
NATIONAL INSTITUTE OF ALLERGY AND INFECTIOUS DISEASES

Additional information follows

SECTION I – AWARD DATA – 5R01AI139092-02**Award Calculation (U.S. Dollars)**

| | |
|--|-----------|
| Salaries and Wages | \$82,628 |
| Fringe Benefits | \$27,268 |
| Personnel Costs (Subtotal) | \$109,896 |
| Materials & Supplies | \$15,000 |
| Travel | \$3,000 |
| Other | \$28,000 |
| Subawards/Consortium/Contractual Costs | \$567,638 |

| | |
|---|------------------|
| Federal Direct Costs | \$723,534 |
| Federal F&A Costs | \$121,599 |
| Approved Budget | \$845,133 |
| Total Amount of Federal Funds Obligated (Federal Share) | \$845,133 |
| TOTAL FEDERAL AWARD AMOUNT | \$845,133 |

AMOUNT OF THIS ACTION (FEDERAL SHARE) \$845,133

| SUMMARY TOTALS FOR ALL YEARS | | |
|------------------------------|------------|-------------------|
| YR | THIS AWARD | CUMULATIVE TOTALS |
| 2 | \$845,133 | \$845,133 |
| 3 | \$839,218 | \$839,218 |
| 4 | \$831,474 | \$831,474 |
| 5 | \$825,463 | \$825,463 |

Recommended future year total cost support, subject to the availability of funds and satisfactory progress of the project

Fiscal Information:

CFDA Name: Allergy and Infectious Diseases Research
CFDA Number: 93.855
EIN: 1131949477A1
Document Number: RAI139092A
PMS Account Type: P (Subaccount)
Fiscal Year: 2019

| IC | CAN | 2019 | 2020 | 2021 | 2022 |
|----|---------|-----------|-----------|-----------|-----------|
| AI | 8472364 | \$845,133 | \$839,218 | \$831,474 | \$825,463 |

Recommended future year total cost support, subject to the availability of funds and satisfactory progress of the project

NIH Administrative Data:

PCC: M51C B / **OC:** 414E / **Released:** GIRMATG 04/11/2019
Award Processed: 04/12/2019 05:48:57 AM

SECTION II – PAYMENT/HOTLINE INFORMATION – 5R01AI139092-02

For payment and HHS Office of Inspector General Hotline information, see the NIH Home Page at <http://grants.nih.gov/grants/policy/awardconditions.htm>

SECTION III – TERMS AND CONDITIONS – 5R01AI139092-02

This award is based on the application submitted to, and as approved by, NIH on the above-titled project and is subject to the terms and conditions incorporated either directly or by reference in the following:

- a. The grant program legislation and program regulation cited in this Notice of Award.
- b. Conditions on activities and expenditure of funds in other statutory requirements, such as those included in appropriations acts.
- c. 45 CFR Part 75.

- d. National Policy Requirements and all other requirements described in the NIH Grants Policy Statement, including addenda in effect as of the beginning date of the budget period.
- e. Federal Award Performance Goals: As required by the periodic report in the RPPR or in the final progress report when applicable.
- f. This award notice, INCLUDING THE TERMS AND CONDITIONS CITED BELOW.

(See NIH Home Page at <http://grants.nih.gov/grants/policy/awardconditions.htm> for certain references cited above.)

Research and Development (R&D): All awards issued by the National Institutes of Health (NIH) meet the definition of "Research and Development" at 45 CFR Part§ 75.2. As such, auditees should identify NIH awards as part of the R&D cluster on the Schedule of Expenditures of Federal Awards (SEFA). The auditor should test NIH awards for compliance as instructed in Part V, Clusters of Programs. NIH recognizes that some awards may have another classification for purposes of indirect costs. The auditor is not required to report the disconnect (i.e., the award is classified as R&D for Federal Audit Requirement purposes but non-research for indirect cost rate purposes), unless the auditee is charging indirect costs at a rate other than the rate(s) specified in the award document(s).

An unobligated balance may be carried over into the next budget period without Grants Management Officer prior approval.

This grant is subject to Streamlined Noncompeting Award Procedures (SNAP).

This award is subject to the requirements of 2 CFR Part 25 for institutions to receive a Dun & Bradstreet Universal Numbering System (DUNS) number and maintain an active registration in the System for Award Management (SAM). Should a consortium/subaward be issued under this award, a DUNS requirement must be included. See <http://grants.nih.gov/grants/policy/awardconditions.htm> for the full NIH award term implementing this requirement and other additional information.

This award has been assigned the Federal Award Identification Number (FAIN) R01AI139092. Recipients must document the assigned FAIN on each consortium/subaward issued under this award.

Based on the project period start date of this project, this award is likely subject to the Transparency Act subaward and executive compensation reporting requirement of 2 CFR Part 170. There are conditions that may exclude this award; see <http://grants.nih.gov/grants/policy/awardconditions.htm> for additional award applicability information.

In accordance with P.L. 110-161, compliance with the NIH Public Access Policy is now mandatory. For more information, see NOT-OD-08-033 and the Public Access website: <http://publicaccess.nih.gov/>.

In accordance with the regulatory requirements provided at 45 CFR 75.113 and Appendix XII to 45 CFR Part 75, recipients that have currently active Federal grants, cooperative agreements, and procurement contracts with cumulative total value greater than \$10,000,000 must report and maintain information in the System for Award Management (SAM) about civil, criminal, and administrative proceedings in connection with the award or performance of a Federal award that reached final disposition within the most recent five-year period. The recipient must also make semiannual disclosures regarding such proceedings. Proceedings information will be made publicly available in the designated integrity and performance system (currently the Federal Awardee Performance and Integrity Information System (FAPIIS)). Full reporting requirements and procedures are found in Appendix XII to 45 CFR Part 75. This term does not apply to NIH fellowships.

Treatment of Program Income:

SECTION IV – AI Special Terms and Conditions – 5R01AI139092-02

Clinical Trial Indicator: No

This award does not support any NIH-defined Clinical Trials. See the NIH Grants Policy Statement Section 1.2 for NIH definition of Clinical Trial.

This Notice of Award (NoA) includes funds for activity with **University of Minnesota**.

This Notice of Award (NoA) includes funds for activity with **Scripps Research Institute**.

This Notice of Award (NoA) includes funds for activity with **University of Iowa**.

The Research Performance Progress Report (RPPR), Section G.9 (Foreign component), includes reporting requirements for all research performed outside of the United States. Research conducted at the following site(s) must be reported in your RPPR:

Beijing Institute of Microbiology and Epidemiology, China

This award may include collaborations with and/or between foreign organizations. Please be advised that short term travel visa expenses are an allowable expense on this grant, if justified as critical and necessary for the conduct of the project.

Awardees who conduct research involving Select Agents (see 42 CFR 73 for the Select Agent list; and 7 CFR 331 and 9 CFR 121 for the relevant animal and plant pathogens at <http://www.selectagents.gov/Regulations.html>) must complete registration with CDC (or APHIS, depending on the agent) before using NIH funds. No funds can be used for research involving Select Agents if the final registration certificate is denied.

Prior to conducting a restricted experiment with a Select Agent or Toxin, awardees must notify the NIAID and must request and receive approval from CDC or APHIS.

Select Agents:

Awardee of a project that at any time involves a restricted experiment with a select agent, is responsible for notifying and receiving prior approval from the NIAID. Please be advised that changes in the use of a Select Agent will be considered a change in scope and require NIH awarding office prior approval. The approval is necessary for new select agent experiments as well as changes in on-going experiments that would require change in the biosafety plan and/or biosafety containment level. An approval to conduct a restricted experiment granted to an individual cannot be assumed an approval to other individuals who conduct the same restricted experiment as defined in the Select Agents Regulation 42 CFR Part 73, Section 13.b (<http://www.selectagents.gov/Regulations.html>).

Highly Pathogenic Agent:

NIAID defines a Highly Pathogenic Agent as an infectious Agent or Toxin that may warrant a biocontainment safety level of BSL3 or higher according to the current edition of the CDC/NIH Biosafety in Microbiological and Biomedical Laboratories (BMBL) (<http://www.cdc.gov/OD/ohs/biosfty/bmb15/bmb15toc.htm>). Research funded under this grant must adhere to the BMBL, including using the BMBL-recommended biocontainment level at a minimum. If your Institutional Biosafety Committee (or equivalent body) or designated institutional biosafety official recommend a higher biocontainment level, the highest recommended containment level must be used.

When submitting future Progress Reports indicate at the beginning of the report:

If no research with a Highly Pathogenic Agent or Select Agent has been performed or is planned to be performed under this grant.

If your IBC or equivalent body or official has determined, for example, by conducting a risk assessment, that the work being planned or performed under this grant may be conducted at a biocontainment safety level that is lower than BSL3.

If the work involves Select Agents and/or Highly Pathogenic Agents, also address the following points:

Any changes in the use of the Agent(s) or Toxin(s) including its restricted experiments that have resulted in a change in the required biocontainment level, and any resultant change in location, if applicable, as determined by your IBC or equivalent body or official.

If work with a new or additional Agent(s)/Toxin(s) is proposed in the upcoming project period, provide:

- o A list of the new and/or additional Agent(s) that will be studied;
- o A description of the work that will be done with the Agent(s), and whether or not the work is a restricted experiment;
- o The title and location for each biocontainment resource/facility, including the name of the organization that operates the facility, and the biocontainment level at which the work will be conducted, with documentation of approval by your IBC or equivalent body or official. It is important to note if the work is being done in a new location.

STAFF CONTACTS

The Grants Management Specialist is responsible for the negotiation, award and administration of this project and for interpretation of Grants Administration policies and provisions. The Program Official is responsible for the scientific, programmatic and technical aspects of this project. These individuals work together in overall project administration. Prior approval requests (signed by an Authorized Organizational Representative) should be submitted in writing to the Grants Management Specialist. Requests may be made via e-mail.

Grants Management Specialist: Tseday G Girma
Email: tseday.girma@nih.gov **Phone:** 240-747-7388 **Fax:** 301-493-0597

Program Official: Erik J. Stemmy
Email: erik.stemmy@nih.gov **Phone:** 240-627-3380

SPREADSHEET SUMMARY

GRANT NUMBER: 5R01AI139092-02

INSTITUTION: NEW YORK BLOOD CENTER

| Budget | Year 2 | Year 3 | Year 4 | Year 5 |
|--|-----------|-----------|-----------|-----------|
| Salaries and Wages | \$82,628 | \$82,628 | \$82,628 | \$82,628 |
| Fringe Benefits | \$27,268 | \$27,268 | \$27,268 | \$27,268 |
| Personnel Costs (Subtotal) | \$109,896 | \$109,896 | \$109,896 | \$109,896 |
| Materials & Supplies | \$15,000 | \$14,000 | \$14,000 | \$14,000 |
| Travel | \$3,000 | \$3,000 | \$3,000 | \$3,000 |
| Other | \$28,000 | \$27,000 | \$24,000 | \$22,000 |
| Subawards/Consortium/Contractual Costs | \$567,638 | \$565,283 | \$562,879 | \$560,428 |
| TOTAL FEDERAL DC | \$723,534 | \$719,179 | \$713,775 | \$709,324 |
| TOTAL FEDERAL F&A | \$121,599 | \$120,039 | \$117,699 | \$116,139 |
| TOTAL COST | \$845,133 | \$839,218 | \$831,474 | \$825,463 |

| Facilities and Administrative Costs | Year 2 | Year 3 | Year 4 | Year 5 |
|-------------------------------------|-----------|-----------|-----------|-----------|
| F&A Cost Rate 1 | 78% | 78% | 78% | 78% |
| F&A Cost Base 1 | \$155,896 | \$153,896 | \$150,896 | \$148,896 |
| F&A Costs 1 | \$121,599 | \$120,039 | \$117,699 | \$116,139 |

Collaboration on [REDACTED] studies

From: Du, Lanying <LDu@nybc.org>
To: mtaliota@umn.edu
Cc: Fang Li <lifang@umn.edu>
Sent: May 3, 2019 6:30:37 PM CDT
Received: May 3, 2019 6:30:43 PM CDT
Attachments: 050319 [REDACTED]

Dear Dr. Aliota,

It was nice to talk to you weeks ago during my visit to UMN.

As I mentioned, I have been collaborating with Fang on coronavirus studies, and more recently [REDACTED]

[REDACTED]

I have included specific information on the [REDACTED] in the attached file. If possible, you can do all [REDACTED]

Please feel free to contact me if you need further information.

Thanks in advance for collaborating on this project.

Best regards,
Lanying

Lanying Du, Ph.D.
Head, Viral Immunology Laboratory
Associate Member, Lindsley F. Kimball Research Institute
New York Blood Center
310 East 67th Street
New York, NY 10065, USA
Tel: 212-570-3459;
Email: ldu@nybc.org.

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the sender by telephone or return email and delete the original transmission and its attachments without reading or saving in any manner.

Re: Collaboration on ZIKV studies

From: Matthew Aliota <mtaliota@umn.edu>
To: Du, Lanying <ldu@nybc.org>
Cc: Fang Li <lifang@umn.edu>
Sent: May 6, 2019 8:18:23 AM CDT
Received: May 6, 2019 8:18:26 AM CDT

Dear Lanying,

Thank you for the note. I would be happy to collaborate but [REDACTED]

I could make [REDACTED]. Alternatively, I also know of a colleague that may have a [REDACTED].

How fast do you need this work completed?

Regards,
Matt

Matthew T Aliota, Ph.D.
Dept. of Veterinary & Biomedical Sciences
College of Veterinary Medicine
University of Minnesota
612-625-3769 (office)
[REDACTED]

On May 3, 2019 at 6:30:43 PM, Du, Lanying (ldu@nybc.org) wrote:

Dear Dr. Aliota,

It was nice to talk to you weeks ago during my visit to UMN.

As I mentioned, I have been collaborating with Fang on coronavirus studies, and more recently

[REDACTED]

I have included specific information on the [REDACTED] in the attached file. If possible, you can do [REDACTED]. If you cannot do [REDACTED]

Please feel free to contact me if you need further information.

Thanks in advance for collaborating on this project.

Best regards,
Lanying

Lanying Du, Ph.D.

Head, Viral Immunology Laboratory
Associate Member, Lindsley F. Kimball Research Institute
New York Blood Center
310 East 67th Street
New York, NY 10065, USA
Tel: 212-570-3459;
Email: ldu@nybc.org.



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Request for PA-19-056 Submission; Dr. Lanying Du

From: Walton, Theresa <TWalton@nybc.org>
To: Fang Li <lifang@umn.edu>, Melissa Dargay <mdargay@umn.edu>
Cc: Du, Lanying <LDu@nybc.org>, Greene, Barry <BGreene@nybc.org>
Sent: May 8, 2019 11:50:43 AM CDT
Received: May 8, 2019 11:50:55 AM CDT
Attachments: NYBC NIH Subcontract Checklist 052019.pdf, RR_KeyPerson-V1.1 (2).pdf, WS00304241-RR_SubawardBudget30_1_4-V1.4-University_of_Minnesota.pdf

Good Afternoon Dr. Li,

I am assisting Dr. Lanying Du who will be submitting a NIH R01 proposal entitled “Development of novel nanobodies targeting highly pathogenic human coronaviruses” in response to funding announcement PA-19-056 for the June 5, 2019 deadline. As a result, we are requesting the list of documents below for this collaborative effort by **Monday, May 20, 2019** to complete our internal review process. The list of documents and other pertinent information is listed on the attached NYBC subcontract information form.

Please send ALL the following applicable forms and documents:

- Statement of Work (covering subcontractor’s portion of the work only)
- Letter of Support/Collaboration (addressed to the Principal Investigator at NYBC if applicable)
- Biosketch for all Key Personnel (Please use the latest NIH form—expiring 03/31/2020)
- Key Personnel form & all site locations (attached)
- Facilities and Other Resources *
- Equipment *
- ** SF424 R&R Budget (use template attached)
- Budget Justification
- F&A Rate Agreement
- Letter of Intent -- a signed by the Authorized Institutional Official

Items marked with an asterisk should be sent by email in Word (*.doc) format to the NYBC contact person identified above as soon as they are in final form. Please send the finalized budget information (marked with double asterisk) as soon as possible using the template provided by the NYBC deadline indicated above.

Please do not hesitate to let me know if you have any questions.

Thanks,
Theresa R. Walton, MPA
Manager, Grants & Contract Proposals

Office of Sponsored Programs
New York Blood Center
310 East 67th Street
New York, NY 10065
T: 212-570-3150
twalton@nybc.org



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distribution or use of this transmission is strictly prohibited. If you have received this transmission in error, please immediately notify the sender by telephone or return email and delete the original transmission and its attachments without reading or saving in any manner.

1. NYBC NIH Subcontract Checklist 052019.pdf

Type: application/pdf
Size: 106 KB (108,818 bytes)

2. RR_KeyPerson-V1.1 (2).pdf

Type: application/pdf
Size: 109 KB (111,906 bytes)

3. WS00304241-RR_SubawardBudget30_1_4-V1.4-University_of_Minnesota.pdf

Type: application/pdf
Size: 253 KB (259,359 bytes)

GRANT SUBCONTRACTOR INFORMATION AND REQUIRED DOCUMENTS (NIH)

NYBC PI: Lanying Du
Sub PI: Fang Li
Grant Title: Development of novel nanobodies targeting highly pathogenic human coronaviruses
PA or FOA #: PA-19-056
Project Period: 07/01/2020-06/30/2025
NYBC Deadline: **Monday, May 20, 2019**
Sponsor Deadline: Wednesday, June 5, 2019

NYBC Administrative Contact:
Theresa Walton, Manager,
Grants & Contract Proposals
twalton@nybc.org
212-570-3150

Please send ALL the following applicable forms and documents:

- Statement of Work** (covering subcontractor's portion of the work only)
- Letter of Support/Collaboration** (addressed to the Principal Investigator at NYBC if applicable)
- Biosketch for all Key Personnel (Please use the latest NIH form—expiring 03/31/2020)**
- Key Personnel form & all site locations (attached)**
- Facilities and Other Resources ***
- Equipment ***
- ** SF424 R&R Budget** (use template attached)
- Budget Justification**
- F&A Rate Agreement**
- Letter of Intent** -- a signed by the Authorized Institutional Official

Items marked with an asterisk should be sent by email in Word (*.doc) format to the NYBC contact person identified above as soon as they are in final form.

Please send the finalized budget information (marked with double asterisk) as soon as possible using the template provided by the NYBC deadline indicated above.

RE: Collaboration on ZIKV studies

From: Matthew Aliota <mtaliota@umn.edu>
To: Du, Lanying <ldu@nybc.org>
Cc: Fang Li <lifang@umn.edu>
Sent: May 13, 2019 9:56:28 AM CDT
Received: May 13, 2019 9:56:31 AM CDT
Lanying, Fang,

It looks like I can get a reverse genetic system based on the [REDACTED] from a colleague at UC-Davis; however, I am still unclear on the rationale for this study.

To clarify, is it that you introduced [REDACTED]

Thanks,
Matt

Matthew T Aliota, Ph.D.
Dept. of Veterinary & Biomedical Sciences
College of Veterinary Medicine
University of Minnesota
612-625-3769 (office)
[REDACTED]

On May 8, 2019 at 10:06:34 AM, Du, Lanying (ldu@nybc.org) wrote:

Hi Matt,

This was based on the [REDACTED] by Fang. He may tell you more about the [REDACTED] of these [REDACTED]

Thanks,

Lanying

From: Matthew Aliota <mtaliota@umn.edu>
Sent: Wednesday, May 08, 2019 10:56 AM
To: Du, Lanying <LDu@nybc.org>
Cc: Fang Li <lifang@umn.edu>
Subject: RE: Collaboration on ZIKV studies

Hi Lanying,

I will check with my colleague. It is not clear from your email how you identified these [REDACTED] substitutions and tested them to verify that they [REDACTED]. Are these [REDACTED]

Thanks,

Matt

Matthew T Aliota, Ph.D.
Dept. of Veterinary & Biomedical Sciences
College of Veterinary Medicine
University of Minnesota
612-625-3769 (office)

On May 7, 2019 at 10:55:15 AM, Du, Lanying (ldu@nybc.org) wrote:

Hi Matt,

Thanks for the information.

We don't have the [REDACTED]. Will this work for you? If not, we could either synthesize the rest of the virus genes (might be too long?), or you check with your colleague for the possibility to get their isolate?

It would be good to complete this work in the shortest time (months?) if possible.

Best regards,

Lanying

From: Matthew Aliota <mtaliota@umn.edu>
Sent: Monday, May 06, 2019 9:18 AM
To: Du, Lanying <LDu@nybc.org>
Cc: Fang Li <lifang@umn.edu>
Subject: Re: Collaboration on ZIKV studies

Dear Lanying,

Thank you for the note. I would be happy to collaborate but from the attached file it looks like you are working with [REDACTED]

I could make a clone on the [REDACTED]
Alternatively, I also know of a colleague that may have a reverse genetic platform for this [REDACTED]

How fast do you need this work completed?

Regards,

Matt

Matthew T Aliota, Ph.D.
Dept. of Veterinary & Biomedical Sciences
College of Veterinary Medicine
University of Minnesota
612-625-3769 (office)

On May 3, 2019 at 6:30:43 PM, Du, Lanying (ldu@nybc.org) wrote:

Dear Dr. Aliota,

It was nice to talk to you weeks ago during my visit to UMN.

As I mentioned, I have been collaborating with Fang on coronavirus studies, and more recently on Zika virus.

[REDACTED] would be interesting to identify potential mechanisms. We would like to collaborate with you to [REDACTED]

I have included specific information on the [REDACTED] in the attached file. If possible, you can do [REDACTED]

[REDACTED] If you cannot do [REDACTED]

Please feel free to contact me if you need further information.

Thanks in advance for collaborating on this project.

Best regards,

Lanying

Lanying Du, Ph.D.

Head, Viral Immunology Laboratory

Associate Member, Lindsley F. Kimball Research
Institute

New York Blood Center

310 East 67th Street

New York, NY 10065, USA

Tel: 212-570-3459;

Email: ldu@nybc.org.



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RE: Subaward NYBC to University of Minnesota PO NYB1001719 for Dr. Li

From: Walton, Theresa <TWalton@nybc.org>
To: Brett Carlson <carls234@umn.edu>
Cc: Fang Li <lifang@umn.edu>, Du, Lanying <LDu@nybc.org>, Anne M Mockovak-1 <a-mock@umn.edu>, Ross, Deborah <DRoss2@nybc.org>
Sent: May 13, 2019 2:55:15 PM CDT
Received: May 13, 2019 2:55:20 PM CDT
Attachments: Minnesota.PDF

Good Afternoon,

We have received the NOA for grant # 5R01AI139092-02_Year 2 for Dr. Lanying Du. The funding for year 2 has been reduced by \$703.33 at this time we have no knowledge if this will occur in years 3-5. In the meantime, please submit an updated budget and justification reflecting the slight reduction. I have provided the original proposed budget & Justification for Year 2 once received I can process an amendment for Year 2. Please also send a request for carryover funds from Year 1.

Please submit a budget for Year 2

\$183,896.67 (Direct & Indirect total)

Year 1 Breakdown

\$184,600 (\$120,000 direct costs + \$64,600 indirect cost)

Please do not hesitate to let me know if you have any questions.

Thanks,
Theresa R. Walton, MPA
Manager, Grants & Contract Proposals

Office of Sponsored Programs
New York Blood Center
310 East 67th Street
New York, NY 10065
T: 212-570-3150
twalton@nybc.org



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1. Minnesota.PDF

Type: application/pdf
Size: 173 KB (177,358 bytes)

RESEARCH & RELATED BUDGET - SECTION A & B, Budget Period 2

ORGANIZATIONAL DUNS*: 5559179960000

Budget Type*: Project Subaward/Consortium

Enter name of Organization: Regents of the University of Minnesota

Start Date*: 07-01-2019 End Date*: 06-30-2020 Budget Period: 2

| A. Senior/Key Person | | | | | | | | | | | | |
|--|-------------|-------------|------------|--------|---------------|------------------|-----------------|-----------------|---------------|------------------------|--------------------------------|-----------------------|
| Prefix | First Name* | Middle Name | Last Name* | Suffix | Project Role* | Base Salary (\$) | Calendar Months | Academic Months | Summer Months | Requested Salary (\$)* | Fringe Benefits (\$)* | Funds Requested (\$)* |
| 1. | Fang | | Li | | PD/PI | 132,600.00 | 1.20 | | | 13,260.00 | 4,442.00 | 17,702.00 |
| Total Funds Requested for all Senior Key Persons in the attached file | | | | | | | | | | | | |
| Additional Senior Key Persons: File Name: | | | | | | | | | | | Total Senior/Key Person | 17,702.00 |

| B. Other Personnel | | | | | | | |
|--|-------------------------------------|-----------------|-----------------|---------------|------------------------|------------------------------|-----------------------|
| Number of Personnel* | Project Role* | Calendar Months | Academic Months | Summer Months | Requested Salary (\$)* | Fringe Benefits* | Funds Requested (\$)* |
| 1 | Post Doctoral Associates | 12.00 | | | 48,426.00 | 10,363.00 | 58,789.00 |
| | Graduate Students | | | | | | |
| | Undergraduate Students | | | | | | |
| | Secretarial/Clerical | | | | | | |
| 1 | Total Number Other Personnel | | | | | Total Other Personnel | 58,789.00 |
| Total Salary, Wages and Fringe Benefits (A+B) | | | | | | | 76,491.00 |

RESEARCH & RELATED Budget (A-B) (Funds Requested)

RESEARCH & RELATED BUDGET - SECTION C, D, & E, Budget Period 2

ORGANIZATIONAL DUNS*: 5559179960000

Budget Type*: Project Subaward/Consortium

Organization: Regents of the University of Minnesota

Start Date*: 07-01-2019

End Date*: 06-30-2020

Budget Period: 2

| C. Equipment Description | |
|--|------------------------------|
| List items and dollar amount for each item exceeding \$5,000 | |
| Equipment Item | Funds Requested (\$)* |
| Total funds requested for all equipment listed in the attached file | |
| Total Equipment _____ | |
| Additional Equipment: File Name: | |

| D. Travel | Funds Requested (\$)* |
|--|------------------------------|
| 1. Domestic Travel Costs (Incl. Canada, Mexico, and U.S. Possessions) | 2,000.00 |
| 2. Foreign Travel Costs | |
| Total Travel Cost _____ | |
| 2,000.00 | |

| E. Participant/Trainee Support Costs | Funds Requested (\$)* |
|--|------------------------------|
| 1. Tuition/Fees/Health Insurance | |
| 2. Stipends | |
| 3. Travel | |
| 4. Subsistence | |
| 5. Other: | |
| Total Participant Trainee Support Costs _____ | |
| Number of Participants/Trainees | |

RESEARCH & RELATED Budget {C-E} (Funds Requested)

RESEARCH & RELATED BUDGET - SECTIONS F-K, Budget Period 2

ORGANIZATIONAL DUNS*: 5559179960000

Budget Type*: Project Subaward/Consortium

Organization: Regents of the University of Minnesota

Start Date*: 07-01-2019

End Date*: 06-30-2020

Budget Period: 2

| F. Other Direct Costs | Funds Requested (\$)* |
|---|-----------------------|
| 1. Materials and Supplies | 36,509.00 |
| 2. Publication Costs | 2,000.00 |
| 3. Consultant Services | |
| 4. ADP/Computer Services | |
| 5. Subawards/Consortium/Contractual Costs | |
| 6. Equipment or Facility Rental/User Fees | 3,000.00 |
| 7. Alterations and Renovations | |
| Total Other Direct Costs | 41,509.00 |

| G. Direct Costs | Funds Requested (\$)* |
|--------------------------------------|-----------------------|
| Total Direct Costs (A thru F) | 120,000.00 |

| H. Indirect Costs | | | |
|---|------------------------|--|-----------------------|
| Indirect Cost Type | Indirect Cost Rate (%) | Indirect Cost Base (\$) | Funds Requested (\$)* |
| 1. MTDC | 54.00 | 120,000.00 | 64,800.00 |
| Total Indirect Costs | | | 64,800.00 |
| Cognizant Federal Agency | | DHHS, Div of Cost Allocation - Central States, Contact: Arif Karim, P: | |
| (Agency Name, POC Name, and POC Phone Number) | | (214)767-3600 | |

| I. Total Direct and Indirect Costs | Funds Requested (\$)* |
|--|-----------------------|
| Total Direct and Indirect Institutional Costs (G + H) | 184,800.00 |

| J. Fee | Funds Requested (\$)* |
|--------|-----------------------|
| | |

| K. Budget Justification* |
|---|
| File Name: 1257-R01-budget-justification-Li-2017.pdf (Only attach one file.) |

RESEARCH & RELATED Budget {F-K} (Funds Requested)

Budget justification

Personnel Justification

Fang Li, PhD, Principal Investigator (1.2 calendar months), 10% effort, will be responsible for laboratory management and supervision of the projects, including experimental design, execution, data analysis, and write-up.

One Postdoctoral Scientist (To be named) (12.00 calendar months), 100% effort, will be responsible for the designs, preparations, and biochemical and structural studies of coronavirus RBD vaccines (wild type or mutants).

Research Supplies Justification

Research supplies will include reagents for molecular biology, insect and mammalian cell culture, protein expression and purification, protein-protein binding assays, pseudovirus entry assays, and protein crystallography. More specifically, these reagents will include cloning enzymes, restriction enzymes, plasmid purification kits, DNA retraction kits, DNA transfection reagents, insect cells, insect cell culture media, mammalian cells, mammalian cell culture media, protein purification columns, Biacore chips, crystallization kits and plates, and crystal freezing tools.

Travel

For the PI and the postdoctoral scientist, on average there will be two trips to National synchrotron laboratories for X-ray data collection, and one trip to a national conference per year.

Publication

On average three publications will be expected per year.

Communications

Fax, long distance phone call, and shipping of experimental materials to collaborators.

Equipment maintenance

Purchase of service contracts for equipments such as AKTA purification system, centrifuges, plate readers, and insect cell shaker/incubators.

Lab service fees

Use of services from several on-campus labs, such as the electron microscopy lab, robot crystallization lab, mass spectrometry lab, and protein sequencing lab.

RE: Collaboration on ZIKV studies

From: Du, Lanying <LDu@nybc.org>
To: Matthew Aliota <mtaliota@umn.edu>
Cc: Fang Li <lifang@umn.edu>
Sent: May 13, 2019 4:49:10 PM CDT
Received: May 13, 2019 4:49:15 PM CDT
Attachments: Virus challenge.pdf

Hi Matt,

That's great you will be able to [REDACTED]

Yes. We introduced [REDACTED] into our vaccine constructs [REDACTED]
[REDACTED]

I am attaching challenge results [REDACTED] for your reference. The idea is to test whether the
[REDACTED]

Best,
Lanying

From: Matthew Aliota <mtaliota@umn.edu>
Sent: Monday, May 13, 2019 10:56 AM
To: Du, Lanying <LDu@nybc.org>
Cc: Fang Li <lifang@umn.edu>
Subject: RE: Collaboration on ZIKV studies

Lanying, Fang,

It looks like I can get a [REDACTED] from a colleague at UC-Davis; however, I am still unclear on the rationale for this study.

To clarify, is it that you introduced these [REDACTED]

Thanks,
Matt

Matthew T Aliota, Ph.D.
Dept. of Veterinary & Biomedical Sciences
College of Veterinary Medicine
University of Minnesota
612-625-3769 (office)
[REDACTED]

On May 8, 2019 at 10:06:34 AM, Du, Lanying (ldu@nybc.org) wrote:

Hi Matt,

This was based on the [REDACTED] by Fang. He may tell you more about the [REDACTED]
[REDACTED]

Thanks,
Lanying

From: Matthew Aliota <mtaliota@umn.edu>
Sent: Wednesday, May 08, 2019 10:56 AM
To: Du, Lanying <LDu@nybc.org>

Cc: Fang Li <lifang@umn.edu>

Subject: RE: Collaboration on ZIKV studies

Hi Lanying,

I will check with my colleague. It is not clear from your email how you identified [REDACTED]

Thanks,

Matt

Matthew T Aliota, Ph.D.
Dept. of Veterinary & Biomedical Sciences
College of Veterinary Medicine
University of Minnesota
612-625-3769 (office)
[REDACTED]

On May 7, 2019 at 10:55:15 AM, Du, Lanying (ldu@nybc.org) wrote:

Hi Matt,

Thanks for the information.

We don't have the [REDACTED] Will this work for you? If not, we could either [REDACTED] (might be too long?), or you check with your colleague for the possibility to get their [REDACTED]

It would be good to complete this work in the shortest time (months?) if possible.

Best regards,

Lanying

From: Matthew Aliota <mtaliota@umn.edu>

Sent: Monday, May 06, 2019 9:18 AM

To: Du, Lanying <LDu@nybc.org>

Cc: Fang Li <lifang@umn.edu>

Subject: Re: Collaboration on ZIKV studies

Dear Lanying,

Thank you for the note. I would be happy to collaborate but from the attached file it looks like you are working with [REDACTED]

I could make a clone on the [REDACTED].
Alternatively, I also know of a colleague that may have a [REDACTED] for this isolate.

How fast do you need this work completed?

Regards,

Matt

Matthew T Aliota, Ph.D.
Dept. of Veterinary & Biomedical Sciences
College of Veterinary Medicine
University of Minnesota
612-625-3769 (office)
[REDACTED]

On May 3, 2019 at 6:30:43 PM, Du, Lanying (ldu@nybc.org) wrote:

[REDACTED]

[REDACTED]

Re: Subaward NYBC to University of Minnesota PO NYB1001719 for Dr. Li

From: Anne Mockovak <a-mock@umn.edu>
To: Walton, Theresa <TWalton@nybc.org>
Cc: Brett Carlson <carls234@umn.edu>, Fang Li <lifang@umn.edu>, Du, Lanying <LDu@nybc.org>, Ross, Deborah <DRoss2@nybc.org>
Sent: May 14, 2019 1:42:09 PM CDT
Received: May 14, 2019 1:42:23 PM CDT

Theresa

183,896.67 is \$903.33 less than the original budget. I'm assuming the 703.33 was a typo. Let me know if that is not the case.

-Anne

Anne Mockovak
Accountant
Department of Veterinary and
Biomedical Sciences
612.301.2143

On Mon, May 13, 2019 at 2:55 PM Walton, Theresa <TWalton@nybc.org> wrote:

Good Afternoon,

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Thanks,

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Manager, Grants & Contract Proposals

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twalton@nybc.org



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To: Anne Mockovak <a-mock@umn.edu>
Cc: Brett Carlson <carls234@umn.edu>, Fang Li <lifang@umn.edu>, Du, Lanying <LDu@nybc.org>, Ross, Deborah <DRoss2@nybc.org>
Sent: May 14, 2019 1:50:48 PM CDT
Received: May 14, 2019 1:50:53 PM CDT

Hi Anne,

Just to clarify, \$184,600 (\$120,000 direct costs + \$64,600 indirect cost) was awarded in Year 1 which is \$200 less than the proposed budget. So using the base number in year 1 of \$184,600 it is 703.33 not the 903.33. If we were using the proposed budget and not the previously awarded amount in Year 1 then it would be 903.33.

Hope that helps.

Thanks,
Theresa

From: Anne Mockovak <a-mock@umn.edu>
Sent: Tuesday, May 14, 2019 2:42 PM
To: Walton, Theresa <TWalton@nybc.org>
Cc: Brett Carlson <carls234@umn.edu>; Fang Li <lifang@umn.edu>; Du, Lanying <LDu@nybc.org>; Ross, Deborah <DRoss2@nybc.org>
Subject: Re: Subaward NYBC to University of Minnesota PO NYB1001719 for Dr. Li

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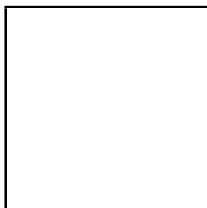
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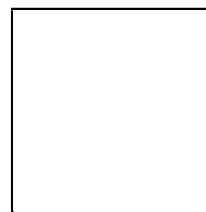
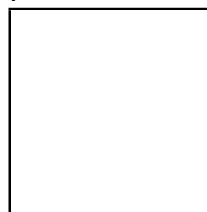
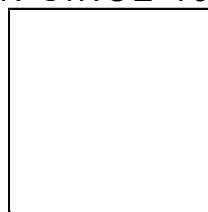
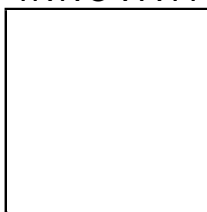
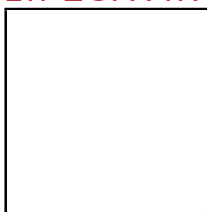
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Cc: Brett Carlson <carls234@umn.edu>, Fang Li <lifang@umn.edu>, Du, Lanying <LDu@nybc.org>, Ross, Deborah <DRoss2@nybc.org>
Sent: May 14, 2019 2:08:18 PM CDT
Received: May 14, 2019 2:08:32 PM CDT

That makes sense. I was working with the proposed budget.

-Anne

Anne Mockovak
Accountant
Department of Veterinary and
Biomedical Sciences
612.301.2143

On Tue, May 14, 2019 at 1:50 PM Walton, Theresa <TWalton@nybc.org> wrote:

Hi Anne,

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Hope that helps.

Thanks,

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Sent: Tuesday, May 14, 2019 2:42 PM
To: Walton, Theresa <TWalton@nybc.org>
Cc: Brett Carlson <carls234@umn.edu>; Fang Li <lifang@umn.edu>; Du, Lanying <LDu@nybc.org>; Ross, Deborah <DRoss2@nybc.org>
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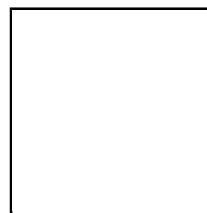
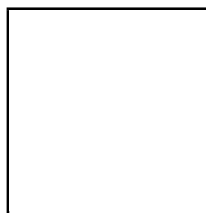
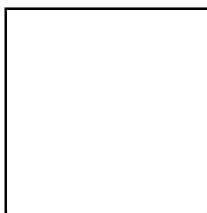
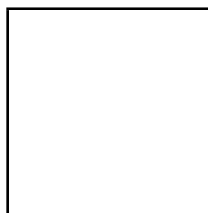
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Sent: May 14, 2019 2:09:10 PM CDT
Received: May 14, 2019 2:09:13 PM CDT

Sorry for the confusion.

From: Anne Mockovak <a-mock@umn.edu>
Sent: Tuesday, May 14, 2019 3:08 PM
To: Walton, Theresa <TWalton@nybc.org>
Cc: Brett Carlson <carls234@umn.edu>; Fang Li <lifang@umn.edu>; Du, Lanying <LDu@nybc.org>; Ross, Deborah <DRoss2@nybc.org>
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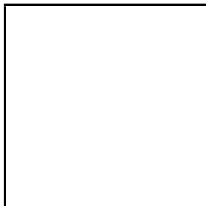
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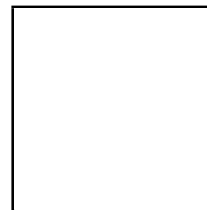
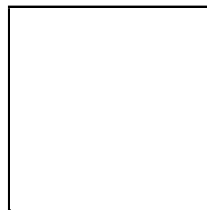
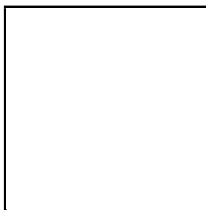
Please do not hesitate to let me know if you have any questions.

Thanks,
Theresa R. Walton, MPA
Manager, Grants & Contract Proposals

Office of Sponsored Programs
New York Blood Center
310 East 67th Street
New York, NY 10065
T: 212-570-3150
twalton@nybc.org



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Re: Subaward NYBC to University of Minnesota PO NYB1001719 for Dr. Li

From: Anne Mockovak <a-mock@umn.edu>
To: Walton, Theresa <TWalton@nybc.org>
Cc: Brett Carlson <carls234@umn.edu>, Fang Li <lifang@umn.edu>, Du, Lanying <LDu@nybc.org>, Ross, Deborah <DRoss2@nybc.org>
Sent: May 14, 2019 2:10:30 PM CDT
Received: May 14, 2019 2:10:45 PM CDT
Attachments: NYBC-RR_Subaward Budget Year 2-Final.pdf

Here is the revised budget and justification. I'll work with Dr. Li to prepare a carry forward letter.

-Anne

Anne Mockovak
Accountant
Department of Veterinary and
Biomedical Sciences
612.301.2143

On Tue, May 14, 2019 at 2:09 PM Walton, Theresa <TWalton@nybc.org> wrote:

Sorry for the confusion.

From: Anne Mockovak <a-mock@umn.edu>
Sent: Tuesday, May 14, 2019 3:08 PM
To: Walton, Theresa <TWalton@nybc.org>
Cc: Brett Carlson <carls234@umn.edu>; Fang Li <lifang@umn.edu>; Du, Lanying <LDu@nybc.org>; Ross, Deborah <DRoss2@nybc.org>
Subject: Re: Subaward NYBC to University of Minnesota PO NYB1001719 for Dr. Li

That makes sense. I was working with the proposed budget.

-Anne

Anne Mockovak
Accountant
Department of Veterinary and
Biomedical Sciences
612.301.2143

On Tue, May 14, 2019 at 1:50 PM Walton, Theresa <TWalton@nybc.org> wrote:

Hi Anne,

Just to clarify, \$184,600 (\$120,000 direct costs + \$64,600 indirect cost) was awarded in Year 1 which is \$200 less than the proposed budget. So using the base number in year 1 of \$184,600 it is 703.33 not the 903.33. If we were using the proposed budget and not the previously awarded amount in Year 1 then it would be 903.33.

Hope that helps.

Thanks,

Theresa

From: Anne Mockovak <a-mock@umn.edu>

Sent: Tuesday, May 14, 2019 2:42 PM

To: Walton, Theresa <TWalton@nybc.org>

Cc: Brett Carlson <carls234@umn.edu>; Fang Li <lifang@umn.edu>; Du, Lanying <LDu@nybc.org>;
Ross, Deborah <DRoss2@nybc.org>

Subject: Re: Subaward NYBC to University of Minnesota PO NYB1001719 for Dr. Li

Theresa

183,896.67 is \$903.33 less than the original budget. I'm assuming the 703.33 was a typo. Let me know if that is not the case.

-Anne

Anne Mockovak

Accountant

Department of Veterinary and
Biomedical Sciences
612.301.2143

On Mon, May 13, 2019 at 2:55 PM Walton, Theresa <TWalton@nybc.org> wrote:

Good Afternoon,

We have received the NOA for grant # 5R01AI139092-02_Year 2 for Dr. Lanying Du. The funding for year 2 has been reduced by \$703.33 at this time we have no knowledge if this will occur in years 3-5. In the meantime, please submit an updated budget and justification reflecting the slight reduction. I have provided the original proposed budget & Justification for Year 2 once received I can process an amendment for Year 2. Please also send a request for carryover funds from Year 1.

Please submit a budget for Year 2

\$183,896.67 (Direct & Indirect total)

Year 1 Breakdown

\$184,600 (\$120,000 direct costs + \$64,600 indirect cost)

Please do not hesitate to let me know if you have any questions.

Thanks,

Theresa R. Walton, MPA

Manager, Grants & Contract Proposals

Office of Sponsored Programs

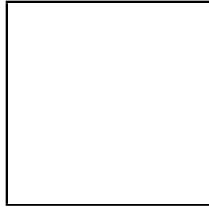
New York Blood Center

310 East 67th Street

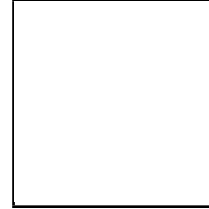
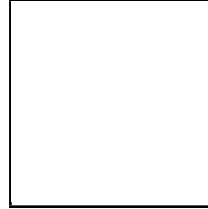
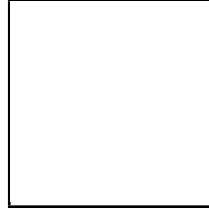
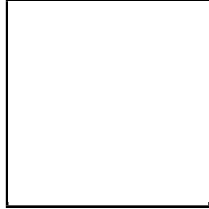
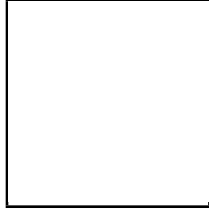
New York, NY 10065

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1. NYBC-RR_Subaward Budget Year 2-Final.pdf

Type: application/pdf
Size: 112 KB (115,025 bytes)

RESEARCH & RELATED BUDGET - Budget Period 1

OMB Number: 4040-0001
Expiration Date: 6/30/2016

ORGANIZATIONAL DUNS:

Enter name of Organization:

Budget Type: Project Subaward/Consortium

Budget Period: 1 Start Date: End Date:

A. Senior/Key Person

| Prefix | First | Middle | Last | Suffix | Base Salary (\$) | Months | | | Requested Salary (\$) | Fringe Benefits (\$) | Funds Requested (\$) |
|--------|-------|--------|------|--------|------------------|--------|-------|------|-----------------------|----------------------|----------------------|
| | | | | | | Cal. | Acad. | Sum. | | | |
| | Fang | | Li | | 130,000.00 | 1.20 | | | 13,000.00 | 4,355.00 | 17,355.00 |

Project Role:

Additional Senior Key Persons: Total Funds requested for all Senior Key Persons in the attached file

Total Senior/Key Person

B. Other Personnel

| Number of Personnel | Project Role | Months | | | Requested Salary (\$) | Fringe Benefits (\$) | Funds Requested (\$) |
|--------------------------------|--------------------------|--------|-------|------|-----------------------|----------------------|----------------------|
| | | Cal. | Acad. | Sum. | | | |
| <input type="text" value="1"/> | Post Doctoral Associates | 12.00 | | | 47,476.00 | 10,160.00 | 57,636.00 |
| <input type="text"/> | Graduate Students | | | | | | |
| <input type="text"/> | Undergraduate Students | | | | | | |
| <input type="text"/> | Secretarial/Clerical | | | | | | |
| <input type="text"/> | <input type="text"/> | | | | | | |

Total Number Other Personnel Total Other Personnel

Total Salary, Wages and Fringe Benefits (A+B)

C. Equipment Description

List items and dollar amount for each item exceeding \$5,000

| Equipment item | Funds Requested (\$) |
|----------------------|----------------------|
| <input type="text"/> | <input type="text"/> |

Additional Equipment:

Total funds requested for all equipment listed in the attached file

Total Equipment

D. Travel

Funds Requested (\$)

| | |
|---|---------------------------------------|
| 1. Domestic Travel Costs (Incl. Canada, Mexico and U.S. Possessions) | <input type="text" value="2,000.00"/> |
| 2. Foreign Travel Costs | <input type="text"/> |
| Total Travel Cost | <input type="text" value="2,000.00"/> |

E. Participant/Trainee Support Costs

Funds Requested (\$)

| | |
|--|----------------------|
| 1. Tuition/Fees/Health Insurance | <input type="text"/> |
| 2. Stipends | <input type="text"/> |
| 3. Travel | <input type="text"/> |
| 4. Subsistence | <input type="text"/> |
| 5. Other <input type="text"/> | <input type="text"/> |
| <input type="text"/> Number of Participants/Trainees | <input type="text"/> |
| Total Participant/Trainee Support Costs | <input type="text"/> |

F. Other Direct Costs

| | | Funds Requested (\$) |
|---------------------------------|--|----------------------|
| 1. | Materials and Supplies | 37,422.42 |
| 2. | Publication Costs | 2,000.00 |
| 3. | Consultant Services | |
| 4. | ADP/Computer Services | |
| 5. | Subawards/Consortium/Contractual Costs | |
| 6. | Equipment or Facility Rental/User Fees | 3,000.00 |
| 7. | Alterations and Renovations | |
| 8. | | |
| 9. | | |
| 10. | | |
| Total Other Direct Costs | | 42,422.42 |

G. Direct Costs

| | | Funds Requested (\$) |
|--------------------------------------|--|----------------------|
| Total Direct Costs (A thru F) | | 119,413.42 |

H. Indirect Costs

| Indirect Cost Type | Indirect Cost Rate (%) | Indirect Cost Base (\$) | Funds Requested (\$) |
|-----------------------------|------------------------|-------------------------|----------------------|
| MTDC | 54.00 | 119,413.42 | 64,483.25 |
| Total Indirect Costs | | | 64,483.25 |

Cognizant Federal Agency
 (Agency Name, POC Name, and
 POC Phone Number)

DHHS, Div of Cost Allocation - Central States, Contact: Arif Karim, P:(214)767-3600

I. Total Direct and Indirect Costs

| | | Funds Requested (\$) |
|--|--|----------------------|
| Total Direct and Indirect Institutional Costs (G + H) | | 183,896.67 |

J. Fee

| Funds Requested (\$) |
|----------------------|
| |

K. Budget Justification

(Only attach one file.)

R01-budget-justification-Li-2017.pdf

Add Attachment

Delete Attachment

View Attachment

Budget justification

Personnel Justification

Fang Li, PhD, Principal Investigator (1.2 calendar months), 10% effort, will be responsible for laboratory management and supervision of the projects, including experimental design, execution, data analysis, and write-up.

One Postdoctoral Scientist (To be named) (12.00 calendar months), 100% effort, will be responsible for the designs, preparations, and biochemical and structural studies of coronavirus RBD vaccines (wild type or mutants).

Research Supplies Justification

Research supplies will include reagents for molecular biology, insect and mammalian cell culture, protein expression and purification, protein-protein binding assays, pseudovirus entry assays, and protein crystallography. More specifically, these reagents will include cloning enzymes, restriction enzymes, plasmid purification kits, DNA retraction kits, DNA transfection reagents, insect cells, insect cell culture media, mammalian cells, mammalian cell culture media, protein purification columns, Biacore chips, crystallization kits and plates, and crystal freezing tools.

Travel

For the PI and the postdoctoral scientist, on average there will be two trips to National synchrotron laboratories for X-ray data collection, and one trip to a national conference per year.

Publication

On average three publications will be expected per year.

Communications

Fax, long distance phone call, and shipping of experimental materials to collaborators.

Equipment maintenance

Purchase of service contracts for equipments such as AKTA purification system, centrifuges, plate readers, and insect cell shaker/incubators.

Lab service fees

Use of services from several on-campus labs, such as the electron microscopy lab, robot crystallization lab, mass spectrometry lab, and protein sequencing lab.

RE: Subaward NYBC to University of Minnesota PO NYB1001719 for Dr. Li

From: Walton, Theresa <TWalton@nybc.org>
To: Anne Mockovak <a-mock@umn.edu>
Cc: Brett Carlson <carls234@umn.edu>, Fang Li <lifang@umn.edu>, Du, Lanying <LDu@nybc.org>, Ross, Deborah <DRoss2@nybc.org>
Sent: May 14, 2019 2:11:47 PM CDT
Received: May 14, 2019 2:11:51 PM CDT

Great, thanks!

From: Anne Mockovak <a-mock@umn.edu>
Sent: Tuesday, May 14, 2019 3:11 PM
To: Walton, Theresa <TWalton@nybc.org>
Cc: Brett Carlson <carls234@umn.edu>; Fang Li <lifang@umn.edu>; Du, Lanying <LDu@nybc.org>; Ross, Deborah <DRoss2@nybc.org>
Subject: Re: Subaward NYBC to University of Minnesota PO NYB1001719 for Dr. Li

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Subject: Re: Subaward NYBC to University of Minnesota PO NYB1001719 for Dr. Li

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Theresa

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Sent: Tuesday, May 14, 2019 2:42 PM

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Cc: Brett Carlson <carls234@umn.edu>; Fang Li <lifang@umn.edu>; Du, Lanying <LDu@nybc.org>; Ross, Deborah <DRoss2@nybc.org>

Subject: Re: Subaward NYBC to University of Minnesota PO NYB1001719 for Dr. Li

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Department of Veterinary and
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612.301.2143

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Please submit a budget for Year 2

\$183,896.67 (Direct & Indirect total)

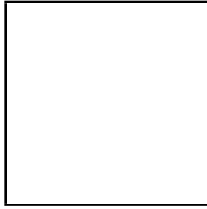
Year 1 Breakdown

\$184,600 (\$120,000 direct costs + \$64,600 indirect cost)

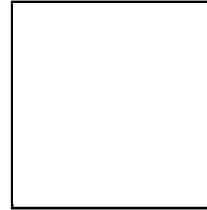
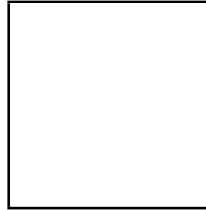
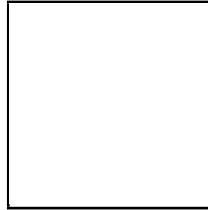
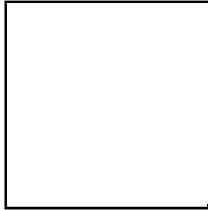
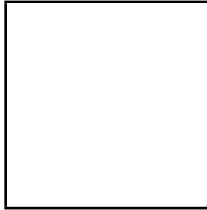
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Manager, Grants & Contract Proposals

Office of Sponsored Programs
New York Blood Center
310 East 67th Street
New York, NY 10065
T: 212-570-3150
twalton@nybc.org



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RE: Request for PA-19-056 Submission; Dr. Lanying Du

From: Walton, Theresa <TWalton@nybc.org>
To: Fang Li <lifang@umn.edu>, Melissa Dargay <mdargay@umn.edu>
Cc: Du, Lanying <LDu@nybc.org>
Sent: May 16, 2019 7:44:57 AM CDT
Received: May 16, 2019 7:45:02 AM CDT

Good Morning,

We wanted to inform you that the title has change to “Novel nanobodies targeting highly pathogenic human coronaviruses” for Dr. Du’s R01 Proposal. Please be sure to update the title on your Letter of Intent, etc.

Thanks,
Theresa R. Walton, MPA
Manager, Grants & Contract Proposals

Office of Sponsored Programs
New York Blood Center
310 East 67th Street
New York, NY 10065
T: 212-570-3150
twalton@nybc.org

From: Walton, Theresa
Sent: Wednesday, May 08, 2019 12:51 PM
To: Fang Li <lifang@umn.edu>; Melissa Dargay <mdargay@umn.edu>
Cc: Du, Lanying <LDu@nybc.org>; Greene, Barry <BGreene@nybc.org>
Subject: Request for PA-19-056 Submission; Dr. Lanying Du
Importance: High

Good Afternoon Dr. Li,

I am assisting Dr. Lanying Du who will be submitting a NIH R01 proposal entitled “Development of novel nanobodies targeting highly pathogenic human coronaviruses” in response to funding announcement PA-19-056 for the June 5, 2019 deadline. As a result, we are requesting the list of documents below for this collaborative effort by **Monday, May 20, 2019** to complete our internal review process. The list of documents and other pertinent information is listed on the attached NYBC subcontract information form.

Please send ALL the following applicable forms and documents:

- Statement of Work (covering subcontractor’s portion of the work only)
- Letter of Support/Collaboration (addressed to the Principal Investigator at NYBC if applicable)
- Biosketch for all Key Personnel (Please use the latest NIH form—expiring 03/31/2020)
- Key Personnel form & all site locations (attached)
- Facilities and Other Resources *
- Equipment *
- ** SF424 R&R Budget (use template attached)
- Budget Justification
- F&A Rate Agreement
- Letter of Intent -- a signed by the Authorized Institutional Official

Items marked with an asterisk should be sent by email in Word (*.doc) format to the NYBC contact person identified above as soon as they are in final form. Please send the finalized budget information (marked

with double asterisk) as soon as possible using the template provided by the NYBC deadline indicated above.

Please do not hesitate to let me know if you have any questions.

Thanks,
Theresa R. Walton, MPA
Manager, Grants & Contract Proposals

Office of Sponsored Programs
New York Blood Center
310 East 67th Street
New York, NY 10065
T: 212-570-3150
twalton@nybc.org



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RE: Collaboration on ZIKV studies

From: Du, Lanying <LDu@nybc.org>
To: Matthew Aliota <mtaliota@umn.edu>
Cc: Fang Li <lifang@umn.edu>
Sent: May 21, 2019 11:18:04 AM CDT
Received: May 21, 2019 11:18:09 AM CDT

Hi Matt,

I just saw the neutralizing data for these groups. Basically, the protection is [REDACTED].

Understanding why proteins containing these [REDACTED] would be interesting. That's why I thought of substituting the [REDACTED] in [REDACTED]. You have expertise in this field, and may decide if this is feasible to do.

Best regards,
Lanying

From: Matthew Aliota <mtaliota@umn.edu>
Sent: Thursday, May 16, 2019 9:08 AM
To: Du, Lanying <LDu@nybc.org>
Cc: Fang Li <lifang@umn.edu>
Subject: RE: Collaboration on ZIKV studies

Dear Lanying,

Thanks for sharing the challenge data. Did you look at [REDACTED] in these animals before challenge? Is it simply a failure [REDACTED]? I am just trying to fully understand the overall scientific premise and hypothesis for why you [REDACTED].

Regards,
Matt

Matthew T Aliota, Ph.D.
Dept. of Veterinary & Biomedical Sciences
College of Veterinary Medicine
University of Minnesota
612-625-3769 (office)
[REDACTED]

On May 13, 2019 at 4:49:15 PM, Du, Lanying (ldu@nybc.org) wrote:

Hi Matt,
That's great you will be able to get the [REDACTED]
Yes. We introduced [REDACTED]

[REDACTED]

I am attaching challenge results for these mutations for your reference. The idea is to test whether the [REDACTED]

Best,
Lanying

From: Matthew Aliota <mtaliota@umn.edu>
Sent: Monday, May 13, 2019 10:56 AM

To: Du, Lanying <LDu@nybc.org>
Cc: Fang Li <lifang@umn.edu>
Subject: RE: Collaboration on ZIKV studies

Lanying, Fang,
It looks like I can get a [REDACTED] from a colleague at UC-Davis; however, I am still unclear on the rationale for this study.
To clarify, is it that you [REDACTED]

Thanks,
Matt

Matthew T Aliota, Ph.D.
Dept. of Veterinary & Biomedical Sciences
College of Veterinary Medicine
University of Minnesota
612-625-3769 (office)
[REDACTED]

On May 8, 2019 at 10:06:34 AM, Du, Lanying (ldu@nybc.org) wrote:

Hi Matt,

This was based on the [REDACTED] by Fang. He may tell you more about the [REDACTED]

Thanks,
Lanying

From: Matthew Aliota <mtaliota@umn.edu>

Sent: Wednesday, May 08, 2019 10:56 AM

To: Du, Lanying <LDu@nybc.org>

Cc: Fang Li <lifang@umn.edu>

Subject: RE: Collaboration on ZIKV studies

Hi Lanying,

I will check with my colleague. It is not clear from your email how you identified these [REDACTED] and tested them to [REDACTED]

Thanks,
Matt

Matthew T Aliota, Ph.D.
Dept. of Veterinary & Biomedical Sciences
College of Veterinary Medicine
University of Minnesota
612-625-3769 (office)
[REDACTED]

On May 7, 2019 at 10:55:15 AM, Du, Lanying (ldu@nybc.org) wrote:

Hi Matt,

Thanks for the information.

We don't have the [REDACTED]. Will this work for you? If not, we could either [REDACTED]

It would be good to complete this work in the shortest time (months?) if possible.

Best regards,

Lanying

From: Matthew Aliota <mtaliota@umn.edu>

Sent: Monday, May 06, 2019 9:18 AM

To: Du, Lanying <LDu@nybc.org>

Cc: Fang Li <lifang@umn.edu>

Subject: Re: Collaboration on ZIKV studies

Dear Lanying,

Thank you for the note. I would be happy to collaborate but from the attached file it looks like you are working with ZIKV strain SPH 2015. My infectious

RE: Proposal Submission: PRF 985967 Li NYBC

From: Walton, Theresa <TWalton@nybc.org>
To: Brett Carlson <carls234@umn.edu>
Cc: Fang Li-5 <lifang@umn.edu>, Melissa J Dargay (mdargay) <mdargay@umn.edu>, Du, Lanying <LDu@nybc.org>
Sent: May 22, 2019 10:28:44 AM CDT
Received: May 22, 2019 10:28:47 AM CDT

Hi Brett,

The budget period of the Cover letter/ Letter of Intent does not match the proposed project period 07/01/2020 - 06/30/2025. Can you also address the letter to the Business Official his information is below.

Barry A. Greene MPA
Vice President, Chief Administrative Officer
New York Blood Center
310 East 67th Street
New York, NY 10065

I will change the budget period on the Research & Related budget from our end.

Thanks,
Theresa R. Walton, MPA
Manager, Grants & Contract Proposals

Office of Sponsored Programs
New York Blood Center
310 East 67th Street
New York, NY 10065
T: 212-570-3150
twalton@nybc.org

-----Original Message-----

From: Brett Carlson <carls234@umn.edu>
Sent: Thursday, May 16, 2019 2:46 PM
To: Walton, Theresa <TWalton@nybc.org>
Cc: Fang Li-5 <lifang@umn.edu>; Melissa J Dargay (mdargay) <mdargay@umn.edu>
Subject: Proposal Submission: PRF 985967 Li NYBC

Title:Novel nanobodies targeting highly pathogenic human coronaviruses UMN PI: Fang Li

Ms. Walton,

Attached is a proposal for the above referenced project. It has been institutionally endorsed on behalf of the Regents of the University of Minnesota.

If you have programmatic questions, please contact the Principal Investigator. If you have administrative questions, please contact me.

Thank you,

Brett

--

Brett Carlson
Sr. Grant & Contract Administrator
University of Minnesota
Office of Sponsored Projects Administration
450 McNamara Alumni Center
200 Oak Street SE
Minneapolis, MN 55455
Phone: 612-626-7441
Fax: 612-624-4843

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NYBC<<https://www.nybc.org/support-us/make-financial-contribution/>>

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Re: Proposal Submission: PRF 985967 Li NYBC

From: Brett Carlson <carls234@umn.edu>
To: Walton, Theresa <TWalton@nybc.org>
Cc: Fang Li-5 <lifang@umn.edu>, Melissa J Dargay (mdargay) <mdargay@umn.edu>, Du, Lanying <LDu@nybc.org>
Sent: May 22, 2019 2:33:09 PM CDT
Received: May 22, 2019 2:33:13 PM CDT
Attachments: Fang Li Cover Letter NYBC revised.pdf

Hi Theresa,

Attached is the revised letter.

Thank you,

Brett

Brett Carlson
Sr. Grant & Contract Administrator
University of Minnesota
Office of Sponsored Projects Administration
450 McNamara Alumni Center
200 Oak Street SE
Minneapolis, MN 55455
Phone: 612-626-7441
Fax: 612-624-4843

On 5/22/2019 10:28 AM, Walton, Theresa wrote:

Hi Brett,

The budget period of the Cover letter/ Letter of Intent does not match the proposed project period 07/01/2020 - 06/30/2025. Can you also address the letter to the Business Official his information is below.

Barry A. Greene MPA
Vice President, Chief Administrative Officer
New York Blood Center
310 East 67th Street
New York, NY 10065

I will change the budget period on the Research & Related budget from our end.

Thanks,
Theresa R. Walton, MPA
Manager, Grants & Contract Proposals

Office of Sponsored Programs
New York Blood Center
310 East 67th Street
New York, NY 10065
T: 212-570-3150
twalton@nybc.org

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Title: Novel nanobodies targeting highly pathogenic human coronaviruses UMN
PI: Fang Li

Ms. Walton,

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If you have programmatic questions, please contact the Principal Investigator. If you have administrative questions, please contact me.

Thank you,

Brett

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1. Fang Li Cover Letter NYBC revised.pdf

Type: application/pdf
Size: 151 KB (155,041 bytes)

UNIVERSITY OF MINNESOTA

Twin Cities Campus

Office of Sponsored Projects Administration 450 McNamara Alumni Center
200 Oak Street S.E.
Minneapolis, MN 55455
Office: 612-624-5599
Fax: 612-624-4843

May 22, 2019

Barry A. Greene MPA
Vice President, Chief Administrative Officer
New York Blood Center
310 East 67th Street
New York, NY 10065

Title: *Novel nanobodies targeting highly pathogenic human coronaviruses*

Dear Mr. Greene:

A proposal for the above referenced program is hereby submitted on behalf of Dr. Fang Li at the University of Minnesota for the period 7/1/20-6/30/25 with a total budget of \$1,378,335. The proposal has been administratively reviewed and approved on behalf of the Regents of the University of Minnesota.

Questions involving programmatic concerns should be directed to the Principal Investigator. If you have fiscal or contractual questions, please contact me at 612/626-7441.

Sincerely,



Brett Carlson
Sr. Grant & Contract Administrator

Enclosure


Driven to Discover

Re: Proposal Submission: PRF 985967 Li NYBC

From: Melissa Dargay <mdargay@umn.edu>
To: Brett Carlson <carls234@umn.edu>
Cc: Walton, Theresa <TWalton@nybc.org>, Fang Li-5 <lifang@umn.edu>, Du, Lanying <LDu@nybc.org>
Sent: May 22, 2019 2:33:56 PM CDT
Received: May 22, 2019 2:34:35 PM CDT

Thank you!

Melissa J Dargay
Administrative Director,
Department of Veterinary and Biomedical Sciences
College of Veterinary Medicine

301 Veterinary Science Building
1971 Commonwealth Avenue
Saint Paul, MN 55108
(o): 612-301-1234


Intent to Submit a Grant Form:
z.umn.edu/cvmintentosubmit

On Wed, May 22, 2019 at 2:33 PM Brett Carlson <carls234@umn.edu> wrote:
Hi Theresa,

Attached is the revised letter.

Thank you,

Brett

Brett Carlson
Sr. Grant & Contract Administrator
University of Minnesota
Office of Sponsored Projects Administration
450 McNamara Alumni Center
200 Oak Street SE
Minneapolis, MN 55455
Phone: 612-626-7441
Fax: 612-624-4843

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Thanks,
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Manager, Grants & Contract Proposals

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Title:Novel nanobodies targeting highly pathogenic human coronaviruses UMN
PI: Fang Li

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To: Brett Carlson <carls234@umn.edu>
Cc: Walton, Theresa <TWalton@nybc.org>, Melissa J Dargay (mdargay) <mdargay@umn.edu>, Du, Lanying <LDu@nybc.org>
Sent: May 23, 2019 4:43:34 PM CDT

Thanks!

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Thank you,

Brett

Brett Carlson
Sr. Grant & Contract Administrator
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Brett

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<<https://www.linkedin.com/company/new-york-blood-center>>
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--

Fang Li, Ph.D.
Associate Professor
Department of Veterinary and Biomedical Sciences

University of Minnesota Twin Cities

612-625-6149, lifang@umn.edu

<http://www.msi.umn.edu/~lifang>

RE: MHV manuscript

From: Baric, Ralph S <rbaric@email.unc.edu>
To: Fang Li <lifang@umn.edu>
Sent: June 24, 2019 6:47:24 AM CDT
Received: June 24, 2019 6:47:28 AM CDT

Hi Fang, nice work-I'll take a look. I have some interesting data on [REDACTED], the latter uses the [REDACTED] but not as efficiently as the human MERS strains. Seems like we also need to talk about how to and whether we want to renew the existing RO1 that ends next year. Lets chat when you have a chance.
ralph

From: Fang Li <lifang@umn.edu>
Sent: Sunday, June 23, 2019 10:13 PM

To: [REDACTED]; [REDACTED]
[REDACTED]; Baric, Ralph S <rbaric@email.unc.edu>

Subject: MHV manuscript

Dear all,

Please see attached our manuscript on the cryo-EM structure of MHV spike protein complexed with receptor. I would appreciate it if you could send me your detailed comments by Saturday (June 29). I plan to submit it to Nature Communications on Sunday (June 30).

Thanks!

Fang

--

Fang Li, Ph.D.
Associate Professor
Department of Veterinary and Biomedical Sciences
University of Minnesota Twin Cities
612-625-6149, lifang@umn.edu
<http://www.msi.umn.edu/~lifang>

Re: MHV manuscript

From: Fang Li <lifang@umn.edu>
To: Baric, Ralph S <rbaric@email.unc.edu>
Sent: June 24, 2019 10:26:42 PM CDT

Hi Ralph,

Yes, we can talk next week about a variety of things.

By the way, will you come to Minnesota next month for the ASV meeting?

Best,
Fang

On Mon, Jun 24, 2019 at 6:47 AM Baric, Ralph S <rbaric@email.unc.edu> wrote:

Hi Fang, nice work-I'll take a look. I have some interesting data on [REDACTED] the latter uses the [REDACTED] but not as efficiently as the human MERS strains. Seems like we also need to talk about how to and whether we want to renew the existing RO1 that ends next year. Lets chat when you have a chance.
ralph

From: Fang Li <lifang@umn.edu>

Sent: Sunday, June 23, 2019 10:13 PM

To: [REDACTED]

[REDACTED] Baric, Ralph S <rbaric@email.unc.edu>

Subject: MHV manuscript

Dear all,

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Thanks!

Fang

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Fang Li, Ph.D.
Associate Professor
Department of Veterinary and Biomedical Sciences
University of Minnesota Twin Cities
612-625-6149, lifang@umn.edu

<http://www.msi.umn.edu/~lifang>

--

Fang Li, Ph.D.
Associate Professor
Department of Veterinary and Biomedical Sciences
University of Minnesota Twin Cities
612-625-6149, lifang@umn.edu
<http://www.msi.umn.edu/~lifang>

Re: MHV manuscript

From: Fang Li <lifang@umn.edu>
To: Baric, Toni C <antoinette_baric@med.unc.edu>
Cc: Baric, Ralph S <rbaric@email.unc.edu>
Sent: July 2, 2019 10:31:37 AM CDT

Will do.

On Tue, Jul 2, 2019 at 7:45 AM Baric, Toni C <antoinette_baric@med.unc.edu> wrote:

Dear Fang,

Yes he is still available. Can you call his office at 919-966-3895.

Thank you

Toni

From: Fang Li <lifang@umn.edu>
Sent: Monday, July 01, 2019 9:27 PM
To: Baric, Toni C <antoinette_baric@med.unc.edu>
Cc: Baric, Ralph S <rbaric@email.unc.edu>
Subject: Re: MHV manuscript

Hi Toni,

Thanks for your email. I can do 4 pm (your time) on 7/12 (Friday). Would that work for Ralph?

Best,

Fang

On Mon, Jul 1, 2019 at 2:04 PM Baric, Toni C <antoinette_baric@med.unc.edu> wrote:

Dear Fang,

Ralph is available during the following times (ET)

7/2 3-4

7/3 3-4

7/8 anytime, except 11-12

7/9 after 1:30

7/10 11-12 and 1:30-3

7/11 after 2:30

7/12 anytime

Best regards,
Toni

From: Baric, Ralph S <rbaric@email.unc.edu>
Sent: Sunday, June 30, 2019 9:31 AM
To: Fang Li <lifang@umn.edu>
Cc: Baric, Toni C <antoINETTE_baric@med.unc.edu>
Subject: RE: MHV manuscript

Hi Fang, Toni will be in touch to find a time for us to talk. Talk with you soon. ralph

From: Fang Li <lifang@umn.edu>
Sent: Saturday, June 29, 2019 9:11 PM
To: Baric, Ralph S <rbaric@email.unc.edu>
Subject: Re: MHV manuscript

Hi Ralph,

Thanks for your comments. You have provided valuable discussions to our MHV research, and so we are in this together.

Will you be available next week to talk on the phone about projects and grants?

Best,

Fang

On Thu, Jun 27, 2019 at 1:57 PM Baric, Ralph S <rbaric@email.unc.edu> wrote:

Hi Fang, nice paper. I have included comments for your appraisal. Mostly cosmetic, although I also asked a few questions that might be of interest. I didn't contribute much to this story, so if you want to move me into the acknowledgements section, this is okay. Congrats on a beautiful story. Ralph

From: Fang Li <lifang@umn.edu>

Sent: Sunday, June 23, 2019 10:13 PM

To:

[Redacted]

Baric, Ralph S <rbaric@email.unc.edu>

Subject: MHV manuscript

Dear all,

Please see attached our manuscript on the cryo-EM structure of MHV spike protein complexed with receptor. I would appreciate it if you could send me your detailed comments by Saturday (June 29). I plan to submit it to Nature Communications on Sunday (June 30).

Thanks!

Fang

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Fang Li, Ph.D.
Associate Professor
Department of Veterinary and Biomedical Sciences
University of Minnesota Twin Cities
612-625-6149, lifang@umn.edu
<http://www.msi.umn.edu/~lifang>

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Fang Li, Ph.D.
Associate Professor
Department of Veterinary and Biomedical Sciences
University of Minnesota Twin Cities

612-625-6149, lifang@umn.edu
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Fang Li, Ph.D.
Associate Professor
Department of Veterinary and Biomedical Sciences
University of Minnesota Twin Cities
612-625-6149, lifang@umn.edu
<http://www.msi.umn.edu/~lifang>

Re: [Pathogens] Special Issue: Comparative Animal Models of Human Viral Infections

From: Cherry Liu/MDPI <cherry.liu@mdpi.com>
To: Du, Lanying <LDu@nybc.org>, Hinh Ly <hly@umn.edu>
Cc: Fang Li <lifang@umn.edu>, Lanying Du <lanydu2007@yahoo.com>, pathogens@mdpi.com
Sent: July 8, 2019 9:50:12 PM CDT
Received: July 8, 2019 9:50:19 PM CDT

Dear Dr. Du,

Thank you very much for your kind reply and help. We look forward to cooperating with you in the near future.

We will be honored if you could keep an eye on the publications in this journal (<http://www.mdpi.com/journal/pathogens>), and could consider Pathogens as a venue for your future publications. All papers can be downloaded freely. Hope it will bring you a cutting-edge view in this field and be helpful to your research.

Please note that /Pathogens/ received its first Impact Factor in the recent version of the Journal Citation Reports. Based on citation activity in the Web of Science in 2018, the Impact Factor for Journal is 3.405. It ranks 45/133 (Q2) in the category 'Microbiology'. We also get CiteScore 2018 (Scopus): 3.65, which equals rank 40/266 (Q1) in the 'Infectious Diseases' category, rank 9/39 (Q1) in 'General Immunology and Microbiology' and rank 21/109 (Q1) in 'Microbiology (medical).'

If you have any questions, feel free to contact me.

Best regards,
Cherry Liu
Assistant Managing Editor

News:
Pathogens receives its first Impact Factor, 3.405 (2018)
Pathogens join Twitter now, follow us at @Pathogens_MDPI and be part of our scientific community. https://twitter.com/Pathogens_MDPI

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On 7/9/2019 4:30 AM, Du, Lanying wrote:

Dear Hinh,

Thanks for the information. Looks like I have no related article for this issue. I will check if my colleagues are interested in this.

Best regards,

Lanying

From: Hinh Ly <hly@umn.edu> *Sent:* Thursday, July 04, 2019 3:40 PM
To: Fang Li <lifang@umn.edu>; Du, Lanying <LDu@nybc.org>; Lanying Du <lanydu2007@yahoo.com> *Cc:* Cherry Liu <cherry.liu@mdpi.com>
Subject: Fwd: [Pathogens] Special Issue: Comparative Animal Models of Human Viral Infections

Dear Fang and Lanying:

I am writing to inform you that a new Special Issue on Comparative Animal Models of Human Viral Infections has been posted online (see web-link below) and is now open for manuscript submissions.

I am hoping that you can consider to submit a review article and/or primary research article(s) for consideration of publication in this new Special Issue as I think that your work on animal modeling of infectious diseases is exciting and significant, and therefore should be featured in this journal that has just received its first-ever but already a decent impact factor of 3.405.

With this message, I am also personally soliciting your help to spread the words about this call for papers to your colleagues.

Thank you for your consideration to submit your work and for your help to make this new Special Issue a success.

Best wishes,

Hinh

--

Hinh Ly, PhD Associate Professor of Virology University of Minnesota, Twin Cities 1988 Fitch Ave., [REDACTED] AS/VM Bldg. Saint Paul, MN 55108 Tel: 612-625-3358 Fax: 612-625-0204 hly@umn.edu <mailto:hly@umn.edu>

Sent from my iPhone

Begin forwarded message:

From: Cherry Liu/MDPI <cherry.liu@mdpi.com>

<mailto:cherry.liu@mdpi.com>> *Date:* July 4, 2019 at 8:35:50 AM CDT
To: hly@umn.edu <mailto:hly@umn.edu> *Cc:* pathogens@mdpi.com
<mailto:pathogens@mdpi.com> *Subject:* *[Pathogens] Special Issue:
Comparative Animal Models of Human Viral Infections* *Reply-To:*
cherry.liu@mdpi.com <mailto:cherry.liu@mdpi.com>

Dear Dr. Ly,

I am pleased to inform that the special issue website has been created. Please check it at
https://www.mdpi.com/journal/pathogens/special_issues/Comparative_Animal_Models_Human_Viral_Infections

Any questions, feel free to let me know.

Best regards, Cherry Liu Assistant Managing Editor

News: Pathogens receives its first Impact Factor, 3.405 (2018)
Pathogens join Twitter now, follow us at @Pathogens_MDPI and be part of our scientific community. https://twitter.com/Pathogens_MDPI

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Re: Subaward NYBC to University of Minnesota PO NYB1001719 for Dr. Li

From: Anne Mockovak <a-mock@umn.edu>
To: Walton, Theresa <TWalton@nybc.org>
Cc: Brett Carlson <carls234@umn.edu>, Fang Li <lifang@umn.edu>, Du, Lanying <LDu@nybc.org>, Ross, Deborah <DRoss2@nybc.org>
Sent: July 9, 2019 1:18:35 PM CDT
Received: July 9, 2019 1:18:48 PM CDT

Theresa,

I don't have record of receiving the year 2 purchase order for this project. Did I miss it? If not, can you let me know when we can expect it?

-Anne

Anne Mockovak
Accountant
Department of Veterinary and
Biomedical Sciences
612.301.2143

On Tue, May 14, 2019 at 2:11 PM Walton, Theresa <TWalton@nybc.org> wrote:

Great, thanks!

From: Anne Mockovak <a-mock@umn.edu>
Sent: Tuesday, May 14, 2019 3:11 PM
To: Walton, Theresa <TWalton@nybc.org>
Cc: Brett Carlson <carls234@umn.edu>; Fang Li <lifang@umn.edu>; Du, Lanying <LDu@nybc.org>; Ross, Deborah <DRoss2@nybc.org>
Subject: Re: Subaward NYBC to University of Minnesota PO NYB1001719 for Dr. Li

Here is the revised budget and justification. I'll work with Dr. Li to prepare a carry forward letter.

-Anne

Anne Mockovak
Accountant
Department of Veterinary and
Biomedical Sciences
612.301.2143

On Tue, May 14, 2019 at 2:09 PM Walton, Theresa <TWalton@nybc.org> wrote:

Sorry for the confusion.

From: Anne Mockovak <a-mock@umn.edu>

Sent: Tuesday, May 14, 2019 3:08 PM

To: Walton, Theresa <TWalton@nybc.org>

Cc: Brett Carlson <carls234@umn.edu>; Fang Li <lifang@umn.edu>; Du, Lanying <LDu@nybc.org>; Ross, Deborah <DRoss2@nybc.org>

Subject: Re: Subaward NYBC to University of Minnesota PO NYB1001719 for Dr. Li

That makes sense. I was working with the proposed budget.

-Anne

Anne Mockovak

Accountant

Department of Veterinary and
Biomedical Sciences
612.301.2143

On Tue, May 14, 2019 at 1:50 PM Walton, Theresa <TWalton@nybc.org> wrote:

Hi Anne,

Just to clarify, \$184,600 (\$120,000 direct costs + \$64,600 indirect cost) was awarded in Year 1 which is \$200 less than the proposed budget. So using the base number in year 1 of \$184,600 it is 703.33 not the 903.33. If we were using the proposed budget and not the previously awarded amount in Year 1 then it would be 903.33.

Hope that helps.

Thanks,

Theresa

From: Anne Mockovak <a-mock@umn.edu>

Sent: Tuesday, May 14, 2019 2:42 PM

To: Walton, Theresa <TWalton@nybc.org>

Cc: Brett Carlson <carls234@umn.edu>; Fang Li <lifang@umn.edu>; Du, Lanying <LDu@nybc.org>;
Ross, Deborah <DRoss2@nybc.org>

Subject: Re: Subaward NYBC to University of Minnesota PO NYB1001719 for Dr. Li

Theresa

183,896.67 is \$903.33 less than the original budget. I'm assuming the 703.33 was a typo. Let me know if that is not the case.

-Anne

Anne Mockovak

Accountant

Department of Veterinary and
Biomedical Sciences
612.301.2143

On Mon, May 13, 2019 at 2:55 PM Walton, Theresa <TWalton@nybc.org> wrote:

Good Afternoon,

We have received the NOA for grant # 5R01AI139092-02_Year 2 for Dr. Lanying Du. The funding for year 2 has been reduced by \$703.33 at this time we have no knowledge if this will occur in years 3-5. In the meantime, please submit an updated budget and justification reflecting the slight reduction. I have provided the original proposed budget & Justification for Year 2 once received I can process an amendment for Year 2. Please also send a request for carryover funds from Year 1.

Please submit a budget for Year 2

\$183,896.67 (Direct & Indirect total)

Year 1 Breakdown

\$184,600 (\$120,000 direct costs + \$64,600 indirect cost)

Please do not hesitate to let me know if you have any questions.

Thanks,

Theresa R. Walton, MPA

Manager, Grants & Contract Proposals

Office of Sponsored Programs

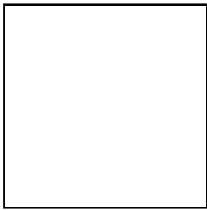
New York Blood Center

310 East 67th Street

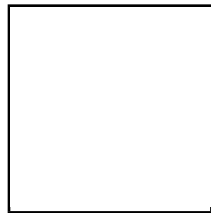
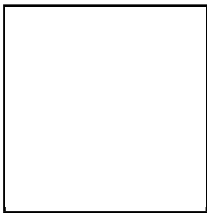
New York, NY 10065

T: 212-570-3150

twalton@nybc.org



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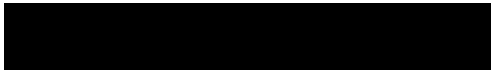
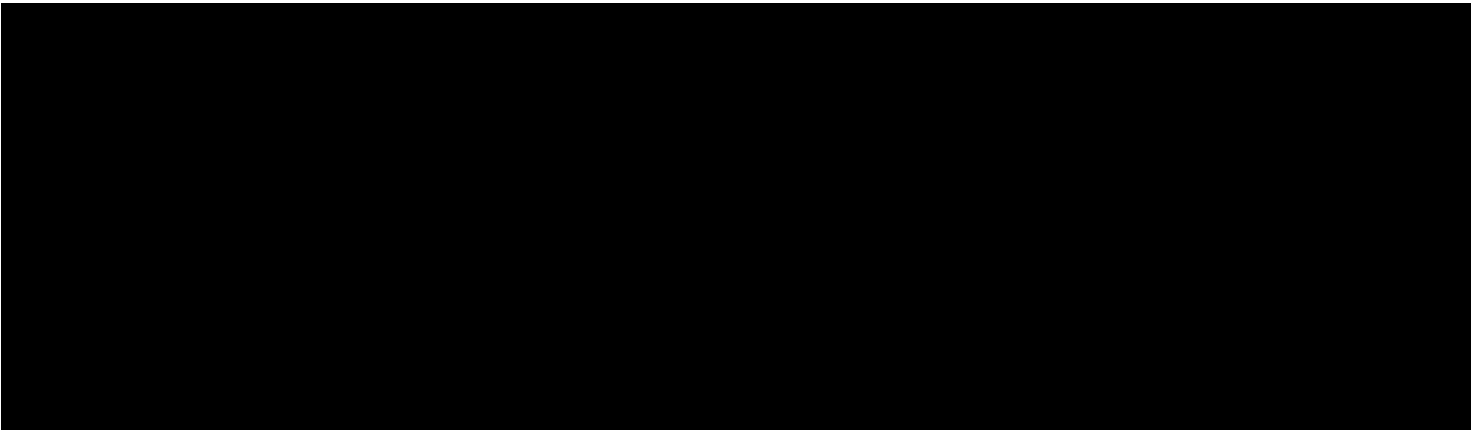
potential mutations in [REDACTED]

From: Fang Li <lifang@umn.edu>
To: Ralph Baric <rbaric@email.unc.edu>
Sent: July 12, 2019 3:32:37 PM CDT

Hi Ralph,

Nice talking to you on the phone. Things look quite promising.

Here are the mutations that we found very interesting in our biochemical studies. Please consider introducing them to your infectious clones.



Thanks ,

Fang

--

Fang Li, Ph.D.
Associate Professor
Department of Veterinary and Biomedical Sciences
University of Minnesota Twin Cities
612-625-6149, lifang@umn.edu
<http://www.msi.umn.edu/~lifang>

Re: [Viruses] Special Issue "MERS-CoV "- Editorial

From: Ms. Man Luo / MDPI <man.luo@mdpi.com>
To: Du, Lanying <LDu@nybc.org>, Allison Yang/MDPI <allison.yang@mdpi.com>
Cc: lifang@umn.edu, Viruses Editorial Office <viruses@mdpi.com>
Sent: August 1, 2019 1:44:18 AM CDT
Received: August 1, 2019 1:46:46 AM CDT
Attachments: MDPI REPRINT BOOK FORM 2019.docx

Dear Lanying,

Thanks. To prepare the SI book, could you please fill out all the information in the blue boxes. Please note that the editorial could be used as the preface for the book. We will start the book production once we receive your material.

Please feel free to contact me if you have any questions.

Best,
Man

On 2019/7/16 23:35, Du, Lanying wrote:

Dear Man,

Thanks for the information. Yes, we'd be happy to receive the free hard copies of the book. No additional hard copies are needed.

Best regards,
Lanying

From: Ms. Man Luo / MDPI <man.luo@mdpi.com>
Sent: Monday, July 15, 2019 10:24 PM
To: Du, Lanying <LDu@nybc.org>; Allison Yang/MDPI <allison.yang@mdpi.com>; lifang@umn.edu
Cc: viruses@mdpi.com
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Dear Lanying,

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I am not sure if Allison had a chance to talk with you about having the SI reprinted in a book format. We have this option and as the guest editors, you and Fang will receive one hard copy of the book for free as a gift. The books are free to read on our platform (<http://www.mdpi.com/books>) and scholars interested can order soft-cover copies on demand. Let me know if this option sounds interesting to you and I will provide more information.

Best,
Man

Ms. Man Luo
Managing Editor
Viruses (<http://www.mdpi.com/journal/viruses>)
Follow us on Twitter: @VirusesMDPI

Open for Registration: Viruses 2020 - Novel Concepts in Virology
5-7 February 2020, Barcelona, Spain
<https://viruses2020.sciforum.net/>

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Dear Allison and Man,

We have the editorial ready. Please see the attachment.

Feel free to let us know if you need further information or have any questions.

Best regards,
Lanying

From: Allison Yang/MDPI <allison.yang@mdpi.com>
Sent: Wednesday, May 1, 2019 9:04 PM
To: Du, Lanying; lifang@umn.edu
Cc: viruses@mdpi.com; man.luo@mdpi.com
Subject: Re: [Viruses] Special Issue "MERS-CoV "- Editorial

Dear Lanying,

Thanks for your reply. We look forward to hearing from you again :-)

Best,
Allison

On 5/2/2019 7:22 AM, Du, Lanying wrote:

Dear Allison,

Thanks for checking back about the editorial. We will try to have the editorial ready by late June. But I will let you and Man know if we have any delay on the submission.

Have a good and safe maternity leave.

Best regards,
Lanying

From: Allison Yang/MDPI <allison.yang@mdpi.com>
Sent: Tuesday, April 30, 2019 5:35 AM
To: Du, Lanying <LDu@nybc.org>; lifang@umn.edu
Cc: viruses@mdpi.com; man.luo@mdpi.com
Subject: [Viruses] Special Issue "MERS-CoV "- Editorial

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In addition, you kindly accepted to write a short editorial for this edition by late June. Could you please confirm that it still works for you? I am asking because I will be on maternity leave from 8 May, you can contact my colleague, Man Luo (CC'd here) if you have the editorial ready.

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Best regards,
Allison

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There isn't a specific deadline to add such an Editorial but, of course, the sooner would be the better. How about we check back with you in May?

Thank you, I look forward to your reply.

Best,
Allison

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Dear Allison,

Thanks for the update of the special issue.

We'll be glad to write an editorial on this special issue. Is there any format for the editorial?

By the way, both Fang and I have very busy schedules recently, so we won't have time to work on this before June 10. Is it OK to have it ready by late June?

Best regards,
Lanying

From: Allison Yang/MDPI
<allison.yang@mdpi.com>
Sent: Wednesday, February 27, 2019 2:51 AM
To: Du, Lanying; lifang@umn.edu
Cc: viruses@mdpi.com; liu.6244@osu.edu
Subject: [Viruses] Special Issue "MERS-CoV "-
Status Report

Dear Lanying, dear Fang,

I am sending you the February update on your Special Issue "MERS-CoV".

Please find below the current status of the SI and attached the "planned papers" file.

Submission deadline: 30 November 2018 (closed)
Published papers: 13
Processing papers: 1
Planned papers: 3

I resent messages to the authors this month. Unfortunately, Emmie de Wit will not be able to submit. Bart L. Haagmans is working on a better version which will be submitted by the end of February. Since I did not hear from David Veessler and Jason McLellan, I think it would be safe to assume they will not submit.

I would like to invite you by this chance to prepare an editorial to summarize our special issue. Of course, we can get back after the last 1-3 papers are in. We will be happy if you accept this invitation.

Thank you, feel free to let me know if you have any questions.

Best,
Allison


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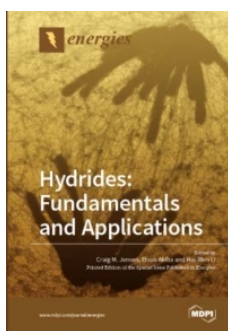
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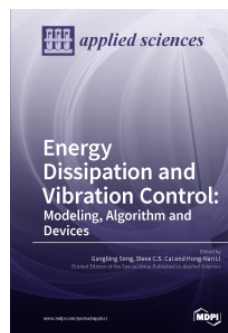
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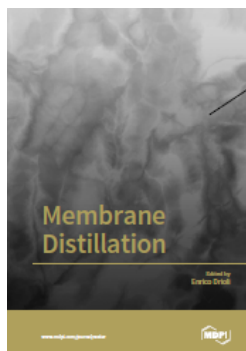
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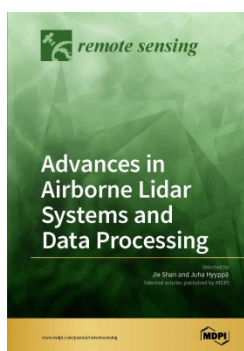
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Re: [Viruses] Special Issue "MERS-CoV "- Editorial

From: Ms. Man Luo / MDPI <man.luo@mdpi.com>
To: Du, Lanying <LDu@nybc.org>, Allison Yang/MDPI <allison.yang@mdpi.com>
Cc: viruses@mdpi.com, lifang@umn.edu
Sent: August 2, 2019 1:33:38 AM CDT
Received: August 2, 2019 1:36:05 AM CDT

Dear Lanying,

That is great. I look forward to hearing from you again.

Best,
Man

On 2019/8/2 5:19, Du, Lanying wrote:

Dear Man,
Thanks for the information.
We will fill out the required information and send back to you soon.
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Ms. Man Luo
Managing Editor
Viruses (<http://www.mdpi.com/journal/viruses>)
Follow us on Twitter: @VirusesMDPI

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I would like to invite you by this chance to prepare an editorial to

summarize our special issue. Of course, we can get back after the last 1-3 papers are in. We will be happy if you accept this invitation.

Thank you, feel free to let me know if you have any questions.

Best,
Allison



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RE: Dr. Fang Li's address

From: Rice, Lauren <LRice@nybc.org>
To: Du, Lanying <LDu@nybc.org>, Greene, Barry <BGreene@nybc.org>
Cc: Fang Li <lifang@umn.edu>
Sent: August 28, 2019 3:35:42 PM CDT
Received: August 28, 2019 3:35:46 PM CDT

Thank you Fang and Lanying!


From: Du, Lanying <LDu@nybc.org>
Sent: Wednesday, August 28, 2019 4:28 PM
To: Greene, Barry <BGreene@nybc.org>; Rice, Lauren <LRice@nybc.org>
Cc: Fang Li <lifang@umn.edu>
Subject: Dr. Fang Li's address

Hi Barry and Lauren,

Below is Dr. Fang Li's contact information and home address. You can contact him directly for further information regarding the patent application.

Best regards,
Lanying

From: Fang Li <lifang@umn.edu>
Sent: Wednesday, August 28, 2019 4:25 PM
To: Du, Lanying <LDu@nybc.org>
Subject:



Fang Li, Ph.D.
Associate Professor
Department of Veterinary and Biomedical Sciences
University of Minnesota Twin Cities
612-625-6149, lifang@umn.edu
<http://www.msi.umn.edu/~lifang>


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Re: thank you from Viruses

From: Du, Lanying <LDu@nybc.org>
To: Freed, Eric (NIH/NCI) [E] <efreed@mail.nih.gov>
Cc: Aimar Xiong <aimar.xiong@mdpi.com>, Fang Li <lifang@umn.edu>
Sent: September 2, 2019 3:23:31 PM CDT
Received: September 2, 2019 3:23:36 PM CDT

Dear Eric,

It was nice to meet you at ASV in Minnesota in July. It was a great pleasure for Fang and me to serve as guest editors for the special issue on MERS-CoV. We hope to have the opportunity to work with *VIRUSES* journal again in the future.

Best regards,

Lanying

Lanying Du, Ph.D.
Head, Viral Immunology Laboratory
Associate Member, Lindsley F. Kimball Research Institute
New York Blood Center
310 East 67th Street
New York, NY 10065, USA
Tel: 212-570-3459;
Email: ldu@nybc.org.

From: Fang Li <lifang@umn.edu>

Sent: Monday, September 2, 2019 3:29 PM

To: Freed, Eric (NIH/NCI) [E] <efreed@mail.nih.gov>

Cc: Du, Lanying <LDu@nybc.org>; Aimar Xiong <aimar.xiong@mdpi.com>

Subject: Re: thank you from Viruses

Dear Eric,

Thanks for giving Lanying and me the opportunity to serve the coronavirus field as guest editors for the special issue. We greatly enjoyed the experience, and look forward to working with your journal on future opportunities.

Sincerely,

Fang

On Sun, Sep 1, 2019 at 1:44 PM Freed, Eric (NIH/NCI) [E] <efreed@mail.nih.gov> wrote:

Dear Fang and Lanying – I'd like to take a moment to thank you for serving as guest editors for the special issue of *Viruses* on MERS-CoV that ran last year. This was a very successful special issue and your hard work is greatly appreciated. I hope you found the experience enjoyable and worthwhile. We look forward to interacting with you again in the future.

All the best,

Eric

Eric O. Freed, Ph.D.
Editor-in-Chief, *Viruses*
Director, HIV Dynamics and Replication Program
Center for Cancer Research
National Cancer Institute
Frederick, MD 21702-1201
<http://home.ncifcrf.gov/hivdrp/Freed.html>

--

Fang Li, Ph.D.

Associate Professor
Department of Veterinary and Biomedical Sciences
University of Minnesota Twin Cities
612-625-6149, lifang@umn.edu
<http://www.msi.umn.edu/~lifang>



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Re: [Viruses] Special Issue "MERS-CoV "- Editorial

From: Du, Lanying <LDu@nybc.org>
To: Allison Yang/MDPI <allison.yang@mdpi.com>, man.luo@mdpi.com
Cc: viruses@mdpi.com, lifang@umn.edu
Sent: November 3, 2019 6:51:19 PM CST
Received: November 3, 2019 6:51:29 PM CST
Attachments: MDPI REPRINT BOOK FORM 2019_MERS-CoV special issue.docx

Dear Man and Allison,

The attached please find the completed information for the reprint book.

Sorry for taking so long to get this back to you due to our busy schedules. Please feel free to contact us if you need any further information.

Thanks,

Lanying

From: Ms. Man Luo / MDPI <man.luo@mdpi.com>

Sent: Friday, August 2, 2019 2:33 AM

To: Du, Lanying <LDu@nybc.org>; Allison Yang/MDPI <allison.yang@mdpi.com>

Cc: viruses@mdpi.com <viruses@mdpi.com>; lifang@umn.edu <lifang@umn.edu>

Subject: Re: [Viruses] Special Issue "MERS-CoV "- Editorial

Dear Lanying,

That is great. I look forward to hearing from you again.

Best,

Man

On 2019/8/2 5:19, Du, Lanying wrote:

Dear Man,

Thanks for the information.

We will fill out the required information and send back to you soon.

Best regards,

Lanying

From: Ms. Man Luo / MDPI <man.luo@mdpi.com>

Sent: Thursday, August 1, 2019 2:44 AM

To: Du, Lanying <LDu@nybc.org>; Allison Yang/MDPI <allison.yang@mdpi.com>

Cc: lifang@umn.edu <lifang@umn.edu>; Viruses Editorial Office <viruses@mdpi.com>

Subject: Re: [Viruses] Special Issue "MERS-CoV "- Editorial

Dear Lanying,

Thanks. To prepare the SI book, could you please fill out all the information in the blue boxes. Please note that the editorial could be used as the preface for the book. We will start the book production once we receive your material.

Please feel free to contact me if you have any questions.

Best,

Man

On 2019/7/16 23:35, Du, Lanying wrote:

Dear Man,

Thanks for the information. Yes, we'd be happy to receive the free hard copies of the book. No additional hard copies are needed.

Best regards,
Lanying

From: Ms. Man Luo / MDPI <man.luo@mdpi.com>
Sent: Monday, July 15, 2019 10:24 PM
To: Du, Lanying <LDu@nybc.org>; Allison Yang/MDPI <allison.yang@mdpi.com>; lifang@umn.edu
Cc: viruses@mdpi.com
Subject: Re: [Viruses] Special Issue "MERS-CoV "- Editorial

Dear Lanying,

Thanks for sending the introductory editorial to me. It looks pretty good. I will upload it to our system and send it to the Editor-in-Chief for approval soon.

I am not sure if Allison had a chance to talk with you about having the SI reprinted in a book format. We have this option and as the guest editors, you and Fang will receive one hard copy of the book for free as a gift. The books are free to read on our platform (<http://www.mdpi.com/books>) and scholars interested can order soft-cover copies on demand. Let me know if this option sounds interesting to you and I will provide more information.

Best,
Man

Ms. Man Luo
Managing Editor
Viruses (<http://www.mdpi.com/journal/viruses>)
Follow us on Twitter: @VirusesMDPI

Open for Registration: Viruses 2020 - Novel Concepts in Virology
5-7 February 2020, Barcelona, Spain
<https://viruses2020.sciforum.net/>

On 2019/7/16 10:07, Du, Lanying wrote:

Dear Allison and Man,

We have the editorial ready. Please see the attachment.

Feel free to let us know if you need further information or have any questions.

Best regards,
Lanying

From: Allison Yang/MDPI <allison.yang@mdpi.com>
Sent: Wednesday, May 1, 2019 9:04 PM
To: Du, Lanying; lifang@umn.edu
Cc: viruses@mdpi.com; man.luo@mdpi.com
Subject: Re: [Viruses] Special Issue "MERS-CoV "- Editorial

Dear Lanying,

Thanks for your reply. We look forward to hearing from you again :-)

Best,
Allison

On 5/2/2019 7:22 AM, Du, Lanying wrote:

Dear Allison,

Thanks for checking back about the editorial. We will try to have the editorial ready by late June. But I will let you and Man know if we have any delay on the submission.

Have a good and safe maternity leave.

Best regards,
Lanying

From: Allison Yang/MDPI <allison.yang@mdpi.com>
Sent: Tuesday, April 30, 2019 5:35 AM
To: Du, Lanying <LDu@nybc.org>; lifang@umn.edu
Cc: viruses@mdpi.com; man.luo@mdpi.com
Subject: [Viruses] Special Issue "MERS-CoV" - Editorial

Dear Lanying, dear Fang,

I am pleased to let you know that we have successfully finalized this special issue with 16 publications. You can have a look at our special issue website:

https://www.mdpi.com/journal/viruses/special_issues/MERS_CoV.

In addition, you kindly accepted to write a short editorial for this edition by late June. Could you please confirm that it still works for you? I am asking because I will be on maternity leave from 8 May, you can contact my colleague, Man Luo (CC'd here) if you have the editorial ready.

Thank you, we look forward to hearing from you again.

Best regards,
Allison

On 3/1/2019 11:50 AM, Allison Yang/MDPI wrote:

Dear Lanying, dear Fang,

Thank you for your reply. We are pleased to know that you are able to write an editorial for this issue. For the editorial, there is not a standard format, and 2-5 pages will be enough and you can find some examples at:

<https://www.mdpi.com/1999-4915/10/8/403>

<https://www.mdpi.com/1999-4915/11/2/113>.

There isn't a specific deadline to add such an Editorial but, of course, the sooner would be the better. How about we check back with you in May?

Thank you, I look forward to your reply.

Best,
Allison

On 3/1/2019 11:18 AM, Du, Lanying wrote:

Dear Allison,

Thanks for the update of the special issue.

We'll be glad to write an editorial on this special issue. Is there any format for the editorial?

By the way, both Fang and I have very busy schedules recently, so we won't have time to work on this before June 10. Is it OK to have it ready by late June?

Best regards,
Lanying

From: Allison Yang/MDPI
<allison.yang@mdpi.com>
Sent: Wednesday, February 27, 2019 2:51 AM
To: Du, Lanying; lifang@umn.edu
Cc: viruses@mdpi.com;
liu.6244@osu.edu
Subject: [Viruses] Special Issue
"MERS-CoV "- Status Report

Dear Lanying, dear Fang,

I am sending you the February update on your Special Issue "MERS-CoV".

Please find below the current status of the SI and attached the "planned papers" file.

Submission deadline: 30 November 2018 (closed)
Published papers: 13
Processing papers: 1
Planned papers: 3

I resent messages to the authors this month. Unfortunately, Emmie de Wit will not be able to submit. Bart L. Haagmans is working on a better version which will be submitted by the end of February. Since I did not hear from David Veesler and Jason McLellan, I think it would be safe to assume they will not submit.

I would like to invite you by this chance to prepare an editorial to summarize our special issue. Of course, we can get back after the last 1-3 papers are in. We will be happy if you accept this invitation.

Thank you, feel free to let me know if you have any questions.

Best,
Allison



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About [REDACTED]

From: [REDACTED]
To: rbaric@email.unc.edu
Cc: Fang Li <lifang@umn.edu>
Sent: November 4, 2019 3:10:47 PM CST
Received: November 4, 2019 3:10:59 PM CST

Hi Dr. Baric,

I'm [REDACTED] from Dr. Fang Li's Lab. We want to do an experiment with [REDACTED]
[REDACTED]

Thanks!

[REDACTED]

[REDACTED] Virus-free. www.avast.com

Re: Plasmids and cells have been shipped

From: Tai, Wanbo <WTai@nybc.org>
To: [REDACTED]
Cc: Fang Li <lifang@umn.edu>, Du, Lanying <LDu@nybc.org>
Sent: November 14, 2019 2:02:32 PM CST
Received: November 14, 2019 2:05:35 PM CST

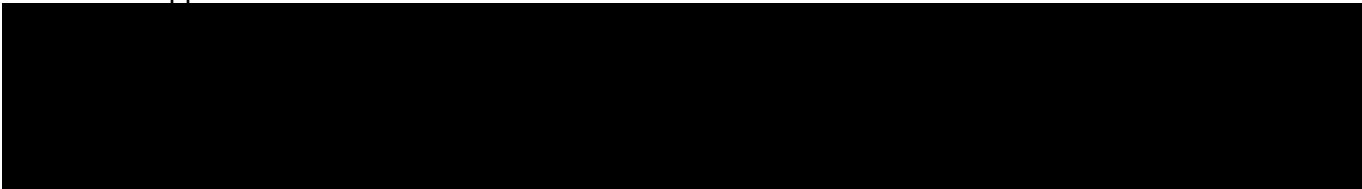
I will let you know when I receive them.

Thanks,

Wanbo

From: [REDACTED]
Sent: Friday, November 15, 2019 3:34 AM
To: Tai, Wanbo <WTai@nybc.org>
Cc: Fang Li <lifang@umn.edu>; Du, Lanying <LDu@nybc.org>
Subject: Plasmids and cells have been shipped

Hi Wanbo,
We've shipped:



Best,

--

[REDACTED]
Department of Veterinary and Biomedical Sciences, University of Minnesota Twin Cities
Animal Science Veterinary Medical Building
1988 Fitch Ave
Saint Paul, MN, 55108
+1 612-625-4820

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Re: [Viruses] Special Issue "MERS-CoV "- SI Book

From: Du, Lanying <LDu@nybc.org>
To: Allison Yang/MDPI <allison.yang@mdpi.com>, lifang@umn.edu
Cc: viruses@mdpi.com
Sent: November 19, 2019 7:01:46 PM CST
Received: November 19, 2019 7:01:53 PM CST

Thanks Allison.

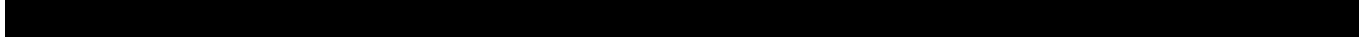
Yes, I was able to download the file this time. We will get back to you for any changes.

Lanying

From: Allison Yang/MDPI <allison.yang@mdpi.com>
Sent: Tuesday, November 19, 2019 7:40 PM
To: Du, Lanying <LDu@nybc.org>; lifang@umn.edu <lifang@umn.edu>
Cc: viruses@mdpi.com <viruses@mdpi.com>
Subject: Re: [Viruses] Special Issue "MERS-CoV "- SI Book

Dear Lanying,

The file is too large to send as email attachments. Please try this new link:


the link will expire after 7 days).

Thank you,
Allison

On 11/20/2019 12:52 AM, Du, Lanying wrote:

Dear Allison,

Thanks for the information. Looks like the link has already expired and I cannot download the file. Could you please reset the link or send us the file?


Best regards,

Lanying

From: Allison Yang/MDPI <allison.yang@mdpi.com>
Sent: Tuesday, November 19, 2019 1:52 AM
To: Du, Lanying <LDu@nybc.org>; lifang@umn.edu <lifang@umn.edu>
Cc: viruses@mdpi.com <viruses@mdpi.com>
Subject: [Viruses] Special Issue "MERS-CoV "- SI Book

Dear Lanying, dear Fang,

I am sending you the the compiled SI book. You can download the file at


the link will expire after 24 hours).

Could you check and let me know if there is anything to revise? You can highlight and leave comments for us on the PDF file if there is something you would like to revise.

Thank you, we look forward to hearing from you soon.

Best,
Allison



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Re: [Viruses] Special Issue "MERS-CoV "- SI Book

From: Allison Yang/MDPI <allison.yang@mdpi.com>
To: Du, Lanying <LDu@nybc.org>, lifang@umn.edu
Cc: viruses@mdpi.com
Sent: November 25, 2019 7:46:47 PM CST
Received: November 25, 2019 7:46:54 PM CST

Dear Lanying,

Thank you for your confirmation. We will further process the production of the SI book.

Best,
Allison

On 11/26/2019 8:13 AM, Du, Lanying wrote:

Dear Allison,

We have checked the file, and it looks good. We have nothing to revise.

Thanks,
Lanying

From: Du, Lanying <LDu@nybc.org>
Sent: Tuesday, November 19, 2019 8:02 PM
To: Allison Yang/MDPI <allison.yang@mdpi.com>; lifang@umn.edu
Cc: viruses@mdpi.com
Subject: Re: [Viruses] Special Issue "MERS-CoV "- SI Book

Thanks Allison.

Yes, I was able to download the file this time. We will get back to you for any changes.

Lanying

From: Allison Yang/MDPI <allison.yang@mdpi.com>
Sent: Tuesday, November 19, 2019 7:40 PM
To: Du, Lanying <LDu@nybc.org>; lifang@umn.edu <lifang@umn.edu>
Cc: viruses@mdpi.com <viruses@mdpi.com>
Subject: Re: [Viruses] Special Issue "MERS-CoV "- SI Book

Dear Lanying,

The file is too large to send as email attachments. Please try this new link:

 he link will expire after 7 days).

Thank you,
Allison

On 11/20/2019 12:52 AM, Du, Lanying wrote:

Dear Allison,

Thanks for the information. Looks like the link has already expired and I cannot download the file. Could you please reset the link or send us the file?

Best regards,
Lanying

From: Allison Yang/MDPI <allison.yang@mdpi.com>
Sent: Tuesday, November 19, 2019 1:52 AM
To: Du, Lanying <LDu@nybc.org>; lifang@umn.edu <lifang@umn.edu>
Cc: viruses@mdpi.com <viruses@mdpi.com>
Subject: [Viruses] Special Issue "MERS-CoV "- SI Book

Dear Lanying, dear Fang,

I am sending you the the compiled SI book. You can download the file at

 the link will expire **after 24 hours**).

Could you check and let me know if there is anything to revise? You can highlight and leave comments for us on the PDF file if there is something you would like to revise.

Thank you, we look forward to hearing from you soon.

Best,
Allison


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Re: Happy Thanksgiving and meeting next year, June 12-13, 2020

From: Tsan Xiao <tsx@case.edu>
To: Liu, Shan-Lu <liu.6244@osu.edu>
Cc: zhengzhiming4@gmail.com, haitguo@iupui.edu, tzhou@mail.nih.gov, GCheng@mednet.ucla.edu, liangy@umn.edu, rli@vcu.edu, wjma@ksu.edu, xjmeng@vt.edu, Zhijian.Chen@UTSouthwestern.edu <Zhijian.Chen@utsouthwestern.edu>, mluo@gsu.edu, zhangyj@umd.edu, xzhu1@umd.edu, jqiu@kumc.edu, lijun@uic.edu, fengwei.bai@usm.edu, andyu@iupui.edu, reachxw@vt.edu, gluo@uab.edu, ldu@nybc.org, hxu@tulane.edu, liu_fy@berkeley.edu, shitao.li@okstate.edu, Shan.lu@umassmed.edu, haihu@UTMB.edu <haihu@utmb.edu>, wenzheho@temple.edu, Qfeng4@central.uh.edu, tang@bio.fsu.edu, feng.li@sdsu.edu, ruilu@lsu.edu, sxiang2@unl.edu, qiyi.tang@howard.edu, dingsw@ucr.edu, guohua@missouri.edu, bling@tulane.edu, junwang@pharmacy.arizona.edu, lifang@umn.edu, wang518@umd.edu, gaos8@upmc.edu, pewang@uchc.edu, xiangy@uthscsa.edu, fzhu@bio.fsu.edu, chen.liang@mcgill.ca, lyuan@vt.edu, fgao@duke.edu, wangjw28@163.com, xfyu1@zju.edu.cn, bzhao@partners.org, jianw@musc.edu, zyang@ksu.edu, yu.cong@nih.gov, weiming.yuan@usc.edu, Zongdi.feng@nationwidechildrens.org, juh13@psu.edu, hengx@missouri.edu, lsu@med.unc.edu, ywu8@gmu.edu, jwu@whu.edu.cn, tshuo@uic.edu, Shibojiang@fudan.edu.cn, sjiang@nybc.org, pinwang@usc.edu, rzhao@som.umaryland.edu, shuylong@mail.sysu.edu.cn, xuefeng.liu@georgetown.edu, yuxingli@som.umaryland.edu, shixia.wang@umassmed.edu, yhe@ipbcams.ac.cn, Pinghui.feng@usc.edu, juttao.guo@bblumberg.org, lin.liu@okstate.edu, hua.zhu@rutgers.edu, Jinhong.chang@bblumberg.org, jianzhu1012@gmail.com, ronghai@ucr.edu, jun.zhu@nih.gov, jliu4@uams.edu, xiangpeng.kong@med.nyu.edu, haoquanwu@outlook.com, Wenjun.liu@defence.gov.au, Liang.shan@wustl.edu, hliao@duke.edu, yuan2@upenn.edu, zxing@umn.edu, hongmin.li@health.ny.gov, pzheng@ihv.umaryland.edu, yaliu@ihv.umaryland.edu, jxw103@case.edu, xiangguo.qiu@canada.ca, Feng Shao <shaofeng@nibs.ac.cn>, zlshi@wh.iov.cn, klan@whu.edu.cn, zengmsh@mail.sysu.edu.cn, Nan Yan <Nan.Yan@utsouthwestern.edu>, Zhang, Rong <rongzhang@wustl.edu>, liliwang@upenn.edu, Linheng Li <LIL@stowers.org>, kli1@uthsc.edu, ssun@mdanderson.org, ysang@tnstate.edu, wu@crystal.harvard.edu, Sun.Jie@mayo.edu, peijun@strubi.ox.ac.uk, jiayu@coh.org, bchen@crystal.harvard.edu, Wen, Haitao <Haitao.Wen@osumc.edu>, Qu, Feng <qu.28@osu.edu>, Hezhao.Ji@umanitoba.ca, Li, Zihai <zihai@musc.edu>, zhengyo@msu.edu, zhanglinqi@tsinghua.edu.cn, wxiao@temple.edu, Whu@temple.edu, RSun@mednet.ucla.edu, Guangping.Gao@umassmed.edu, GMSWANG@nus.edu.sg, peshi@UTMB.EDU <peshi@utmb.edu>, ziyingyan@uiowa.edu, lqiao@luc.edu, yong.xiong@yale.edu, Wang, QiuHong <wang.655@osu.edu>, shuping_tong_md@brown.edu, pinghuif@usc.edu, gaof@im.ac.cn

Sent: November 28, 2019 1:29:40 PM CST
Received: November 28, 2019 1:31:20 PM CST

Thanks for sharing. Happy holidays!

Sam

On Thu, Nov 28, 2019, 12:19 PM Liu, Shan-Lu <liu.6244@osu.edu> wrote:

Dear friends and colleagues,

I wish you all a great Thanksgiving holiday!

A few updates:

1. We will have our first scientific meeting on June 12-13, 2020, right before the ASV annual meeting (June 13-17) in Fort Collins, Colorado State University. Organizing and scientific committees will be formed soon.
2. I am excited to share that Dr. Xiang-Jin (XJ) Meng of Virginia Tech, a distinguished virology and a member of the US National Academy of Science, will be the keynote speaker of this meeting. Details will follow.
3. In addition to scientific programs, we will also hold an election; a new leadership team will be elected to serve our community for the next two years.
4. Attached please find a brief report of our Kunming meeting, along with a few photos.

Please let me know if you have comments and suggestions.

All best wishes, and happy holidays!

Shan-Lu



Shan-Lu Liu, M.D., Ph.D.

Professor

Co-Director, Viruses and Emerging Pathogens Program

Infectious Diseases Institute

Center for Retrovirus Research

Departments of Veterinary Biosciences, Microbial Infection and Immunity, and Microbiology

The Ohio State University

1900 Coffey Rd, Room 480 VMAB

Columbus, Ohio 43210

Phone: (614) 292-8690

Fax: (614) 292-6473

Email: liu.6244@osu.edu; shan-lu.liu@osumc.edu

RE: shipping address

From: Baric, Ralph S <rbaric@email.unc.edu>
To: [REDACTED]
Cc: Fang Li <lifang@umn.edu>, Lindesmith, Lisa C <lisal@unc.edu>
Sent: December 19, 2019 12:04:01 PM CST
Received: December 19, 2019 12:04:03 PM CST

Hi [REDACTED] can this be stored at -20oC or what do you suggest? This will occur after Christmas. Ralph

From: [REDACTED]
Sent: Wednesday, December 18, 2019 1:35 PM
To: Baric, Ralph S <rbaric@email.unc.edu>
Cc: Fang Li <lifang@umn.edu>; Lindesmith, Lisa C <lisal@unc.edu>
Subject: Re: shipping address

Hi Dr. Baric,

Here's the tracking number:

[REDACTED]

The package contains 3 tubes of CEACAM1A (12.75 mg/ml, C-terminal His-tag), 2 tubes of Trypsin (10 mg/ml) and 1 tube of Soybean trypsin inhibitor (STI, 10 mg/ml).

Thanks,

[REDACTED]

On Wed, Dec 18, 2019 at 11:17 AM Baric, Ralph S <rbaric@email.unc.edu> wrote:

Lisa Lindesmith
University of North Carolina
3109 MHRC
135 Dauer Dr.
Chapel Hill, NC 27599
Ph: 919-966-4689

From: [REDACTED]
Sent: Tuesday, December 17, 2019 3:50 PM
To: Baric, Ralph S <rbaric@email.unc.edu>
Cc: Fang Li <lifang@umn.edu>
Subject: Re: About MHV live virus infection assay

All these experiments need to be done in a receptor-expressed cell line, as well as a non-receptor-expressed cell line.

Thanks,

[REDACTED]

On Tue, Dec 17, 2019 at 2:41 PM [REDACTED] wrote:

Hi Dr. Baric

Could you please give me your shipping address? CEACAM1A could be shipped out tomorrow.

The treatment conditions for this experiment are as follows.

- a. No virus infection or inactivated virus infection
- b. MHV virus infection without any treatment
- c. Pre-treatment of MHV virus with trypsin, and then do infection after stopping trypsin treatment.
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- e. without any treatment to the viruses, just add the sample amount of CEACAM1A to the cells during MHV virus infection.

For purified pseudoviruses, the concentration of trypsin we used is 0.001mg/ml and time for treatment is 15-20 min.

If the virus is not purified and just packaged in medium with FBS, the concentration of trypsin used should be largely increased (eg. 0.05-0.1 mg/ml for pseudovirus).

For the concentration of CEACAM1A, it's hard to say. The amount we used during pseudovirus assay is excess (final concentration is about 5 ug/ml).

By the way, the mutation for 422-CoV spike is R302H.

Thanks,



Re: shipping address

From: [REDACTED]
To: Baric, Ralph S <rbaric@email.unc.edu>
Cc: Fang Li <lifang@umn.edu>, Lindesmith, Lisa C <lisal@unc.edu>
Sent: December 19, 2019 12:11:28 PM CST
Received: December 19, 2019 12:11:42 PM CST

Hi Dr. Baric,

Yes, it's better to be stored at -20C.

Thanks,

[REDACTED]

On Thu, Dec 19, 2019 at 12:04 PM Baric, Ralph S <rbaric@email.unc.edu> wrote:

Hi [REDACTED] can this be stored at -20oC or what do you suggest? This will occur after Christmas. Ralph

From: [REDACTED]
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Ph: 919-966-4689

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Cc: Fang Li <lifang@umn.edu>
Subject: Re: About MHV live virus infection assay

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- d. Incubate MHV virus with CEACAM1A for at least 1 h at 37 °C (let CEACAM1A having enough time to trigger conformational changes on MHV spike). After incubation, treat the sample with trypsin and then do infection after stopping trypsin treatment.
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For the concentration of CEACAM1A, it's hard to say. The amount we used during pseudovirus assay is excess (final concentration is about 5 ug/ml).

By the way, the mutation for 422-CoV spike is R302H.

Thanks,



ACVA/SCBA-Virology Division: 2019 Year in Review

From: Liu, Shan-Lu <liu.6244@osu.edu>
To: zhengzhiming4@gmail.com, haitguo@iupui.edu, tzhou@mail.nih.gov, GCheng@mednet.ucla.edu, liangy@umn.edu, rli@vcu.edu, wjma@ksu.edu, xjmeng@vt.edu, Zhijian.Chen@UTSouthwestern.edu, mluo@gsu.edu, zhangyj@umd.edu, xzhu1@umd.edu, jqiu@kumc.edu, lijun@uic.edu, fengwei.bai@usm.edu, andyu@iupui.edu, reachxw@vt.edu, gluo@uab.edu, ldu@nybc.org, hxu@tulane.edu, liu_fy@berkeley.edu, shitao.li@okstate.edu, Shan.lu@umassmed.edu, haihu@UTMB.edu, wenzheho@temple.edu, Qfeng4@central.uh.edu, tang@bio.fsu.edu, feng.li@sdsta.edu, ruilu@lsu.edu, sxiang2@unl.edu, qiyi.tang@howard.edu, dingsw@ucr.edu, guohua@missouri.edu, bling@tulane.edu, junwang@pharmacy.arizona.edu, lifang@umn.edu, wang518@umd.edu, gaos8@upmc.edu, pewang@uchc.edu, xiangy@uthscsa.edu, fzhu@bio.fsu.edu, chen.liang@mcgill.ca, lyuan@vt.edu, fgao@duke.edu, wangjw28@163.com, xfyu1@zju.edu.cn, bzhao@partners.org, jianw@musc.edu, zyang@ksu.edu, yu.cong@nih.gov, weiming.yuan@usc.edu, Zongdi.feng@nationwidechildrens.org, juh13@psu.edu, hengx@missouri.edu, lsu@med.unc.edu, ywu8@gmu.edu, jwu@whu.edu.cn, tshuo@uic.edu, Shibojiang@fudan.edu.cn, sjiang@nybc.org, pinwang@usc.edu, rzhao@som.umaryland.edu, shuylong@mail.sysu.edu.cn, xuefeng.liu@georgetown.edu, yuxingli@som.umaryland.edu, shixia.wang@umassmed.edu, yhe@ipbcams.ac.cn, Pinghui.feng@usc.edu, ju-tao.guo@bblumberg.org, lin.liu@okstate.edu, hua.zhu@rutgers.edu, Jinhong.chang@bblumberg.org, jianzhu1012@gmail.com, ronghai@ucr.edu, jun.zhu@nih.gov, jliu4@uams.edu, xiangpeng.kong@med.nyu.edu, haoquanwu@outlook.com, Wenjun.liu@defence.gov.au, Liang.shan@wustl.edu, hliao@duke.edu, yuan2@upenn.edu, zxing@umn.edu, hongmin.li@health.ny.gov, pzheng@ihv.umaryland.edu, yaliu@ihv.umaryland.edu, jxw103@case.edu, xiangguo.qiu@canada.ca, Feng Shao <shaofeng@nibs.ac.cn>, zlshi@wh.iov.cn, klan@whu.edu.cn, zengmsh@mail.sysu.edu.cn, Nan Yan <Nan.Yan@UTSouthwestern.edu>, Zhang, Rong <rongzhang@wustl.edu>, liliwang@upenn.edu, Linheng Li <LIL@stowers.org>, kli1@uthsc.edu, tsx@case.edu, ssun@mdanderson.org, ysang@tntstate.edu, Liu, Shan-Lu <liu.6244@osu.edu>, wu@crystal.harvard.edu, Sun.Jie@mayo.edu, peijun@strubi.ox.ac.uk, jiyu@coh.org, bchen@crystal.harvard.edu, Wen, Haitao <Haitao.Wen@osumc.edu>, Qu, Feng <qu.28@osu.edu>, Hezhao.Ji@umanitoba.ca, Li, Zihai <zihai@musc.edu>, zhengyo@msu.edu, zhanglinqi@tsinghua.edu.cn, wxiao@temple.edu, Whu@temple.edu, RSun@mednet.ucla.edu, Guangping.Gao@umassmed.edu, GMSWANG@nus.edu.sg, peshi@UTMB.EDU, ziyang-yan@uiowa.edu, lqiao@luc.edu, yong.xiong@yale.edu, Wang, Qihong <wang.655@osu.edu>, shuping_tong_md@brown.edu, pinghuif@usc.edu, gaof@im.ac.cn, zihai@musc.edu, zqin@uams.edu, guodeyin@www.sysu.edu.cn

Sent: December 29, 2019 8:56:07 AM CST
Received: December 29, 2019 8:58:13 AM CST
Attachments: ACVASCBA-Virology 2019 year in review.pdf

Dear Colleagues and Friends:

Happy new year! I wish you all a healthy and productive 2020!

I would like to share the below summary on our major activities in 2019.

ACVA/SCBA-Virology Division: 2019 Year in Review (chronologically)

1. Continuous and focused discussion on the Science letter "Racial Profiling Harms Science" (original title "Racial Profiling Harms American Science and Innovation").

2. Seven Chinese or Chinese American scientists, including 5 members of ACVA/SCBA-Virology Division, elected to the American Academy of Microbiology (AAM) - Genhong Cheng (程根宏), Pinghui Feng (冯平辉), Guangping Gao (高光坪), Jake T Liang (連展阳), Zhengli Shi (石正丽), Yumei Wen (闻玉梅), Richard Zhao (赵玉琪).
3. Themed discussion on the universal influenza vaccine, vectored ImmunoProphylaxis, and attenuated influenza vaccine.
4. Themed discussion of Open Access journal publishing.
5. Debate and discussion on the definition of “racial profiling”: Chinese translations, differences between “racial profiling” and “racial discrimination”, and differences in Chinese translations: “种族标签, 种族偏见, 种族歧视”.
6. Themed discussion on virus-host evolutionary arms races: HIV and others.
7. Ultimate publication of the Science letter on March 21, 2019 (online) – sagas and stories behind the scenes.
8. Responses to the Science letter and media reports – “The Scientist”, “知识分子”, and others.
9. Discussion and responses to US institution’s statements, Emory/MD Anderson faculty firing, and NIH’s foreign influences and FBI investigations.
10. Establishment of the ACVA/SCBA-Virology Division website (<https://sites.google.com/view/scba-virology/home>), as well as collection and distribution of membership list (<https://sites.google.com/view/scba-virology/members>).
11. Dr. George F. Gao elected to the US National Academy of Sciences as International Member (formerly called Foreign Associate).
12. Dr. Zongdi Feng (冯枫棣) won the 2019 ASV’s Ann Palmenberg Junior Investigator’s award.
13. ACVA/SCBA-Virology participation in the 17th SCBA International Symposium, Kunming, July 24-28, 2019, and scientific workshop and social gathering at the 2nd ACVA/SCBA-virology meeting in Kunming, July 28, 2019.
14. Response and discussion on the role of $\alpha 4\beta 7$ antibody in the control of HIV/SIV infection: 3 Science papers with all negative results - what has gone wrong and what is next?
15. Dr. Feng Shao won the 2019 Future Scientific Prize in Biological Sciences: congratulations and discussions on the scientific evaluation systems in China – ideas and solutions.
16. Three members among the 2019 Journal of Virology top 25 reviewers: Drs. Dongdi Feng (冯枫棣), Bin He (何斌), and Dong-Yan Jin (金冬雁); note that Dr. Bin He is PhD advisor of Dr. Feng, and both have been on the list multiple times, including 2018 (Drs. Ju-tao Guo and Jianming Hu were among the 2018’s JVI top 25 reviewers)
17. Response and discussion about the 2019 Lasker award for the discovery of T and B development.

18. Overwhelming responses to Dr. Xuetao Cao's publication issues raised by Pubpeer.com, and heated discussion on scientific misconduct in general.
19. Heated discussion on publishing in CNS (Cell, Nature and Science), selection of conference speakers, and scientific community networking.
20. Themed discussion on self-plagiarism and direct feedback from Editor in Chiefs of Journal of Virology (Roz Sandri-Goldin), Journal of Immunology (Gene Oltz), Viruses (Eric Freed), Emerging Microbes and Infections (Shan Lu), etc.
21. Themed discussion on publications of structural biology studies in CNS - a scientific favor or true advance in biology?
22. Themed discussion on US patents and institution royalties - why are they different?
23. Themed discussion on viral entry: definition of viral receptors – requirements and pitfalls.

Shan-Lu Liu, MD, PhD
President of ACVA/SCBA-Virology
The Ohio State University

Re: shipping address

From: Fang Li <lifang@umn.edu>
To: Baric, Ralph S <rbaric@email.unc.edu>
Cc: [REDACTED] Lindesmith, Lisa C <lisal@unc.edu>
Sent: January 6, 2020 11:26:39 AM CST

Hi Ralph and Lisa,

Happy new year!

How are things going with the MHV experiment? Just a friendly reminder that we will need to send the revision back to the journal before February 4th and we will also need some time to do the writing.

[REDACTED] has finished all of the pseudovirus assays. The results are just what we expected. If you have any questions or need help with anything, please let [REDACTED] know.

Thanks,
Fang

On Wed, Dec 18, 2019 at 11:17 AM Baric, Ralph S <rbaric@email.unc.edu> wrote:

Lisa Lindesmith

University of North Carolina

3109 MHRC

135 Dauer Dr.

Chapel Hill, NC 27599

Ph: 919-966-4689

From: [REDACTED]
Sent: Tuesday, December 17, 2019 3:50 PM
To: Baric, Ralph S <rbaric@email.unc.edu>
Cc: Fang Li <lifang@umn.edu>
Subject: Re: About MHV live virus infection assay

All these experiments need to be done in a receptor-expressed cell line, as well as a non-receptor-expressed cell line.

Thanks,

[REDACTED]

On Tue, Dec 17, 2019 at 2:41 PM [REDACTED] wrote:

Hi Dr. Baric

Could you please give me your shipping address? CEACAM1A could be shipped out tomorrow.

The treatment conditions for this experiment are as follows.

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For the concentration of CEACAM1A, it's hard to say. The amount we used during pseudovirus assay is excess (final concentration is about 5 ug/ml).

By the way, the mutation for 422-CoV spike is R302H.

Thanks,

[REDACTED]

--

Fang Li, Ph.D.
Associate Professor
Department of Veterinary and Biomedical Sciences

University of Minnesota Twin Cities

612-625-6149, lifang@umn.edu

<http://www.msi.umn.edu/~lifang>

Re: new coronavirus from Wuhan

From: Fang Li <lifang@umn.edu>
To: Baric, Ralph S <rbaric@email.unc.edu>
Sent: January 9, 2020 2:51:29 PM CST

Hi Ralph,

Sorry I missed your email earlier today. I am available for the rest of the day. Please let me know when you are available to talk.

Best regards,
Fang

On Thu, Jan 9, 2020 at 12:05 PM Baric, Ralph S <rbaric@email.unc.edu> wrote:

Hi fang, do you have 30 mins available now? Ralph

From: Fang Li <lifang@umn.edu>
Sent: Thursday, January 9, 2020 1:13 AM
To: Baric, Ralph S <rbaric@email.unc.edu>
Subject: new coronavirus from Wuhan

Hi Ralph,

I assume you have heard the news. Will you be available to talk on the phone?

Best,

Fang

--

Fang Li, Ph.D.
Associate Professor
Department of Veterinary and Biomedical Sciences
University of Minnesota Twin Cities
612-625-6149, lifang@umn.edu
<http://www.msi.umn.edu/~lifang>

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Fang Li, Ph.D.

Associate Professor
Department of Veterinary and Biomedical Sciences
University of Minnesota Twin Cities
612-625-6149, lifang@umn.edu
<http://www.msi.umn.edu/~lifang>

Re: shipping address

From: [REDACTED]
To: Fang Li <lifang@umn.edu>
Cc: Baric, Ralph S <rbaric@email.unc.edu>, Lindesmith, Lisa C <lisal@unc.edu>
Sent: January 10, 2020 2:21:24 PM CST
Received: January 10, 2020 2:21:38 PM CST

Hi Dr. Baric,

Thanks for offering the [REDACTED]. Here's the shipping address,

[REDACTED] 1988 Fitch Ave.
Saint Paul, MN. 55108.

Thanks,

[REDACTED]

On Mon, Jan 6, 2020 at 11:27 AM Fang Li <lifang@umn.edu> wrote:
Hi Ralph and Lisa,

Happy new year!

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[REDACTED] has finished all of the pseudovirus assays. The results are just what we expected. If you have any questions or need help with anything, please let [REDACTED] know.

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Ph: 919-966-4689

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By the way, the mutation for 422-CoV spike is R302H.

Thanks,



--

Fang Li, Ph.D.
Associate Professor
Department of Veterinary and Biomedical Sciences
University of Minnesota Twin Cities
612-625-6149, lifang@umn.edu
<http://www.msi.umn.edu/~lifang>

Re: new coronavirus from Wuhan

From: Fang Li <lifang@umn.edu>
To: Baric, Ralph S <rbaric@email.unc.edu>
Sent: January 10, 2020 2:55:52 PM CST

Hi Ralph,

Nice talking to you. Let's work together to win the race against this new virus.

Please see the following paper:

<https://www.ncbi.nlm.nih.gov/pubmed/17314167>

But based on what we know so far, this time palm civets can probably be ruled out.

Best,
Fang

On Fri, Jan 10, 2020 at 11:25 AM Baric, Ralph S <rbaric@email.unc.edu> wrote:

Sounds good. Forgot my cell phone today, so call 919-966-3895 or send me a number and I'll call. Talk with you soon. Ralph

From: Fang Li <lifang@umn.edu>
Sent: Friday, January 10, 2020 11:40 AM
To: Baric, Ralph S <rbaric@email.unc.edu>
Subject: Re: new coronavirus from Wuhan

sure, I can adjust my schedule. 2 pm of your time?

On Fri, Jan 10, 2020 at 10:30 AM Baric, Ralph S <rbaric@email.unc.edu> wrote:

Yes meeting with company today, after 2PM?

From: Fang Li <lifang@umn.edu>
Sent: Friday, January 10, 2020 11:23 AM
To: Baric, Ralph S <rbaric@email.unc.edu>
Subject: Re: new coronavirus from Wuhan

Hi Ralph,

Will you be available to talk today? I will be available before 2 pm or after 4 pm of your time.

Fang

On Thu, Jan 9, 2020 at 12:12 AM Fang Li <lifang@umn.edu> wrote:

Hi Ralph,

I assume you have heard the news. Will you be available to talk on the phone?

Best,

Fang

--

Fang Li, Ph.D.
Associate Professor
Department of Veterinary and Biomedical Sciences
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<http://www.msi.umn.edu/~lifang>

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Fang Li, Ph.D.
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Fang Li, Ph.D.
Associate Professor
Department of Veterinary and Biomedical Sciences
University of Minnesota Twin Cities
612-625-6149, lifang@umn.edu
<http://www.msi.umn.edu/~lifang>

RE: FW: Rg novel coronavirus

From: Baric, Ralph S <rbaric@email.unc.edu>
To: Fang Li <lifang@umn.edu>
Sent: January 12, 2020 9:20:00 AM CST
Received: January 12, 2020 9:20:05 AM CST

Hi Fang, 5 new sequences have been downloaded. Sure I'd be glad to take a look and participate in the paper. Send it along. ralph

From: Fang Li <lifang@umn.edu>
Sent: Saturday, January 11, 2020 9:08 PM
To: Baric, Ralph S <rbaric@email.unc.edu>
Subject: Re: FW: Rg novel coronavirus

Thanks, Ralph.

I am working on a manuscript discussing [REDACTED] of this virus based on the newly released sequence information as well as our previous decade-long structural analysis of SARS. The manuscript should be ready tomorrow and we are aiming to submit it on Monday. Would you be interested in being a co-author of the paper?

Best,
Fang

On Fri, Jan 10, 2020 at 8:13 PM Baric, Ralph S <rbaric@email.unc.edu> wrote:

<http://virological.org/t/initial-genome-release-of-novel-coronavirus/319>

--

Fang Li, Ph.D.
Associate Professor
Department of Veterinary and Biomedical Sciences
University of Minnesota Twin Cities
612-625-6149, lifang@umn.edu
<http://www.msi.umn.edu/~lifang>

Re: manuscript on Wuhan coronavirus

From: Fang Li <lifang@umn.edu>
To: Baric, Ralph S <rbaric@email.unc.edu>
Cc: Graham, Rachel <rlgraham@email.unc.edu>
Sent: January 13, 2020 3:09:02 PM CST

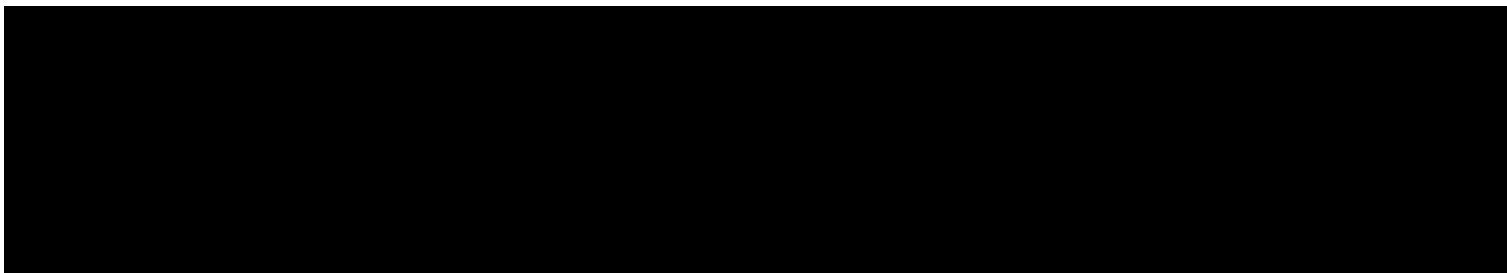
Thanks, Ralph and Rachel. I will add Rachel to the author list.

I thought about making predictions on the potential intermediate hosts for WH-CoV, but I don't want to be wrong. :-) So I played it safe.

What journals should we try? Any suggestions?

Best,
Fang

On Mon, Jan 13, 2020 at 11:22 AM Baric, Ralph S <rbaric@email.unc.edu> wrote:



From: Fang Li <lifang@umn.edu>

Sent: Monday, January 13, 2020 4:14 AM

To: Baric, Ralph S <rbaric@email.unc.edu>; [REDACTED]

[REDACTED] coronavirus

Dear all,

Please see attached the manuscript. Please send your comments back to me by the end of the day (Monday). I will submit it on Monday night.

Thanks,

Fang

--

Fang Li, Ph.D.
Associate Professor
Department of Veterinary and Biomedical Sciences
University of Minnesota Twin Cities
612-625-6149, lifang@umn.edu
<http://www.msi.umn.edu/~lifang>

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Fang Li, Ph.D.
Associate Professor
Department of Veterinary and Biomedical Sciences
University of Minnesota Twin Cities
612-625-6149, lifang@umn.edu
<http://www.msi.umn.edu/~lifang>

RE: manuscript on Wuhan coronavirus

From: Baric, Ralph S <rbaric@email.unc.edu>
To: Fang Li <lifang@umn.edu>
Sent: January 13, 2020 6:33:53 PM CST
Received: January 13, 2020 6:33:56 PM CST

Hi Fang,

I'm not sure what the best journal is for the paper. mBIO has a short communication paper. JID might be interested. I don't know whether any of the intermediate nature/science journals will bite. Ralph

From: Fang Li <lifang@umn.edu>
Sent: Monday, January 13, 2020 4:23 PM
To: Graham, Rachel <rlgraham@email.unc.edu>
Cc: Baric, Ralph S <rbaric@email.unc.edu>
Subject: Re: manuscript on Wuhan coronavirus

Hi Rachel,

Could you increase the font size in the tree figure?

Thanks,
Fang

On Mon, Jan 13, 2020 at 12:33 PM Graham, Rachel <rlgraham@email.unc.edu> wrote:

Hi Fang,

Please find the tree, figure legend, and methods text (if needed) attached. Please let me know if you have any questions or would like anything changed (i.e., the name of WH-CoV_Original).

Rachel

~~~~~  
**Rachel Graham, Ph.D.**  
Assistant Professor  
Baric Lab | UNC-Chapel Hill  
(919) 966-4689

On January 13, 2020 at 12:22:53 PM, Baric, Ralph S ([rbaric@email.unc.edu](mailto:rbaric@email.unc.edu)) wrote:

[REDACTED]

**From:** Fang Li <[lifang@umn.edu](mailto:lifang@umn.edu)>  
**Sent:** Monday, January 13, 2020 4:14 AM  
**To:** Baric, Ralph S <[rbaric@email.unc.edu](mailto:rbaric@email.unc.edu)>  
**Subject:** manuscript on Wuhan coronavirus

Dear all,

Please see attached the manuscript. Please send your comments back to me by the end of the day (Monday). I will submit it on Monday night.

Thanks,  
Fang

--

\*\*\*\*\*

Fang Li, Ph.D.  
Associate Professor  
Department of Veterinary and Biomedical Sciences  
University of Minnesota Twin Cities  
612-625-6149, [lifang@umn.edu](mailto:lifang@umn.edu)  
<http://www.msi.umn.edu/~lifang>

\*\*\*\*\*

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Fang Li, Ph.D.  
Associate Professor  
Department of Veterinary and Biomedical Sciences  
University of Minnesota Twin Cities  
612-625-6149, [lifang@umn.edu](mailto:lifang@umn.edu)  
<http://www.msi.umn.edu/~lifang>

\*\*\*\*\*

## RE: NIH Automated Email: Progress Report for Grant 5 R01 AI139092-03, Due by 03/15/2020

---

From: Han, Jeffrey <KHan@nybc.org>  
To: Du, Lanying <LDu@nybc.org>, Jiang Zhu (jiang@scripps.edu) <jiang@scripps.edu>, Perlman, Stanley <stanley-perlman@uiowa.edu>, Fang Li <lifang@umn.edu>  
Sent: January 15, 2020 10:22:52 AM CST  
Received: January 15, 2020 10:23:01 AM CST  
Attachments: Performance Site Location.pdf, All Personnel Report Form.pdf

Good morning all,

The following items I would need from you to complete the RPPR.

1. All Personnel Report – list all key and non-key personnel. Don't need to enter in SSN or DoB
2. Primary Location Site – Need to update the primary location site
3. Other Support for Key Personnel (Word) – For RPPRs, NIH wants active and inactive grants that had changed over the past year. Also, mention if there were any new active grants that was added since 03/15/2019.

Regards,

---

**From:** Du, Lanying <LDu@nybc.org>  
**Sent:** Wednesday, January 15, 2020 11:16 AM  
**To:** Jiang Zhu (jiang@scripps.edu) <jiang@scripps.edu>; Perlman, Stanley <stanley-perlman@uiowa.edu>; 'Fang Li' <lifang@umn.edu>  
**Cc:** Han, Jeffrey <KHan@nybc.org>  
**Subject:** FW: NIH Automated Email: Progress Report for Grant 5 R01 AI139092-03, Due by 03/15/2020

Dear all,

The 2<sup>nd</sup> progress report on our R01 grant will be due by 03/15/2020.

Our grant officer Jeff (cc'ed) will send you a list of files required from your schools and the related deadlines.

Regarding the science part of the report, please summarize the work you have done in the past year, including any publications on this grant and the work to be done for the next step, and send to me by Feb. 20, 2020 if possible.

Stanley is doing some animal challenge studies, and hopefully we can get some data by then.

Thanks,  
Lanying

---

**From:** [era-notify@mail.nih.gov](mailto:era-notify@mail.nih.gov) <[era-notify@mail.nih.gov](mailto:era-notify@mail.nih.gov)>  
**Sent:** Wednesday, January 15, 2020 6:02 AM  
**To:** Du, Lanying <[LDu@nybc.org](mailto:LDu@nybc.org)>  
**Subject:** NIH Automated Email: Progress Report for Grant 5 R01 AI139092-03, Due by 03/15/2020

\*\*\* This is an automated notification - Please do not reply to this message. \*\*\*

The progress report for NIH Grant Number is due by 03/15/2020.



The next budget period start date for the above-referenced award is 05/01/ 2020. The due date for Progress Reports for grants excluded from the Streamlined Non-Competing Award Process (SNAP) authorities grants is the 1st of the month preceding the month in which the current budget period ends (e.g., if the budget period ends 11/30, the due date is 10/1). If the 1st falls on a weekend or Federal holiday, the due date is automatically extended to the next business day. If you are unsure whether the award is excluded from SNAP authorities, check the Notice of Award (NoA) under Section III Terms and Conditions.

**NOTE: NIH POLICY REQUIRES ELECTRONIC SUBMISSION OF ALL ANNUAL PROGRESS REPORTS USING THE RPPR MODULE IN eRA COMMONS** (see [NOT-OD-15-014](#)). RPPR instructions and resources can be found at <http://grants.nih.gov/grants/rppr/index.htm>.

Questions regarding the eRA Commons should be addressed to:

eRA Commons Help Desk

**Web:** <http://era.nih.gov/help/> (Preferred method of contact)

**Toll-free:** 1-866-504-9552

**Phone:**301-402-7469

**Hours:** Mon-Fri, 7 a.m. to 8 p.m. Eastern Time

Please submit the progress report by the due date noted above. If you have already submitted the progress report, disregard this notice.

Thank you.



**LIFESAVING INNOVATION SINCE 1964**



[Donate Blood](#) | [Volunteer](#) | [Support NYBC](#)

This email transmission and any documents, files or previous email messages attached to it may contain information that is confidential or legally privileged. If you are not the intended recipient or a person responsible for delivering this transmission to the intended recipient, you are hereby notified that you must not read this transmission and that any disclosure, copying, printing, distribution or use of this transmission is strictly prohibited. If you have received this transmission in error, please immediately notify the sender by telephone or return email and delete the original transmission and its attachments without reading or saving in any manner.

**1. Performance Site Location.pdf**

Type: application/pdf  
Size: 143 KB (146,744 bytes)

**2. All Personnel Report Form.pdf**

Type: application/pdf  
Size: 618 KB (633,201 bytes)

### Project/Performance Site Location(s)

**Project/Performance Site Primary Location**  I am submitting an application as an individual, and not on behalf of a company, state, local or tribal government, academia, or other type of organization.

Organization Name:

DUNS Number:

\* Street1:

Street2:

\* City:  County:

\* State:

Province:

\* Country:

\* ZIP / Postal Code:  \* Project/ Performance Site Congressional District:

---

**Project/Performance Site Location**  I am submitting an application as an individual, and not on behalf of a company, state, local or tribal government, academia, or other type of organization.

Organization Name:

DUNS Number:

\* Street1:

Street2:

\* City:  County:

\* State:

Province:

\* Country:

\* ZIP / Postal Code:  \* Project/ Performance Site Congressional District:

---

**Additional Location(s)**

Program Director/Principal Investigator (Last, First, Middle):

## ALL PERSONNEL REPORT

GRANT NUMBER

Place this form at the end of the signed original copy of the application. Do not duplicate.

Always list the PD/PI(s). In addition, list all other personnel who participated in the project during the current budget period for at least one person month or more, regardless of the source of compensation (a person month equals approximately 160 hours or 8.3% of annualized effort). Use the following abbreviated categories for describing Role on Project:

- PD/PI
- Co-Investigator
- Faculty
- Postdoctoral (scholar, fellow, or other postdoctoral position)
- Technician
- Staff Scientist (doctoral level)
- Statistician
- Graduate Student (research assistant)
- Non-student Research Assistant
- Undergraduate Student
- High School Student
- Consultant
- Other (please specify)

If personnel are supported by a Reentry or Diversity Supplement please indicate such after the Role on Project, using the following abbreviations: RS - Reentry Supplement; DS - Diversity Supplement.

Use Cal (calendar), Acad, or Summer to enter months devoted to project.

| Commons ID | Name | Degree(s) | SSN (last 4 digits) | Role on Project | DoB (MM /YY) | Cal | Acad | Summer |
|------------|------|-----------|---------------------|-----------------|--------------|-----|------|--------|
|            |      |           |                     |                 |              |     |      |        |

## Re: new R01 application on Wuhan coronavirus

---

From: Fang Li <lifang@umn.edu>  
To: Baric, Ralph S <rbaric@email.unc.edu>  
Sent: January 19, 2020 10:33:29 PM CST  
Talk Monday afternoon?

On Wed, Jan 15, 2020 at 6:19 PM Baric, Ralph S <[rbaric@email.unc.edu](mailto:rbaric@email.unc.edu)> wrote:

Sure! I'll send some times over the next hr.congrats on getting it sent out for review. Ralph

**From:** Fang Li <[lifang@umn.edu](mailto:lifang@umn.edu)>  
**Sent:** Wednesday, January 15, 2020 5:42 PM  
**To:** Baric, Ralph S <[rbaric@email.unc.edu](mailto:rbaric@email.unc.edu)>  
**Subject:** new R01 application on Wuhan coronavirus

Hi Ralph,

Our manuscript is being sent out by Science for in-depth review.

I am thinking that we should try to submit a new R01 together on this new virus for the mid Feb deadline. What do you think? Talk on the phone tomorrow?

Best,

Fang

--

\*\*\*\*\*  
Fang Li, Ph.D.  
Associate Professor  
Department of Veterinary and Biomedical Sciences  
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<http://www.msi.umn.edu/~lifang>

\*\*\*\*\*

## RE: new R01 application on Wuhan coronavirus

---

From: Baric, Ralph S <rbaric@email.unc.edu>  
To: Fang Li <lifang@umn.edu>  
Sent: January 20, 2020 4:21:52 AM CST  
Received: January 20, 2020 4:21:59 AM CST

Yes, 4PM okay [REDACTED]

**From:** Fang Li <lifang@umn.edu>  
**Sent:** Sunday, January 19, 2020 11:33 PM  
**To:** Baric, Ralph S <rbaric@email.unc.edu>  
**Subject:** Re: new R01 application on Wuhan coronavirus

Talk Monday afternoon?

On Wed, Jan 15, 2020 at 6:19 PM Baric, Ralph S <rbaric@email.unc.edu> wrote:

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**From:** Fang Li <lifang@umn.edu>  
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<http://www.msi.umn.edu/~lifang>  
\*\*\*\*\*

## Re: new R01 application on Wuhan coronavirus

---

From: Fang Li <lifang@umn.edu>  
To: Baric, Ralph S <rbaric@email.unc.edu>  
Sent: January 20, 2020 9:05:08 AM CST  
Received: January 20, 2020 9:05:08 AM CST

Ok, talk to you then.

On Monday, January 20, 2020, Baric, Ralph S <[rbaric@email.unc.edu](mailto:rbaric@email.unc.edu)> wrote:

Yes, 4PM okay [REDACTED]

**From:** Fang Li <[lifang@umn.edu](mailto:lifang@umn.edu)>  
**Sent:** Sunday, January 19, 2020 11:33 PM  
**To:** Baric, Ralph S <[rbaric@email.unc.edu](mailto:rbaric@email.unc.edu)>  
**Subject:** Re: new R01 application on Wuhan coronavirus

Talk Monday afternoon?

On Wed, Jan 15, 2020 at 6:19 PM Baric, Ralph S <[rbaric@email.unc.edu](mailto:rbaric@email.unc.edu)> wrote:

Sure! I'll send some times over the next hr.congrats on getting it sent out for review. Ralph

**From:** Fang Li <[lifang@umn.edu](mailto:lifang@umn.edu)>  
**Sent:** Wednesday, January 15, 2020 5:42 PM  
**To:** Baric, Ralph S <[rbaric@email.unc.edu](mailto:rbaric@email.unc.edu)>  
**Subject:** new R01 application on Wuhan coronavirus

Hi Ralph,

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I am thinking that we should try to submit a new R01 together on this new virus for the mid Feb deadline. What do you think? Talk on the phone tomorrow?

Best,

Fang

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<http://www.msi.umn.edu/~lifang>

\*\*\*\*\*

## **new NIH R01 application with UNC**

---

From: Fang Li <lifang@umn.edu>  
To: Ralph Baric <rbaric@email.unc.edu>  
Cc: Lesley Schmidt Sindberg <schm1421@umn.edu>, Shannon Kasperson <kaspe110@umn.edu>  
Sent: January 20, 2020 3:38:47 PM CST

Dear Lesley and Shannon, I will submit a new NIH R01 grant with Dr. Ralph Baric from University of North Carolina. Dr. Baric will be the contact PI, and I will be the co-PI. I just completed the intent-to-submit form. The deadline will be February 19.

Dear Ralph, both Lesley and Shannon are grants officers in my college. Please connect them with your grants officer.

Thanks,  
Fang

--

\*\*\*\*\*

Fang Li, Ph.D.  
Associate Professor  
Department of Veterinary and Biomedical Sciences  
University of Minnesota Twin Cities  
612-625-6149, [lifang@umn.edu](mailto:lifang@umn.edu)  
<http://www.msi.umn.edu/~lifang>

\*\*\*\*\*

## RE: new NIH R01 application with UNC

---

From: Baric, Ralph S <rbaric@email.unc.edu>  
To: Fang Li <lifang@umn.edu>, Baric, Toni C <antoinette\_baric@med.unc.edu>  
Cc: Lesley Schmidt Sindberg <schm1421@umn.edu>, Shannon Kasperson <kaspe110@umn.edu>  
Sent: January 20, 2020 3:53:48 PM CST  
Received: January 20, 2020 3:53:50 PM CST

Toni will be the key person on our end for Shannon and Lesley to interface with. Thanks, ralph

**From:** Fang Li <lifang@umn.edu>  
**Sent:** Monday, January 20, 2020 4:39 PM  
**To:** Baric, Ralph S <rbaric@email.unc.edu>  
**Cc:** Lesley Schmidt Sindberg <schm1421@umn.edu>; Shannon Kasperson <kaspe110@umn.edu>  
**Subject:** new NIH R01 application with UNC

Dear Lesley and Shannon, I will submit a new NIH R01 grant with Dr. Ralph Baric from University of North Carolina. Dr. Baric will be the contact PI, and I will be the co-PI. I just completed the intent-to-submit form. The deadline will be February 19.

Dear Ralph, both Lesley and Shannon are grants officers in my college. Please connect them with your grants officer.

Thanks,  
Fang

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University of Minnesota Twin Cities  
612-625-6149, [lifang@umn.edu](mailto:lifang@umn.edu)  
<http://www.msi.umn.edu/~lifang>

\*\*\*\*\*

## outline of WH-CoV R01 proposal

---

From: Fang Li <lifang@umn.edu>  
To: Ralph Baric <rbaric@email.unc.edu>  
Sent: January 20, 2020 9:11:30 PM CST  
Attachments: WHCoV-R01-2020-outline-v1.doc, flpaper70-whcov-science-submission.pdf

Hi Ralph,

Please see attached a preliminary draft of the outline of the grant. If you have any questions or comments please let me know.

Please also see attached the submitted version of our manuscript. I made changes based on your feedback. It contains useful information that can be incorporated into our proposal.

Thanks,  
Fang

--

\*\*\*\*\*

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<http://www.msi.umn.edu/~lifang>

\*\*\*\*\*

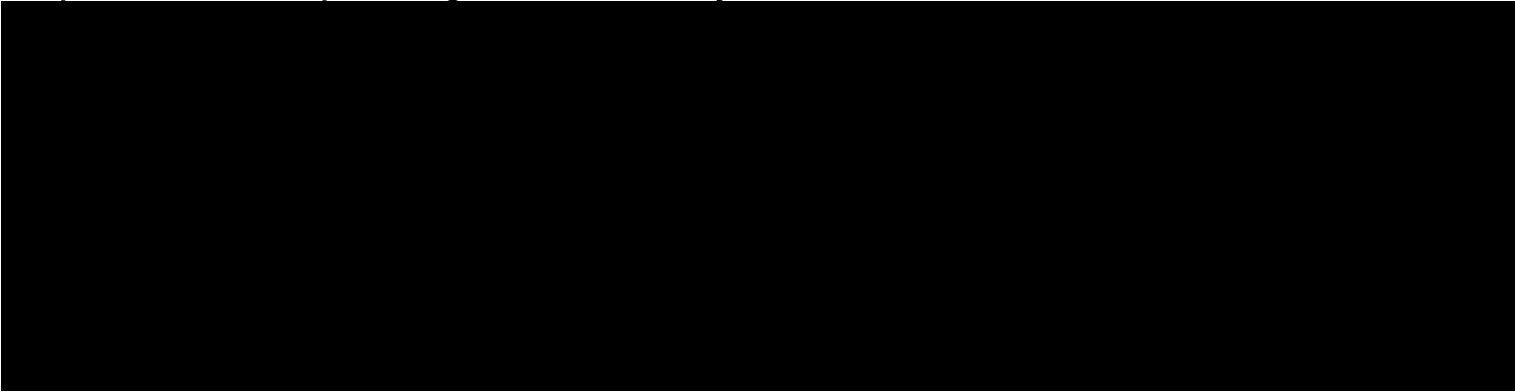
**1. WHCoV-R01-2020-outline-v1.doc**

Type: application/vnd.ms-word  
Size: 63 KB (64,512 bytes)

**2. flpaper70-whcov-science-submission.pdf**

Type: application/pdf  
Size: 5 MB (6,088,323 bytes)

**Specific Aim 1: Receptor recognition and cell entry mechanisms of WH-CoV**



**Specific Aim 2: Evolution and cross-species transmission of WH-CoV**



**Specific Aim 3: Animal model and pathogenesis of WH-CoV**

## supplement for R01AI089728

---

From: Fang Li <lifang@umn.edu>  
To: Ralph Baric <rbaric@email.unc.edu>  
Sent: January 20, 2020 9:38:08 PM CST

Hi Ralph,

Regarding one of our currently funded grants R01AI089728 (Receptor recognition and cell entry of coronaviruses), I would like to request a one-year supplement, but I have never done this before. Do you have a template for such a supplement request letter that you could share with me?

Thanks so much,  
Fang

--

\*\*\*\*\*

Fang Li, Ph.D.  
Associate Professor  
Department of Veterinary and Biomedical Sciences  
University of Minnesota Twin Cities  
612-625-6149, [lifang@umn.edu](mailto:lifang@umn.edu)  
<http://www.msi.umn.edu/~lifang>

\*\*\*\*\*

## RE: supplement for R01AI089728

---

From: Baric, Ralph S <rbaric@email.unc.edu>  
To: Fang Li <lifang@umn.edu>  
Sent: January 21, 2020 1:30:55 PM CST  
Received: January 21, 2020 1:31:01 PM CST

Hi Fang, do you have 5 mins for a call now. Need to talk about some details of the mhv experiment that were not clear from the protocol. ralph

**From:** Fang Li <lifang@umn.edu>  
**Sent:** Monday, January 20, 2020 10:38 PM  
**To:** Baric, Ralph S <rbaric@email.unc.edu>  
**Subject:** supplement for R01AI089728

Hi Ralph,

Regarding one of our currently funded grants R01AI089728 (Receptor recognition and cell entry of coronaviruses), I would like to request a one-year supplement, but I have never done this before. Do you have a template for such a supplement request letter that you could share with me?

Thanks so much,  
Fang

--

\*\*\*\*\*

Fang Li, Ph.D.  
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University of Minnesota Twin Cities  
612-625-6149, [lifang@umn.edu](mailto:lifang@umn.edu)  
<http://www.msi.umn.edu/~lifang>

\*\*\*\*\*



## Fwd: About MHV live virus infection assay

---

From: [REDACTED]  
To: Fang Li <lifang@umn.edu>, Baric, Ralph S <rbaric@email.unc.edu>  
Sent: January 21, 2020 1:44:39 PM CST  
Received: January 21, 2020 1:44:53 PM CST

----- Forwarded message -----

From: [REDACTED] >  
Date: Tue, Dec 17, 2019 at 2:41 PM  
Subject: About MHV live virus infection assay  
To: <[rbaric@email.unc.edu](mailto:rbaric@email.unc.edu)>  
Cc: Fang Li <[lifang@umn.edu](mailto:lifang@umn.edu)>

Hi Dr. Baric

Could you please give me your shipping address? CEACAM1A could be shipped out tomorrow.

The treatment conditions for this experiment are as follows.

- a. No virus infection or inactivated virus infection
- b. MHV virus infection without any treatment
- c. Pre-treatment of MHV virus with trypsin, and then do infection after stopping trypsin treatment.
- d. Incubate MHV virus with CEACAM1A for at least 1 h at 37 °C (let CEACAM1A having enough time to trigger conformational changes on MHV spike). After incubation, treat the sample with trypsin and then do infection after stopping trypsin treatment.
- e. without any treatment to the viruses, just add the sample amount of CEACAM1A to the cells during MHV virus infection.

For purified pseudoviruses, the concentration of trypsin we used is 0.001mg/ml and time for treatment is 15-20 min.

If the virus is not purified and just packaged in medium with FBS, the concentration of trypsin used should be largely increased (eg. 0.05-0.1 mg/ml for pseudovirus).

For the concentration of CEACAM1A, it's hard to say. The amount we used during pseudovirus assay is excess (final concentration is about 5 ug/ml).

By the way, the mutation for 422-CoV spike is R302H.

Thanks,

[REDACTED]

## Fwd: MHV pseudovirus assay

---

From: [REDACTED]  
To: Fang Li <lifang@umn.edu>, Baric, Ralph S <rbaric@email.unc.edu>  
Sent: January 21, 2020 1:45:04 PM CST  
Received: January 21, 2020 1:45:18 PM CST  
Attachments: pseudovirus.tif

----- Forwarded message -----

From: [REDACTED]  
Date: Fri, Jan 10, 2020 at 1:01 PM  
Subject: MHV pseudovirus assay  
To: Fang Li <[lifang@umn.edu](mailto:lifang@umn.edu)>

**1. pseudovirus.tif**

Type: image/tiff  
Size: 185 KB (189,828 bytes)

## **The continuing 2019-nCoV epidemic threat of novel coronaviruses to global health - The latest 2019 novel coronavirus outbreak in Wuhan, China.**

---

From: vinu arumugham <vaccine.safety@aol.com>  
To: dschui@cuhk.edu.hk, wpchnwr@who.int, wpchnmedia@who.int, wprocom@who.int, mediainquiries@who.int, 13698665@qq.com, lifang@umn.edu, LDu@nybc.org  
Sent: January 22, 2020 10:32:52 PM CST  
Received: January 22, 2020 10:33:12 PM CST

Dr. Hui,

IgE mediated sensitization to peptides that have homology to 2019-nCoV peptides may contribute to disease severity. In that case, antihistamines and other allergy treatments such as mast cell stabilizers may help reduce infection severity.

A BLASTP analysis of 2019-nCoV proteome against common vaccine antigens was performed. Preliminary results suggest that IgE mediated sensitization to common vaccine antigens can result in cross reactive immune responses to 2019-nCoV.

Please see details of the mechanisms here:

Influenza vaccines and dengue-like disease

<https://www.bmj.com/content/360/bmj.k1378/rr-15>

<https://www.quora.com/Why-was-the-flu-so-deadly-in-outbreaks-in-the-past-And-what-made-the-flu-become-less-deadly/answers/86456279>

Thanks,

Vinu

## MHV experiment

---

From: Yount, Boyd L Jr <byount@email.unc.edu>  
To: lifang@umn.edu, [REDACTED]  
Cc: Baric, Ralph S <rbaric@email.unc.edu>  
Sent: January 23, 2020 7:39:32 AM CST  
Received: January 23, 2020 7:39:35 AM CST

Hey gentlemen,

One last question, please. We're planning on using 1ug/mL (the amount you have used) of trypsin since the MHV stock was made in serum free media. Then to stop this reaction, how much of the trypsin inhibitor (STI) do you use? Sorry if the answer is in your paper, but the only thing I saw was that the soybean trypsin inhibitor was "in excess". Thank you,

-Boyd

## RE: outline of WH-CoV R01 proposal

---

From: Baric, Ralph S <rbaric@email.unc.edu>  
To: Fang Li <lifang@umn.edu>  
Sent: January 25, 2020 3:17:25 PM CST  
Received: January 25, 2020 3:17:29 PM CST  
Attachments: WHCoV-R01-2020-outline-v2.doc

Hi Fang, my comments. Good start. Ralph

**From:** Fang Li <lifang@umn.edu>  
**Sent:** Monday, January 20, 2020 10:12 PM  
**To:** Baric, Ralph S <rbaric@email.unc.edu>  
**Subject:** outline of WH-CoV R01 proposal

Hi Ralph,

Please see attached a preliminary draft of the outline of the grant. If you have any questions or comments please let me know.

Please also see attached the submitted version of our manuscript. I made changes based on your feedback. It contains useful information that can be incorporated into our proposal.

Thanks,  
Fang

--

\*\*\*\*\*

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<http://www.msi.umn.edu/~lifang>

\*\*\*\*\*

## Re: outline of WH-CoV R01 proposal

---

From: Fang Li <lifang@umn.edu>  
To: Baric, Ralph S <rbaric@email.unc.edu>  
Sent: January 30, 2020 11:48:38 AM CST

Hi Ralph,

I will start working on this proposal. What is the title?

Here is one suggestion:

"Cell entry, pathogenesis and evolution of novel coronavirus from Wuhan"

Any other suggestions?

Thanks,  
Fang

On Sat, Jan 25, 2020 at 3:17 PM Baric, Ralph S <[rbaric@email.unc.edu](mailto:rbaric@email.unc.edu)> wrote:

Hi Fang, my comments. Good start. Ralph

**From:** Fang Li <[lifang@umn.edu](mailto:lifang@umn.edu)>  
**Sent:** Monday, January 20, 2020 10:12 PM  
**To:** Baric, Ralph S <[rbaric@email.unc.edu](mailto:rbaric@email.unc.edu)>  
**Subject:** outline of WH-CoV R01 proposal

Hi Ralph,

Please see attached a preliminary draft of the outline of the grant. If you have any questions or comments please let me know.

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Thanks,

Fang

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<http://www.msi.umn.edu/~lifang>

\*\*\*\*\*



## deadline question re: Virology paper/for publication in San Jose Mercury News/Bay Area News Group

---

From: Lisa Krieger <lkrieger@bayareanewsgroup.com>

To: [REDACTED]  
rbaric@email.unc.edu, lifang@umn.edu

Sent: January 30, 2020 2:16:44 PM CST

Received: January 30, 2020 2:16:53 PM CST

Dear [REDACTED] Fang Li and Ralph Baric,

Enjoyed your paper in Virology.

A few questions. May I phone one of you, or get answers via email?

1.) If SARS and the coronavirus use the same receptor, do you know why their disease profiles (& epidemiology?) are a bit different?

2.) Is the new coronavirus newly emerged – or just new in humans?

3.) Did it change, genetically, so it was possible to infect humans? Or has it been stable, and were we just exposed to it for the first time?

4.) How should we monitor it for mutations that could significantly enhance its ability to bind with human ACE2? Could mutations also *reduce* its ability to bind with ACE2?

THANK YOU! Suggest a time & # and I'm happy to call.

Regards,

**Lisa Krieger** Science and research reporter | Editorial

[lkrieger@bayareanewsgroup.com](mailto:lkrieger@bayareanewsgroup.com)

408-920-5565 Direct | [REDACTED]

[@lisamkrieger](#)

[bayareanewsgroup.com](http://bayareanewsgroup.com)

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[REDACTED]

[REDACTED]

## Re: outline of WH-CoV R01 proposal

---

From: Fang Li <lifang@umn.edu>  
To: Baric, Ralph S <rbaric@email.unc.edu>  
Sent: January 30, 2020 2:47:50 PM CST

What about ""Cell entry, cross-species transmission and pathogenesis of novel coronavirus from Wuhan"?

On Thu, Jan 30, 2020 at 11:48 AM Fang Li <lifang@umn.edu> wrote:

Hi Ralph,

I will start working on this proposal. What is the title?

Here is one suggestion:

"Cell entry, pathogenesis and evolution of novel coronavirus from Wuhan"

Any other suggestions?

Thanks,  
Fang

On Sat, Jan 25, 2020 at 3:17 PM Baric, Ralph S <rbaric@email.unc.edu> wrote:

Hi Fang, my comments. Good start. Ralph

**From:** Fang Li <lifang@umn.edu>  
**Sent:** Monday, January 20, 2020 10:12 PM  
**To:** Baric, Ralph S <rbaric@email.unc.edu>  
**Subject:** outline of WH-CoV R01 proposal

Hi Ralph,

Please see attached a preliminary draft of the outline of the grant. If you have any questions or comments please let me know.

Please also see attached the submitted version of our manuscript. I made changes based on your feedback. It contains useful information that can be incorporated into our proposal.

Thanks,

Fang

--

\*\*\*\*\*

Fang Li, Ph.D.  
Associate Professor

Department of Veterinary and Biomedical Sciences  
University of Minnesota Twin Cities  
612-625-6149, [lifang@umn.edu](mailto:lifang@umn.edu)  
<http://www.msi.umn.edu/~lifang>

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Fang Li, Ph.D.  
Associate Professor  
Department of Veterinary and Biomedical Sciences  
University of Minnesota Twin Cities  
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<http://www.msi.umn.edu/~lifang>

\*\*\*\*\*

## RE: outline of WH-CoV R01 proposal

---

From: Baric, Ralph S <rbaric@email.unc.edu>  
To: Fang Li <lifang@umn.edu>  
Cc: Baric, Toni C <antoinette\_baric@med.unc.edu>  
Sent: January 30, 2020 5:28:11 PM CST  
Received: January 30, 2020 5:28:14 PM CST

Hi Fang, congrats on the paper. This new title is fine with me. ralph

**From:** Fang Li <lifang@umn.edu>  
**Sent:** Thursday, January 30, 2020 12:49 PM  
**To:** Baric, Ralph S <rbaric@email.unc.edu>  
**Subject:** Re: outline of WH-CoV R01 proposal

Hi Ralph,

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Here is one suggestion:  
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Any other suggestions?

Thanks,  
Fang

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<http://www.msi.umn.edu/~lifang>

\*\*\*\*\*

## RE: outline of WH-CoV R01 proposal

---

From: Baric, Ralph S <rbaric@email.unc.edu>  
To: Fang Li <lifang@umn.edu>  
Cc: Baric, Toni C <antoinette\_baric@med.unc.edu>  
Sent: January 30, 2020 6:27:26 PM CST  
Received: January 30, 2020 6:27:29 PM CST

I think this is a good title that captures the essence of the grant. Lets go with this. ralph

**From:** Fang Li <lifang@umn.edu>  
**Sent:** Thursday, January 30, 2020 7:24 PM  
**To:** Baric, Ralph S <rbaric@email.unc.edu>  
**Cc:** Baric, Toni C <antoinette\_baric@med.unc.edu>  
**Subject:** Re: outline of WH-CoV R01 proposal

Thanks, Ralph.

Should we go with "Cell entry, cross-species transmission and pathogenesis of novel coronavirus from Wuhan"?

"Cross-species transmission" seems to be attractive, given the current spotlight on the potential sources of the virus.

Please let me know your thoughts on the title.

Best,  
Fang

On Thu, Jan 30, 2020 at 5:28 PM Baric, Ralph S <[rbaric@email.unc.edu](mailto:rbaric@email.unc.edu)> wrote:

Hi Fang, congrats on the paper. This new title is fine with me. ralph

**From:** Fang Li <[lifang@umn.edu](mailto:lifang@umn.edu)>  
**Sent:** Thursday, January 30, 2020 12:49 PM  
**To:** Baric, Ralph S <[rbaric@email.unc.edu](mailto:rbaric@email.unc.edu)>  
**Subject:** Re: outline of WH-CoV R01 proposal

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Here is one suggestion:

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Any other suggestions?

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**Subject:** outline of WH-CoV R01 proposal

Hi Ralph,

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Please also see attached the submitted version of our manuscript. I made changes based on your feedback. It contains useful information that can be incorporated into our proposal.

Thanks,  
Fang

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University of Minnesota Twin Cities  
612-625-6149, [lifang@umn.edu](mailto:lifang@umn.edu)  
<http://www.msi.umn.edu/~lifang>  
\*\*\*\*\*

## Re: Fwd: revised figure

---

From: Graham, Rachel <rlgraham@email.unc.edu>  
To: Fang Li <lifang@umn.edu>, [REDACTED] Baric,  
Ralph S <rbaric@email.unc.edu>, Graham, Rachel  
<rlgraham@email.unc.edu>  
Sent: February 2, 2020 11:08:02 PM CST  
Received: February 2, 2020 11:08:05 PM CST  
Attachments: FangLi Tree noGISAID.pdf

Hi Fang,

I saw that too. I've attached the edited tree. I was having some trouble getting it to look like the original tree, so I rooted it to the [REDACTED] since it is the least like the 2019-nCoV sequence, and that did the trick. Let me know if you need a hi-res version for publication. I've got the Illustrator file and can make a TIF.  
Rachel

~~~~~  
Rachel Graham, Ph.D.

Assistant Professor
Baric Lab | UNC-Chapel Hill
[\(919\) 966-4689](tel:9199664689)

On February 2, 2020 at 11:50:56 PM, Fang Li (lifang@umn.edu) wrote:

Hi Rachel,

We received complaints from GISAD about using their sequences (aren't they annoying!). Those sequences are highlighted in the figure below. Could you remove these sequences and send me the revised figure for the final proof? I don't think removing those several sequences will affect any of our conclusions.

It seems that the paper is well received by the virology community. Thanks for your contribution!

Sincerely,

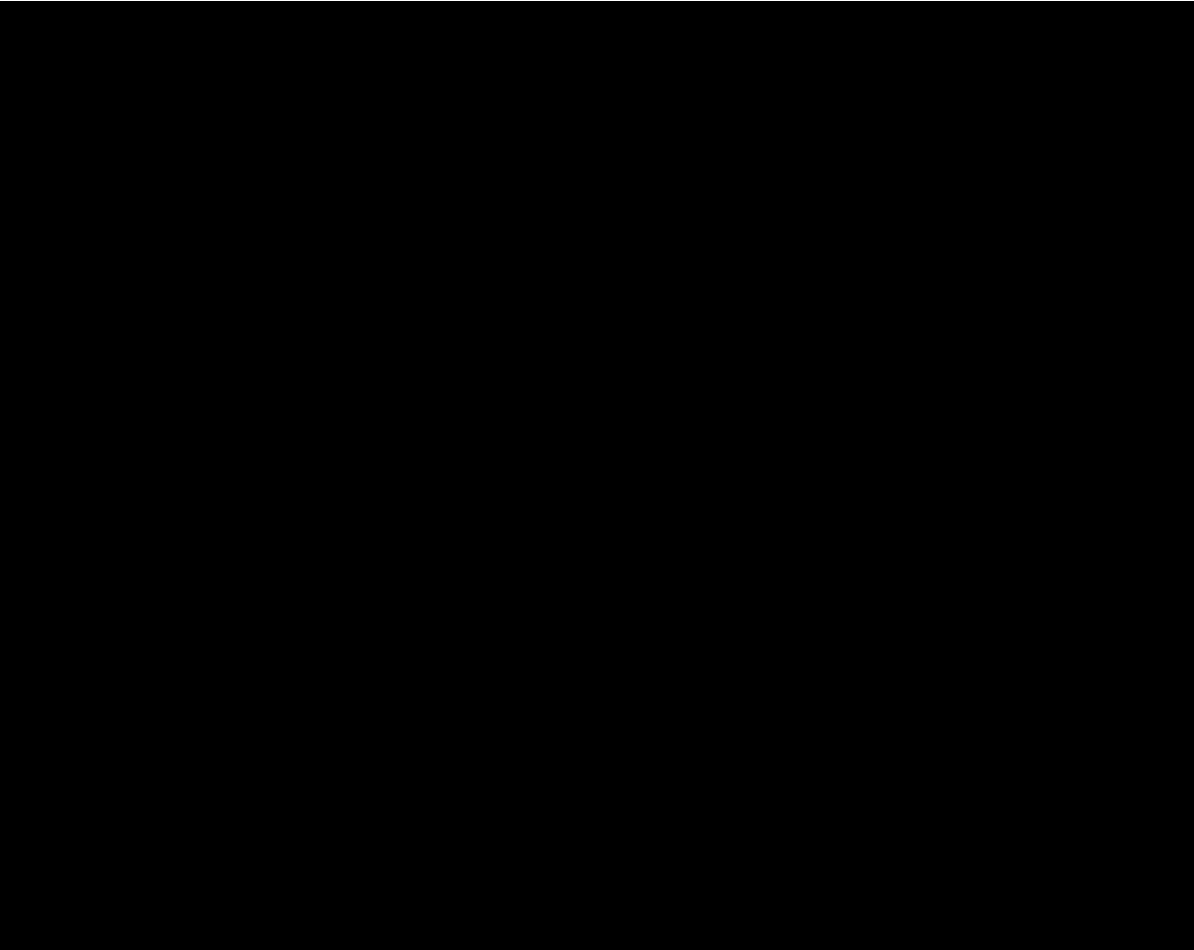
Fang

----- Forwarded message -----

From: [REDACTED]
Date: Sun, Feb 2, 2020 at 10:39 PM
Subject: revised figure
To: Fang Li <lifang@umn.edu>

Hi Dr. Li

Please see the figure below



--

Fang Li, Ph.D.
Associate Professor
Department of Veterinary and Biomedical Sciences
University of Minnesota Twin Cities
612-625-6149, lifang@umn.edu
<http://www.msi.umn.edu/~lifang>

1. FangLi Tree noGISAID.pdf

Type: application/pdf
Size: 124 KB (127,652 bytes)

Re: Fwd: revised figure

From: Fang Li <lifang@umn.edu>
To: Graham, Rachel <rlgraham@email.unc.edu>
Cc: [REDACTED] Baric, Ralph S <rbaric@email.unc.edu>
Sent: February 2, 2020 11:38:08 PM CST

Hi Rachel,

Thanks for your prompt response. The pdf version is good.

Best,
Fang

On Sun, Feb 2, 2020 at 11:08 PM Graham, Rachel <rlgraham@email.unc.edu> wrote:

Hi Fang,

I saw that too. I've attached the edited tree. I was having some trouble getting it to look like the original tree, so I rooted it to the [REDACTED] since it is the least like the 2019-nCoV sequence, and that did the trick.

Let me know if you need a hi-res version for publication. I've got the Illustrator file and can make a TIF.

Rachel

~~~~~  
**Rachel Graham, Ph.D.**  
Assistant Professor  
Baric Lab | UNC-Chapel Hill  
(919) 966-4689

On February 2, 2020 at 11:50:56 PM, Fang Li ([lifang@umn.edu](mailto:lifang@umn.edu)) wrote:

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It seems that the paper is well received by the virology community. Thanks for your contribution!

Sincerely,

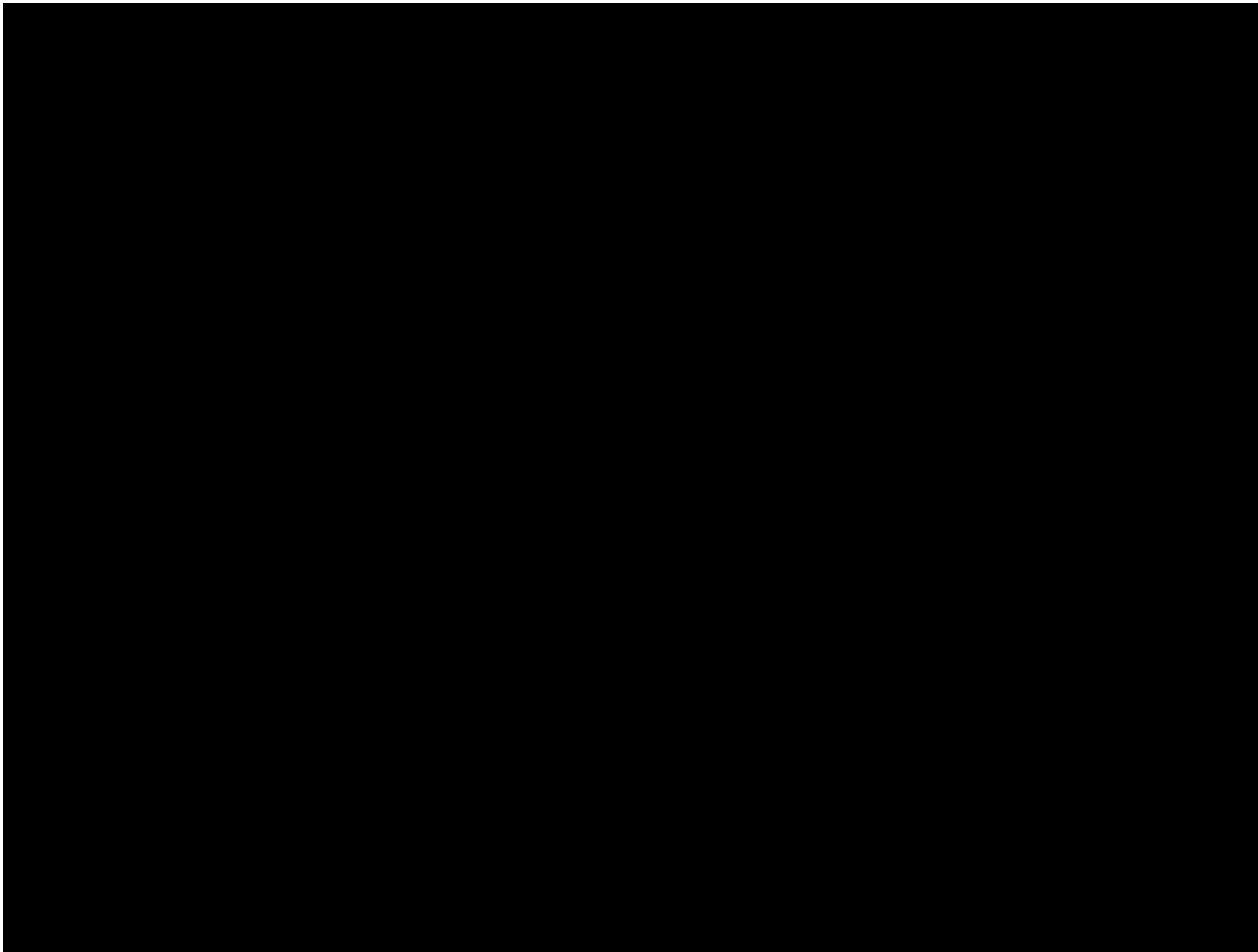
Fang

----- Forwarded message -----

From: [REDACTED]  
Date: Sun, Feb 2, 2020 at 10:39 PM  
Subject: revised figure  
To: Fang Li <[lifang@umn.edu](mailto:lifang@umn.edu)>

Hi Dr. Li

Please see the figure below



--

\*\*\*\*\*

Fang Li, Ph.D.  
Associate Professor  
Department of Veterinary and Biomedical Sciences  
University of Minnesota Twin Cities  
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University of Minnesota Twin Cities  
612-625-6149, [lifang@umn.edu](mailto:lifang@umn.edu)  
<http://www.msi.umn.edu/~lifang>

\*\*\*\*\*

## Re: MHV manuscript

---

From: Fang Li <lifang@umn.edu>  
To: Baric, Ralph S <rbaric@email.unc.edu>  
Sent: February 4, 2020 11:01:05 AM CST

What is Kendra Gully's email address? I will need it for paper submission.

Thanks,  
Fang

On Sun, Jan 26, 2020 at 4:48 PM Baric, Ralph S <rbaric@email.unc.edu> wrote:

Kendra Gully and Boyd Yount worked on the manuscript together. Thanks, ralph

**From:** Fang Li <lifang@umn.edu>  
**Sent:** Sunday, January 26, 2020 5:46 PM  
**To:** Baric, Ralph S <rbaric@email.unc.edu>  
**Subject:** MHV manuscript

Hi Ralph,

Thanks for the MHV experiment. I will add Boyd Yount as a co-author. Anyone else from your lab that you would like to add to the author list?

Best,

Fang

--

\*\*\*\*\*  
Fang Li, Ph.D.  
Associate Professor  
Department of Veterinary and Biomedical Sciences  
University of Minnesota Twin Cities  
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612-625-6149, [lifang@umn.edu](mailto:lifang@umn.edu)

<http://www.msi.umn.edu/~lifang>

\*\*\*\*\*

## Re: MHV manuscript

---

From: Fang Li <lifang@umn.edu>  
To: Baric, Ralph S <rbaric@email.unc.edu>  
Cc: Gully, Kendra <klgully@email.unc.edu>  
Sent: February 4, 2020 11:13:37 AM CST

Thanks! We are all set for resubmission.

On Tue, Feb 4, 2020 at 11:12 AM Baric, Ralph S <[rbaric@email.unc.edu](mailto:rbaric@email.unc.edu)> wrote:

Gully, Kendra <[klgully@email.unc.edu](mailto:klgully@email.unc.edu)>

Hi Fang, She is cc'd if you need to talk with her about anything. Ralph

**From:** Fang Li <[lifang@umn.edu](mailto:lifang@umn.edu)>  
**Sent:** Tuesday, February 4, 2020 12:01 PM  
**To:** Baric, Ralph S <[rbaric@email.unc.edu](mailto:rbaric@email.unc.edu)>  
**Subject:** Re: MHV manuscript

What is [Kendra Gully's](mailto:klgully@email.unc.edu) email address? I will need it for paper submission.

Thanks,

Fang

On Sun, Jan 26, 2020 at 4:48 PM Baric, Ralph S <[rbaric@email.unc.edu](mailto:rbaric@email.unc.edu)> wrote:

Kendra Gully and Boyd Yount worked on the manuscript together. Thanks, ralph

**From:** Fang Li <[lifang@umn.edu](mailto:lifang@umn.edu)>  
**Sent:** Sunday, January 26, 2020 5:46 PM  
**To:** Baric, Ralph S <[rbaric@email.unc.edu](mailto:rbaric@email.unc.edu)>  
**Subject:** MHV manuscript

Hi Ralph,

Thanks for the MHV experiment. I will add Boyd Yount as a co-author. Anyone else from your lab that you would like to add to the author list?

Best,

Fang

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\*\*\*\*\*

Fang Li, Ph.D.  
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University of Minnesota Twin Cities  
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<http://www.msi.umn.edu/~lifang>

\*\*\*\*\*

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<http://www.msi.umn.edu/~lifang>

\*\*\*\*\*

## NOT-AI-20-030: Supplement Application

---

From: Han, Jeffrey <KHan@nybc.org>  
To: Lesley Schmidt Sindberg <schm1421@umn.edu>  
Cc: Fang Li <lifang@umn.edu>, Du, Lanying <LDu@nybc.org>  
Sent: February 18, 2020 9:19:51 AM CST  
Received: February 18, 2020 9:19:55 AM CST  
Attachments: PerformanceSite\_2\_0-V2.0 (2).pdf

Good afternoon Lesley,

Dr. Laying Du is preparing to submit a supplement and is collaborating with Dr. Fang Li and Dr. Stanley Perlman at University of Iowa. Our goal is to submit the supplement on Tuesday, Feb. 25<sup>th</sup> and I'm hoping we can get the documents by Friday, Feb 21<sup>st</sup>.


Drs. Du and Li will figure out the budget and Supplement Title and let us know when they are ready.

<https://grants.nih.gov/grants/guide/notice-files/NOT-AI-20-030.html>

These are the following documents I need for the supplement submission

1. Budget
2. Budget Justification (Word Document)
3. Facepage/Statement of Intent with Signing Official
4. Facilities & Resources (Word Document)
5. Equipment (Word Document)
6. Project & Performance Site (see attached)
7. Biosketch(es) (Key personnel; Word Document)
8. Vertebrate Animals/Human Subject (Word Documents)
9. Scope of Work
10. Letter of Support from Sub PI (if applicable)
11. Attachment 3B
12. F&A Agreement

Regards,

Jeffrey Han  
Director of Research Administration | New York Blood Center  
Phone: 212.570.3034  
  
Website: [www.nybloodcenter.org](http://www.nybloodcenter.org)

  
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**1. PerformanceSite\_2\_0-V2.0 (2).pdf**

Type: application/pdf  
Size: 125 KB (128,993 bytes)

## Re: NOT-AI-20-030: Supplement Application

---

From: Lesley Schmidt Sindberg <schm1421@umn.edu>  
To: Han, Jeffrey <KHan@nybc.org>  
Cc: Fang Li <lifang@umn.edu>, Du, Lanying <LDu@nybc.org>  
Sent: February 18, 2020 10:17:17 AM CST  
Received: February 18, 2020 10:17:31 AM CST

Hi Jeff,

I will work with Dr. Li to get these materials to you as soon as I can, but I am not very confident that I can meet a deadline of this Friday. Our college and central research office need to sign off on the proposal which is a bit out of my control. I'll be in touch as I have a better handle on the exact date by which you can expect to receive the proposal materials once I received details on the budget and have the scientific proposal documents in hand. I have been in communication with Dr. Li so he is aware and we are working quickly to pull everything together.

Thanks,  
Lesley

Lesley Schmidt Sindberg, MPH  
Administrative Director | [Department of Veterinary & Biomedical Sciences](#)  
College of Veterinary Medicine | University of Minnesota  
[schm1421@umn.edu](mailto:schm1421@umn.edu) | 612-301-1234 | [REDACTED]

Preparing a research proposal? Please submit an [Intent to Submit](#) form.

On Tue, Feb 18, 2020 at 9:19 AM Han, Jeffrey <[KHan@nybc.org](mailto:KHan@nybc.org)> wrote:

Good afternoon Lesley,

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8. Vertebrate Animals/Human Subject (Word Documents)
9. Scope of Work
10. Letter of Support from Sub PI (if applicable)
11. Attachment 3B
12. F&A Agreement

Regards,

Jeffrey Han

Director of Research Administration | New York Blood Center

Phone: 212.570.3034



Website: [www.nybloodcenter.org](http://www.nybloodcenter.org)



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## R.affinis-ACE2 sequence from Shi Lab

---

From: guohua931213@gmail.com  
To: lifang <lifang@umn.edu>  
Cc: zlshi <zlshi@wh.iov.cn>  
Sent: February 26, 2020 5:51:53 PM CST  
Received: February 26, 2020 5:51:56 PM CST  
Attachments: Ra-ACE2.txt

Dear Pro. Li

It's Guo Hua from the Shi lab, please check the attachment about the [REDACTED]

[REDACTED] And it's a unpublished sequence in our lab.

If you have any questions, please feel free to contact me.

Kind regards

Guo Hua

---

Guo Hua  
Wuhan Institute of Virology, Chinese Academy of Sciences  
44 Xiao Hong Shan  
430071 Wuhan, Hubei  
China  
Email: guohua931213@gmail.com

1. [REDACTED]

Type: text/plain  
Size: 2 KB (2,462 bytes)



## Re: R.affinis-ACE2 sequence from Shi Lab

---

From: Fang Li <lifang@umn.edu>  
To: guohua931213@gmail.com  
Cc: zlshi <zlshi@wh.iov.cn>  
Sent: February 26, 2020 9:07:36 PM CST

Thanks a lot! I appreciate it.

On Wed, Feb 26, 2020 at 5:51 PM [guohua931213@gmail.com](mailto:guohua931213@gmail.com) <[guohua931213@gmail.com](mailto:guohua931213@gmail.com)> wrote:  
Dear Pro. Li

It's Guo Hua from the Shi lab, please check the attachment about the [REDACTED]. And it's a unpublished sequence in our lab.

If you have any questions, please feel free to contact me.

Kind regards  
Guo Hua

---

Guo Hua  
Wuhan Institute of Virology, Chinese Academy of Sciences  
44 Xiao Hong Shan  
430071 Wuhan, Hubei  
China  
Email: [guohua931213@gmail.com](mailto:guohua931213@gmail.com)

--

\*\*\*\*\*

Fang Li, Ph.D.  
Associate Professor  
Department of Veterinary and Biomedical Sciences  
University of Minnesota Twin Cities  
612-625-6149, [lifang@umn.edu](mailto:lifang@umn.edu)  
<http://www.msi.umn.edu/~lifang>

\*\*\*\*\*

## **Fwd: URGENT: Save The Date: CEPI-BC meeting on preventing disease enhancement with COVID-19 vaccines**

---

From: Robert Chen <rtchen1135@gmail.com>  
To: Chuan Qin <qinchuan@pumc.edu.cn>, Subbarao, Kanta <kanta.subbarao@influenzacentre.org>, Perlman, Stanley <stanley-perlman@uiowa.edu>, Ralph Baric <rbaric@email.unc.edu>, Barney Graham <bgraham@mail.nih.gov>, Arnaud .Didierlaurent <Arnaud.Didierlaurent@unige.ch>, Paul Henri Lambert <Paul.Lambert@unige.ch>, Steve Black <stevblack@gmail.com>, Corry Dekker <cdekker@stanford.edu>, Gaof@im.ac.cn, Andrew Pollard <Andrew.Pollard@paediatrics.ox.ac.uk>, StanleyPlotkin@vaxconsult.com, Marco.Cavaleri@ema.europa.eu, Gruber, Marion <Marion.Gruber@fda.hhs.gov>, cookee@who.int, henaorestrepoa@who.int, Pieter.Neels@vaccine-advice.be, Miles.Carroll@phe.gov.uk, Simon.Funnell@phe.gov.uk, Arnaud.Marchant@ulb.ac.be, geert.lerouxroels@ugent.be, lifang@umn.edu, jerry.weir@fda.hhs.gov, albert.osterhaus@tiho-hannover.de, rcouch@bcm.edu, gary.kobinger@phac-aspc.gc.ca, Chien-Te (Kent) Tseng PhD <sktseng@utmb.edu>, rodewald@chinacdc.cn, Flor Munoz <florm@bcm.edu>, brian.ward@mcgill.ca, eva.vanbraeckel@ugent.be  
Cc: Svein Rune Andersen <svein.rune.andersen@cepi.net>, Jakob Cramer <jakob.cramer@cepi.net>, SPEAC Executive Board <eb@speac-cepi.net>, Imanol Urcola Lecuona <imanol@wedo-projects.com>  
Sent: March 4, 2020 1:54:14 PM CST  
Received: March 4, 2020 1:54:30 PM CST  
Attachments: Draft agenda.Acc Assess ED.4Mar202011\_with annexes.pdf

Dear Colleague,

The Coalition for Epidemic Preparedness and Innovation (CEPI) has funded several programs to develop a vaccine against COVID-19 ([https://cepi.net/news\\_cepi/cepi-to-fund-three-programmes-to-develop-vaccines-against-the-novel-coronavirus-ncov-2019/](https://cepi.net/news_cepi/cepi-to-fund-three-programmes-to-develop-vaccines-against-the-novel-coronavirus-ncov-2019/)). CEPI has partnered with the Brighton Collaboration (BC) to support the safety assessment of its vaccine candidates ([https://cepi.net/news\\_cepi/cepi-partners-with-brighton-collaboration-to-support-safety-assessment-of-vaccine-candidates-against-emerging-infectious-diseases/](https://cepi.net/news_cepi/cepi-partners-with-brighton-collaboration-to-support-safety-assessment-of-vaccine-candidates-against-emerging-infectious-diseases/))

Some prior coronavirus vaccine candidates vs. SARS and MERS have shown enhanced disease (ED) can occur in immunized animals upon subsequent exposure to live virus. To better understand and hopefully prevent this phenomenon with COVID-19 vaccine candidates, CEPI and BC are organizing an urgent internal scientific consensus meeting (Draft Agenda attached; your suggestions welcome).

To cut the challenges, cost, and risk associated with traveling, we plan to hold this meeting on March 12-13, 2020 using an internet conference platform for 5 hours duration on two successive days at the following times on both days:

23:00-04:00+1 (Melbourne)

20:00-01:00+1 (Beijing)

12:00-17:00 GMT (London)



08:00-13:00 EDT (New York)

05:00-10:00 PDT (San Francisco)

You will receive a calendar invite shortly from Imanol Lecuola of WEDO, the meeting logistician shortly. Please accept if you are interested and available to attend as a speaker, moderator, peer reviewer, or observer (you're in last two category unless listed in draft agenda as a speaker or moderator).

We anticipate the meeting outcomes to be presented and published in multiple scientific and policy forums subsequently. We look forward to your reply on your availability and your contribution towards a fruitful meeting. We'll follow up with more details as soon as we can. Please let me know if you have any questions.

Best regards,

Robert (Bob) Chen MD MA

Scientific Director, Brighton Collaboration  
Land: 1-404-248-0536 Cell: 1-678-662-0516  
email: [rtchen1135@gmail.com](mailto:rtchen1135@gmail.com)

JAKOB CRAMER

Head of Clinical Development  
CEPI

**1. Draft agenda.Acc Assess ED.4Mar202011\_with annexes.pdf**

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Size: 320 KB (327,830 bytes)

Draft 4 March 2020

## Accelerated assessment of the risk of disease enhancement with COVID-19 vaccines

A Coalition for Epidemic Preparedness Innovation (CEPI)/Brighton Collaboration (BC) scientific working meeting

### Background

- The Coalition for Epidemic Preparedness and Innovation (CEPI) has funded several programs to develop a vaccine against COVID-19 ([https://cepi.net/news\\_cepi/cepi-to-fund-three-programmes-to-develop-vaccines-against-the-novel-coronavirus-ncov-2019/](https://cepi.net/news_cepi/cepi-to-fund-three-programmes-to-develop-vaccines-against-the-novel-coronavirus-ncov-2019/)). CEPI has partnered with the Brighton Collaboration (BC) to support the safety assessment of its vaccine candidates ([https://cepi.net/news\\_cepi/cepi-partners-with-brighton-collaboration-to-support-safety-assessment-of-vaccine-candidates-against-emerging-infectious-diseases/](https://cepi.net/news_cepi/cepi-partners-with-brighton-collaboration-to-support-safety-assessment-of-vaccine-candidates-against-emerging-infectious-diseases/))
- Pre-clinical studies of various SARS vaccine candidates have indicated a risk of enhanced disease after challenge with SARS-CoV in previously immunized animals (mice, NHPs).
- The mechanism of enhancement appears to be linked either with the induction of an inappropriate immune response (Th2 dominance) associated with the accumulation of eosinophils in lung lesions, or with an enhanced lung inflammation associated with the formation of virus-antibody immune complexes and a cytokine storm.
- To better understand and hopefully prevent this phenomenon with COVID-19 vaccine candidates, CEPI and BC are organizing an urgent internal scientific consensus meeting

### Tentative agenda (GMT, London)

| Day 1:<br>March. 12, 2020           | Total<br>Minutes |     |                                                                                                                                                                                                                                                                                               |
|-------------------------------------|------------------|-----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 12:00-12:20 GMT                     | 20               | 1   | Preliminaries                                                                                                                                                                                                                                                                                 |
| 12:00-12:10                         | 10               | 1.1 | Welcome & Introductions <b>Melanie Saville</b> (CEPI) <b>Bob Chen</b> (BC)                                                                                                                                                                                                                    |
| 12:10-12:15                         | 5                | 1.2 | Scope and objectives of the meeting- <b>Jakob Cramer</b> (CEPI)                                                                                                                                                                                                                               |
| 12:15-12:20                         | 5                | 1.3 | Videoconference logistics - <b>TBD</b>                                                                                                                                                                                                                                                        |
| 12:20-14:15                         | 115              | 2   |                                                                                                                                                                                                                                                                                               |
| 12:20-12:40 Talk<br>12:40-12:45 Q&A | 20<br>5          | 2.1 | Lessons from SARS animal models - relevance for COVID-19<br>- Review of SARS animal models: young and old mice, mouse adapted virus, hamsters, NHP and ferret model<br>- Outcomes observed in vaccine studies for SARS in mice, hamster and NHP<br><br><b>Kanta Subbarao</b> (U of Melbourne) |
| 12:45-13:05 Talk<br>13:05-13:10 Q&A | 20<br>5          | 2.2 | Lessons from SARS animal models- relevance for COVID-19<br>- SARS hACE2 Tg mice model: immunologic aspects and hypothesis related to eosinophils and/or enhanced pathology<br>- Relevant findings from MERS models<br><br><b>Stanley Perlman</b> (U of Iowa)                                  |
| 13:10-13:20 Q&A                     | 10               | 2.3 | Joint Q&A with <b>Kanta Subbarao</b> and <b>Stanley Perlman</b>                                                                                                                                                                                                                               |
| 13:20-13:30 Talk<br>13:30-13:35 Q&A | 10<br>5          | 2.4 | Mouse model of COVID 19 using hACE2 transgenic mice<br><b>Qin Chuan</b> (Pekin Union Medical College)                                                                                                                                                                                         |
| 13:35-14:15                         | 40               | 2.5 | Drafting guidance on COVID-19 animal models;<br>moderator: <b>Paul-Henri Lambert</b> (Geneva Centre of Vaccinology)                                                                                                                                                                           |
| 14:15-14:20                         | 5                | 3   | Break                                                                                                                                                                                                                                                                                         |
| 14:20-16:45                         | 145              | 4   | Potential implication of IgG mediated pathology for vaccine design. Should one focus on ACE2-binding epitopes (RBD) to reduce the risk of enhanced antibody-mediated immunopathology?                                                                                                         |
| 14:20-14:40 Talk                    | 20               | 4.1 | Structure and function of CoV spike protein                                                                                                                                                                                                                                                   |

|                                     |          |     |                                                                                                                                                                                    |
|-------------------------------------|----------|-----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 14:40-14:55 Q&A                     | 15       |     | <b>Ralph Baric</b> (UNC)                                                                                                                                                           |
| 14:55-15:15 Talk<br>15:15-15:30 Q&A | 20<br>15 | 4.2 | Immunogenicity and neutralizing efficacy of truncated spike antigens<br><b>Barney Graham</b> (NIH)                                                                                 |
| 15:30-15:50 Talk<br>15:50-16:05 Q&A | 20<br>15 | 4.3 | Which immunological/inflammatory markers should we monitor during a first Phase 1 trial, including impact of adjuvants? <b>Arnaud Didierlaurent</b> (Geneva Centre of Vaccinology) |
| 16:05-16:45                         | 40       | 4.4 | Drafting guidance on COVID-19 immunological markers;<br>moderator: <b>Corry Dekker</b> (Stanford/BC)                                                                               |
| 16:45-17:00                         | 15       | 5   | Summary, Prepare for Day 2 <b>Bob Chen</b> (BC)                                                                                                                                    |
| Day 2:<br>March 13, 2020            |          |     |                                                                                                                                                                                    |
| 12:00-12:20                         | 20       | 5   | Preliminaries                                                                                                                                                                      |
| 12:00-12:10                         | 10       | 5.1 | Welcome & Introductions <b>Melanie Saville</b> (CEPI) <b>Bob Chen</b> (BC)                                                                                                         |
| 12:10-12:15                         | 5        | 5.2 | Scope and objectives of the meeting- <b>Jakob Cramer</b> (CEPI)                                                                                                                    |
| 12:15-12:20                         | 5        | 5.3 | Videoconference logistics - <b>TBD</b>                                                                                                                                             |
| 12:20-13:50                         | 90       | 6   | Review draft guidance on COVID-19 animal models                                                                                                                                    |
| 12:20-12:30                         | 10       | 6.1 | Summary draft guidance by moderator <b>Paul-Henri Lambert</b> (Geneva Centre of Vaccinology)                                                                                       |
| 12:30-13:50                         | 80       | 6.2 | Peer review with web audience guided by moderator & videoconference coordinator                                                                                                    |
| 13:50-14:00                         | 10       | 7   | Break                                                                                                                                                                              |
| 14:00-15:30                         | 90       | 8   | Review draft guidance on COVID-19 immunological markers                                                                                                                            |
| 14:00-14:10                         | 10       | 8.1 | Summary draft guidance by moderator <b>Corry Dekker</b> (Stanford/BC)                                                                                                              |
| 14:10-15:30                         | 80       | 8.2 | Peer review with web audience guided by moderator & videoconference coordinator                                                                                                    |
| 15:30-16:00                         | 30       | 9   | Next Steps: <b>Melanie Saville</b> (CEPI)                                                                                                                                          |

## **Annex 1: times for the teleconference by Time Zone**

12-13 March 2020, Teleconference (2 sessions, 5-hour each)

| <b>MEETING TIME</b> | <b>TIMEZONE</b>     |
|---------------------|---------------------|
| 08:00-13:00         | EDT (New York)      |
| 07:00-12:00         | CDT (Chicago)       |
| 05:00-10:00         | PDT (San Francisco) |
| 12:00-17:00         | GMT (London)        |
| 13:00-18:00         | CET (Brussels)      |
| 20:00-01:00+1       | CST (Beijing)       |
| 23:00-04:00+1       | AEDT (Melbourne)    |

## Annex 2: tentative agenda (EDT, New York)

|                                     |                  |     |                                                                                                                                                                                                                                                                                               |
|-------------------------------------|------------------|-----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Day 1:<br>March. 12, 2020           | Total<br>Minutes |     |                                                                                                                                                                                                                                                                                               |
| 8:00-8:20 EDT                       | 20               | 1   | Preliminaries                                                                                                                                                                                                                                                                                 |
| 8:00-8:10                           | 10               | 1.1 | Welcome & Introductions <b>Melanie Saville</b> (CEPI) <b>Bob Chen</b> (BC)                                                                                                                                                                                                                    |
| 8:10-8:15                           | 5                | 1.2 | Scope and objectives of the meeting- <b>Jakob Cramer</b> (CEPI)                                                                                                                                                                                                                               |
| 8:15-8:20                           | 5                | 1.3 | Videoconference logistics - <b>TBD</b>                                                                                                                                                                                                                                                        |
| 8:20-10:15                          | 115              | 2   | Lessons from animal models for zoonotic coronaviruses I and II                                                                                                                                                                                                                                |
| 8:20-8:40 Talk<br>8:40-8:45 Q&A     | 20<br>5          | 2.1 | Lessons from SARS animal models - relevance for COVID-19<br>- Review of SARS animal models: young and old mice, mouse adapted virus, hamsters, NHP and ferret model<br>- Outcomes observed in vaccine studies for SARS in mice, hamster and NHP<br><br><b>Kanta Subbarao</b> (U of Melbourne) |
| 8:45-9:05 Talk<br>9:05-9:10 Q&A     | 20<br>5          | 2.2 | Lessons from SARS animal models- relevance for COVID-19<br>- SARS hACE2 Tg mice model: immunologic aspects and hypothesis related to eosinophils and/or enhanced pathology<br>- Relevant findings from MERS models<br><br><b>Stanley Perlman</b> (U of Iowa)                                  |
| 9:10-9:20 Q&A                       | 10               | 2.3 | Joint Q&A with <b>Kanta Subbarao</b> and <b>Stanley Perlman</b>                                                                                                                                                                                                                               |
| 9:20-9:30 Talk<br>9:30-9:35 Q&A     | 10<br>5          | 2.4 | Mouse model of COVID 19 using hACE2 transgenic mice<br><b>Qin Chuan</b> (Pekin Union Medical College)                                                                                                                                                                                         |
| 9:35-10:15                          | 40               | 2.5 | Drafting guidance on COVID-19 animal models;<br>moderator: <b>Paul-Henri Lambert</b> (Geneva Centre of Vaccinology)                                                                                                                                                                           |
| 10:15-10:20                         | 5                | 3   | Break                                                                                                                                                                                                                                                                                         |
| 10:20-12:45                         | 145              | 4   | Potential implication of IgG mediated pathology for vaccine design. Should one focus on ACE2-binding epitopes (RBD) to reduce the risk of enhanced antibody-mediated immunopathology?                                                                                                         |
| 10:20-10:40 Talk<br>10:40-10:55 Q&A | 20<br>15         | 4.1 | Structure and function of CoV spike protein<br><b>Ralph Baric</b> (UNC)                                                                                                                                                                                                                       |
| 10:55-11:15 Talk<br>11:15-11:30 Q&A | 20<br>15         | 4.2 | Immunogenicity and neutralizing efficacy of truncated spike antigens<br><b>Barney Graham</b> (NIH)                                                                                                                                                                                            |
| 11:30-11:50 Talk<br>11:50-12:05 Q&A | 20<br>15         | 4.3 | Which immunological/inflammatory markers should we monitor during a first Phase 1 trial, including impact of adjuvants? <b>Arnaud Didierlaurent</b> (Geneva Centre of Vaccinology)                                                                                                            |
| 12:05-12:45 Talk                    | 40               | 4.4 | Drafting guidance on COVID-19 immunological markers;<br>moderator: <b>Corry Dekker?</b> (Stanford/BC)                                                                                                                                                                                         |
| 12:45-13:00                         | 15               | 5   | Summary, Prepare for Day 2 <b>Bob Chen</b> (BC)                                                                                                                                                                                                                                               |
| Day 2:<br>March 13, 2020            |                  |     |                                                                                                                                                                                                                                                                                               |
| 8:00-8:20                           | 20               | 5   | Preliminaries                                                                                                                                                                                                                                                                                 |
| 8:00-8:10                           | 10               | 5.1 | Welcome & Introductions <b>Melanie Saville</b> (CEPI) <b>Bob Chen</b> (BC)                                                                                                                                                                                                                    |
| 8:10-8:15                           | 5                | 5.2 | Scope and objectives of the meeting- <b>Jakob Cramer</b> (CEPI)                                                                                                                                                                                                                               |
| 8:15-8:20                           | 5                | 5.3 | Videoconference logistics - <b>TBD</b>                                                                                                                                                                                                                                                        |

|             |    |     |                                                                                              |
|-------------|----|-----|----------------------------------------------------------------------------------------------|
| 8:20-9:50   | 90 | 6   | Review draft guidance on COVID-19 animal models                                              |
| 8:20-8:30   | 10 | 6.1 | Summary draft guidance by moderator <b>Paul-Henri Lambert</b> (Geneva Centre of Vaccinology) |
| 8:30-9:50   | 80 | 6.2 | Peer review with web audience guided by moderator & videoconference coordinator              |
| 9:50-10:00  | 10 | 7   | Break                                                                                        |
| 10:00-11:30 | 90 | 8   | Review draft guidance on COVID-19 immunological markers                                      |
| 10:00-10:10 | 10 | 8.1 | Summary draft guidance by moderator <b>Corry Dekker?</b> (Stanford/BC)                       |
| 10:10-11:30 | 80 | 8.2 | Peer review with web audience guided by moderator & videoconference coordinator              |
| 11:30-12:00 | 30 | 9   | Next Steps: <b>Melanie Saville (CEPI)</b>                                                    |

### Annex 3: tentative agenda (CDT, Chicago)

|                                     |                  |     |                                                                                                                                                                                                                                                                                               |
|-------------------------------------|------------------|-----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Day 1:<br>March. 12, 2020           | Total<br>Minutes |     |                                                                                                                                                                                                                                                                                               |
| 7:00-7:20 CDT                       | 20               | 1   | Preliminaries                                                                                                                                                                                                                                                                                 |
| 7:00-7:10                           | 10               | 1.1 | Welcome & Introductions <b>Melanie Saville</b> (CEPI) <b>Bob Chen</b> (BC)                                                                                                                                                                                                                    |
| 7:10-7:15                           | 5                | 1.2 | Scope and objectives of the meeting- <b>Jakob Cramer</b> (CEPI)                                                                                                                                                                                                                               |
| 7:15-7:20                           | 5                | 1.3 | Videoconference logistics - <b>TBD</b>                                                                                                                                                                                                                                                        |
| 7:20-9:15                           | 115              | 2   | Lessons from animal models for zoonotic coronaviruses I and II                                                                                                                                                                                                                                |
| 7:20-7:40 Talk<br>7:40-7:45 Q&A     | 20<br>5          | 2.1 | Lessons from SARS animal models - relevance for COVID-19<br>- Review of SARS animal models: young and old mice, mouse adapted virus, hamsters, NHP and ferret model<br>- Outcomes observed in vaccine studies for SARS in mice, hamster and NHP<br><br><b>Kanta Subbarao</b> (U of Melbourne) |
| 7:45-8:05 Talk<br>8:05-8:10 Q&A     | 20<br>5          | 2.2 | Lessons from SARS animal models- relevance for COVID-19<br>- SARS hACE2 Tg mice model: immunologic aspects and hypothesis related to eosinophils and/or enhanced pathology<br>- Relevant findings from MERS models<br><br><b>Stanley Perlman</b> (U of Iowa)                                  |
| 8:10-8:20 Q&A                       | 10               | 2.3 | Joint Q&A with <b>Kanta Subbarao</b> and <b>Stanley Perlman</b>                                                                                                                                                                                                                               |
| 8:20-8:30 Talk<br>8:30-8:35 Q&A     | 10<br>5          | 2.4 | Mouse model of COVID 19 using hACE2 transgenic mice<br><b>Qin Chuan</b> (Pekin Union Medical College)                                                                                                                                                                                         |
| 8:35-9:15                           | 40               | 2.5 | Drafting guidance on COVID-19 animal models;<br>moderator: <b>Paul-Henri Lambert</b> (Geneva Centre of Vaccinology)                                                                                                                                                                           |
| 9:15-9:20                           | 5                | 3   | Break                                                                                                                                                                                                                                                                                         |
| 9:20-11:45                          | 145              | 4   | Potential implication of IgG mediated pathology for vaccine design. Should one focus on ACE2-binding epitopes (RBD) to reduce the risk of enhanced antibody-mediated immunopathology?                                                                                                         |
| 9:20-9:40 Talk<br>9:40-9:55 Q&A     | 20<br>15         | 4.1 | Structure and function of CoV spike protein<br><b>Ralph Baric</b> (UNC)                                                                                                                                                                                                                       |
| 9:55-10:15 Talk<br>10:15-10:30 Q&A  | 20<br>15         | 4.2 | Immunogenicity and neutralizing efficacy of truncated spike antigens<br><b>Barney Graham</b> (NIH)                                                                                                                                                                                            |
| 10:30-10:50 Talk<br>10:50-11:05 Q&A | 20<br>15         | 4.3 | Which immunological/inflammatory markers should we monitor during a first Phase 1 trial, including impact of adjuvants? <b>Arnaud Didierlaurent</b> (Geneva Centre of Vaccinology)                                                                                                            |
| 11:05-11:45 Talk                    | 40               | 4.4 | Drafting guidance on COVID-19 immunological markers;<br>moderator: <b>Corry Dekker?</b> (Stanford/BC)                                                                                                                                                                                         |
| 11:45-12:00                         | 15               | 5   | Summary, Prepare for Day 2 <b>Bob Chen</b> (BC)                                                                                                                                                                                                                                               |
| Day 2:<br>March 13, 2020            |                  |     |                                                                                                                                                                                                                                                                                               |
| 7:00-7:20                           | 20               | 5   | Preliminaries                                                                                                                                                                                                                                                                                 |
| 7:00-7:10                           | 10               | 5.1 | Welcome & Introductions <b>Melanie Saville</b> (CEPI) <b>Bob Chen</b> (BC)                                                                                                                                                                                                                    |
| 7:10-7:15                           | 5                | 5.2 | Scope and objectives of the meeting- <b>Jakob Cramer</b> (CEPI)                                                                                                                                                                                                                               |
| 7:15-7:20                           | 5                | 5.3 | Videoconference logistics - <b>TBD</b>                                                                                                                                                                                                                                                        |
| 7:20-8:50                           | 90               | 6   | Review draft guidance on COVID-19 animal models                                                                                                                                                                                                                                               |



|             |    |     |                                                                                              |
|-------------|----|-----|----------------------------------------------------------------------------------------------|
| 7:20-7:30   | 10 | 6.1 | Summary draft guidance by moderator <b>Paul-Henri Lambert</b> (Geneva Centre of Vaccinology) |
| 7:30-8:50   | 80 | 6.2 | Peer review with web audience guided by moderator & videoconference coordinator              |
| 8:50-9:00   | 10 | 7   | Break                                                                                        |
| 9:00-10:30  | 90 | 8   | Review draft guidance on COVID-19 immunological markers                                      |
| 9:00-9:10   | 10 | 8.1 | Summary draft guidance by moderator <b>Corry Dekker?</b> (Stanford/BC)                       |
| 9:10-10:30  | 80 | 8.2 | Peer review with web audience guided by moderator & videoconference coordinator              |
| 10:30-11:00 | 30 | 9   | Next Steps: <b>Melanie Saville (CEPI)</b>                                                    |

## Annex 4: tentative agenda (PDT, San Francisco)

|                                 |                  |     |                                                                                                                                                                                                                                                                                               |
|---------------------------------|------------------|-----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Day 1:<br>March. 12, 2020       | Total<br>Minutes |     |                                                                                                                                                                                                                                                                                               |
| 5:00-5:20 PDT                   | 20               | 1   | Preliminaries                                                                                                                                                                                                                                                                                 |
| 5:00-5:10                       | 10               | 1.1 | Welcome & Introductions <b>Melanie Saville</b> (CEPI) <b>Bob Chen</b> (BC)                                                                                                                                                                                                                    |
| 5:10-5:15                       | 5                | 1.2 | Scope and objectives of the meeting- <b>Jakob Cramer</b> (CEPI)                                                                                                                                                                                                                               |
| 5:15-5:20                       | 5                | 1.3 | Videoconference logistics - <b>TBD</b>                                                                                                                                                                                                                                                        |
| 5:20-7:15                       | 115              | 2   | Lessons from animal models for zoonotic coronaviruses I and II                                                                                                                                                                                                                                |
| 5:20-5:40 Talk<br>5:40-5:45 Q&A | 20<br>5          | 2.1 | Lessons from SARS animal models - relevance for COVID-19<br>- Review of SARS animal models: young and old mice, mouse adapted virus, hamsters, NHP and ferret model<br>- Outcomes observed in vaccine studies for SARS in mice, hamster and NHP<br><br><b>Kanta Subbarao</b> (U of Melbourne) |
| 5:45-6:05 Talk<br>6:05-6:10 Q&A | 20<br>5          | 2.2 | Lessons from SARS animal models- relevance for COVID-19<br>- SARS hACE2 Tg mice model: immunologic aspects and hypothesis related to eosinophils and/or enhanced pathology<br>- Relevant findings from MERS models<br><br><b>Stanley Perlman</b> (U of Iowa)                                  |
| 6:10-6:20 Q&A                   | 10               | 2.3 | Joint Q&A with <b>Kanta Subbarao</b> and <b>Stanley Perlman</b>                                                                                                                                                                                                                               |
| 6:20-6:30 Talk<br>6:30-6:35 Q&A | 10<br>5          | 2.4 | Mouse model of COVID 19 using hACE2 transgenic mice<br><b>Qin Chuan</b> (Pekin Union Medical College)                                                                                                                                                                                         |
| 6:35-7:15                       | 40               | 2.5 | Drafting guidance on COVID-19 animal models;<br>moderator: <b>Paul-Henri Lambert</b> (Geneva Centre of Vaccinology)                                                                                                                                                                           |
| 7:15-7:20                       | 5                | 3   | Break                                                                                                                                                                                                                                                                                         |
| 7:20-9:45                       | 145              | 4   | Potential implication of IgG mediated pathology for vaccine design. Should one focus on ACE2-binding epitopes (RBD) to reduce the risk of enhanced antibody-mediated immunopathology?                                                                                                         |
| 7:20-7:40 Talk<br>7:40-7:55 Q&A | 20<br>15         | 4.1 | Structure and function of CoV spike protein<br><b>Ralph Baric</b> (UNC)                                                                                                                                                                                                                       |
| 7:55-8:15 Talk<br>8:15-8:30 Q&A | 20<br>15         | 4.2 | Immunogenicity and neutralizing efficacy of truncated spike antigens<br><b>Barney Graham</b> (NIH)                                                                                                                                                                                            |
| 8:30-8:50 Talk<br>8:50-9:05 Q&A | 20<br>15         | 4.3 | Which immunological/inflammatory markers should we monitor during a first Phase 1 trial, including impact of adjuvants? <b>Arnaud Didierlaurent</b> (Geneva Centre of Vaccinology)                                                                                                            |
| 9:05-9:45                       | 40               | 4.4 | Drafting guidance on COVID-19 immunological markers;<br>moderator: <b>Corry Dekker?</b> (Stanford/BC)                                                                                                                                                                                         |
| 9:45-10:00                      | 15               | 5   | Summary, Prepare for Day 2 <b>Bob Chen</b> (BC)                                                                                                                                                                                                                                               |
| Day 2:<br>March 13, 2020        |                  |     |                                                                                                                                                                                                                                                                                               |
| 5:00-5:20                       | 20               | 5   | Preliminaries                                                                                                                                                                                                                                                                                 |
| 5:00-5:10                       | 10               | 5.1 | Welcome & Introductions <b>Melanie Saville</b> (CEPI) <b>Bob Chen</b> (BC)                                                                                                                                                                                                                    |
| 5:10-5:15                       | 5                | 5.2 | Scope and objectives of the meeting- <b>Jakob Cramer</b> (CEPI)                                                                                                                                                                                                                               |
| 5:15-5:20                       | 5                | 5.3 | Videoconference logistics - <b>TBD</b>                                                                                                                                                                                                                                                        |
| 5:20-6:50                       | 90               | 6   | Review draft guidance on COVID-19 animal models                                                                                                                                                                                                                                               |

|           |    |     |                                                                                              |
|-----------|----|-----|----------------------------------------------------------------------------------------------|
| 5:20-5:30 | 10 | 6.1 | Summary draft guidance by moderator <b>Paul-Henri Lambert</b> (Geneva Centre of Vaccinology) |
| 5:30-6:50 | 80 | 6.2 | Peer review with web audience guided by moderator & videoconference coordinator              |
| 6:50-7:00 | 10 | 7   | Break                                                                                        |
| 7:00-8:30 | 90 | 8   | Review draft guidance on COVID-19 immunological markers                                      |
| 7:00-7:10 | 10 | 8.1 | Summary draft guidance by moderator <b>Corry Dekker?</b> (Stanford/BC)                       |
| 7:10-8:30 | 80 | 8.2 | Peer review with web audience guided by moderator & videoconference coordinator              |
| 8:30-9:00 | 30 | 9   | Next Steps: <b>Melanie Saville (CEPI)</b>                                                    |

## Annex 5: tentative agenda (CST, Beijing)

|                                          |                  |     |                                                                                                                                                                                                                                                                                               |
|------------------------------------------|------------------|-----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Day 1:<br>March. 12, 2020                | Total<br>Minutes |     |                                                                                                                                                                                                                                                                                               |
| 20:00-20:20 CST                          | 20               | 1   | Preliminaries                                                                                                                                                                                                                                                                                 |
| 20:00-20:10                              | 10               | 1.1 | Welcome & Introductions <b>Melanie Saville</b> (CEPI) <b>Bob Chen</b> (BC)                                                                                                                                                                                                                    |
| 20:10-20:15                              | 5                | 1.2 | Scope and objectives of the meeting- <b>Jakob Cramer</b> (CEPI)                                                                                                                                                                                                                               |
| 20:15-20:20                              | 5                | 1.3 | Videoconference logistics - <b>TBD</b>                                                                                                                                                                                                                                                        |
| 20:20-22:15                              | 115              | 2   | Lessons from animal models for zoonotic coronaviruses I and II                                                                                                                                                                                                                                |
| 20:20-20:40 Talk<br>20:40-20:45 Q&A      | 20<br>5          | 2.1 | Lessons from SARS animal models - relevance for COVID-19<br>- Review of SARS animal models: young and old mice, mouse adapted virus, hamsters, NHP and ferret model<br>- Outcomes observed in vaccine studies for SARS in mice, hamster and NHP<br><br><b>Kanta Subbarao</b> (U of Melbourne) |
| 20:45-21:05 Talk<br>21:05-21:10 Q&A      | 20<br>5          | 2.2 | Lessons from SARS animal models- relevance for COVID-19<br>- SARS hACE2 Tg mice model: immunologic aspects and hypothesis related to eosinophils and/or enhanced pathology<br>- Relevant findings from MERS models<br><br><b>Stanley Perlman</b> (U of Iowa)                                  |
| 21:10-21:20 Q&A                          | 10               | 2.3 | Joint Q&A with <b>Kanta Subbarao</b> and <b>Stanley Perlman</b>                                                                                                                                                                                                                               |
| 21:20-21:30 Talk<br>21:30-21:35 Q&A      | 10<br>5          | 2.4 | Mouse model of COVID 19 using hACE2 transgenic mice<br><b>Qin Chuan</b> (Pekin Union Medical College)                                                                                                                                                                                         |
| 21:35-22:15                              | 40               | 2.5 | Drafting guidance on COVID-19 animal models;<br>moderator: <b>Paul-Henri Lambert</b> (Geneva Centre of Vaccinology)                                                                                                                                                                           |
| 22:15-22:20                              | 5                | 3   | Break                                                                                                                                                                                                                                                                                         |
| 22:20-00:45                              | 145              | 4   | Potential implication of IgG mediated pathology for vaccine design. Should one focus on ACE2-binding epitopes (RBD) to reduce the risk of enhanced antibody-mediated immunopathology?                                                                                                         |
| 22:20-22:40 Talk<br>22:40-22:55 Q&A      | 20<br>15         | 4.1 | Structure and function of CoV spike protein<br><b>Ralph Baric</b> (UNC)                                                                                                                                                                                                                       |
| 22:55-23:15 Talk<br>23:15-23:30 Q&A      | 20<br>15         | 4.2 | Immunogenicity and neutralizing efficacy of truncated spike antigens<br><b>Barney Graham</b> (NIH)                                                                                                                                                                                            |
| 23:30-23:50 Talk<br>23:50-00:05+1<br>Q&A | 20<br>15         | 4.3 | Which immunological/inflammatory markers should we monitor during a first Phase 1 trial, including impact of adjuvants? <b>Arnaud Didierlaurent</b> (Geneva Centre of Vaccinology)                                                                                                            |
| 00:05-00:45                              | 40               | 4.4 | Drafting guidance on COVID-19 immunological markers;<br>moderator: <b>Corry Dekker?</b> (Stanford/BC)                                                                                                                                                                                         |
| 00:45-1:00                               | 15               | 5   | Summary, Prepare for Day 2 <b>Bob Chen</b> (BC)                                                                                                                                                                                                                                               |
| Day 2:<br>March 13, 2020                 |                  |     |                                                                                                                                                                                                                                                                                               |
| 20:00-20:20                              | 20               | 5   | Preliminaries                                                                                                                                                                                                                                                                                 |
| 20:00-20:10                              | 10               | 5.1 | Welcome & Introductions <b>Melanie Saville</b> (CEPI) <b>Bob Chen</b> (BC)                                                                                                                                                                                                                    |
| 20:10-20:15                              | 5                | 5.2 | Scope and objectives of the meeting- <b>Jakob Cramer</b> (CEPI)                                                                                                                                                                                                                               |
| 20:15-20:20                              | 5                | 5.3 | Videoconference logistics - <b>TBD</b>                                                                                                                                                                                                                                                        |
| 20:20-21:50                              | 90               | 6   | Review draft guidance on COVID-19 animal models                                                                                                                                                                                                                                               |

|               |    |     |                                                                                              |
|---------------|----|-----|----------------------------------------------------------------------------------------------|
| 20:20-20:30   | 10 | 6.1 | Summary draft guidance by moderator <b>Paul-Henri Lambert</b> (Geneva Centre of Vaccinology) |
| 20:30-21:50   | 80 | 6.2 | Peer review with web audience guided by moderator & videoconference coordinator              |
| 21:50-22:00   | 10 | 7   | Break                                                                                        |
| 22:00-23:30   | 90 | 8   | Review draft guidance on COVID-19 immunological markers                                      |
| 22:00-22:10   | 10 | 8.1 | Summary draft guidance by moderator <b>Corry Dekker?</b> (Stanford/BC)                       |
| 22:10-23:30   | 80 | 8.2 | Peer review with web audience guided by moderator & videoconference coordinator              |
| 23:30-00:00+1 | 30 | 9   | Next Steps: <b>Melanie Saville (CEPI)</b>                                                    |

## Annex 6: tentative agenda (AEDT, Melbourne)

|                                       |                  |     |                                                                                                                                                                                                                                                                                               |
|---------------------------------------|------------------|-----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Day 1:<br>March. 12, 2020             | Total<br>Minutes |     |                                                                                                                                                                                                                                                                                               |
| 23:00-23:20 AEDT                      | 20               | 1   | Preliminaries                                                                                                                                                                                                                                                                                 |
| 23:00-23:10                           | 10               | 1.1 | Welcome & Introductions <b>Melanie Saville</b> (CEPI) <b>Bob Chen</b> (BC)                                                                                                                                                                                                                    |
| 23:10-23:15                           | 5                | 1.2 | Scope and objectives of the meeting- <b>Jakob Cramer</b> (CEPI)                                                                                                                                                                                                                               |
| 23:15-23:20                           | 5                | 1.3 | Videoconference logistics - <b>TBD</b>                                                                                                                                                                                                                                                        |
| 23:20-01:15+1                         | 115              | 2   | Lessons from animal models for zoonotic coronaviruses I and II                                                                                                                                                                                                                                |
| 23:20-23:40 Talk<br>23:40-23:45 Q&A   | 20<br>5          | 2.1 | Lessons from SARS animal models - relevance for COVID-19<br>- Review of SARS animal models: young and old mice, mouse adapted virus, hamsters, NHP and ferret model<br>- Outcomes observed in vaccine studies for SARS in mice, hamster and NHP<br><br><b>Kanta Subbarao</b> (U of Melbourne) |
| 23:45-00:05+1 Talk<br>00:05-00:10 Q&A | 20<br>5          | 2.2 | Lessons from SARS animal models- relevance for COVID-19<br>- SARS hACE2 Tg mice model: immunologic aspects and hypothesis related to eosinophils and/or enhanced pathology<br>- Relevant findings from MERS models<br><br><b>Stanley Perlman</b> (U of Iowa)                                  |
| 00:10-00:20 Q&A                       | 10               | 2.3 | Joint Q&A with <b>Kanta Subbarao</b> and <b>Stanley Perlman</b>                                                                                                                                                                                                                               |
| 00:20-00:30 Talk<br>00:30-00:35 Q&A   | 10<br>5          | 2.4 | Mouse model of COVID 19 using hACE2 transgenic mice<br><b>Qin Chuan</b> (Pekin Union Medical College)                                                                                                                                                                                         |
| 00:35-1:15                            | 40               | 2.5 | Drafting guidance on COVID-19 animal models;<br>moderator: <b>Paul-Henri Lambert</b> (Geneva Centre of Vaccinology)                                                                                                                                                                           |
| 1:15-1:20                             | 5                | 3   | Break                                                                                                                                                                                                                                                                                         |
| 1:20-3:45                             | 145              | 4   | Potential implication of IgG mediated pathology for vaccine design. Should one focus on ACE2-binding epitopes (RBD) to reduce the risk of enhanced antibody-mediated immunopathology?                                                                                                         |
| 1:20-1:40 Talk<br>1:40-1:55 Q&A       | 20<br>15         | 4.1 | Structure and function of CoV spike protein<br><b>Ralph Baric</b> (UNC)                                                                                                                                                                                                                       |
| 1:55-2:15 Talk<br>2:15-2:30 Q&A       | 20<br>15         | 4.2 | Immunogenicity and neutralizing efficacy of truncated spike antigens<br><b>Barney Graham</b> (NIH)                                                                                                                                                                                            |
| 2:30-2:50 Talk<br>2:50-3:05 Q&A       | 20<br>15         | 4.3 | Which immunological/inflammatory markers should we monitor during a first Phase 1 trial, including impact of adjuvants? <b>Arnaud Didierlaurent</b> (Geneva Centre of Vaccinology)                                                                                                            |
| 3:05-3:45                             | 40               | 4.4 | Drafting guidance on COVID-19 immunological markers;<br>moderator: <b>Corry Dekker?</b> (Stanford/BC)                                                                                                                                                                                         |
| 3:45-4:00                             | 15               | 5   | Summary, Prepare for Day 2 <b>Bob Chen</b> (BC)                                                                                                                                                                                                                                               |
| Day 2:<br>March 13, 2020              |                  |     |                                                                                                                                                                                                                                                                                               |
| 23:00-23:20                           | 20               | 5   | Preliminaries                                                                                                                                                                                                                                                                                 |
| 23:00-23:10                           | 10               | 5.1 | Welcome & Introductions <b>Melanie Saville</b> (CEPI) <b>Bob Chen</b> (BC)                                                                                                                                                                                                                    |
| 23:10-23:15                           | 5                | 5.2 | Scope and objectives of the meeting- <b>Jakob Cramer</b> (CEPI)                                                                                                                                                                                                                               |
| 23:15-23:20                           | 5                | 5.3 | Videoconference logistics - <b>TBD</b>                                                                                                                                                                                                                                                        |
| 23:20-00:50+1                         | 90               | 6   | Review draft guidance on COVID-19 animal models                                                                                                                                                                                                                                               |

|               |    |     |                                                                                              |
|---------------|----|-----|----------------------------------------------------------------------------------------------|
| 23:20-23:30   | 10 | 6.1 | Summary draft guidance by moderator <b>Paul-Henri Lambert</b> (Geneva Centre of Vaccinology) |
| 23:30-00:50+1 | 80 | 6.2 | Peer review with web audience guided by moderator & videoconference coordinator              |
| 00:50-01:00   | 10 | 7   | Break                                                                                        |
| 01:00-02:30   | 90 | 8   | Review draft guidance on COVID-19 immunological markers                                      |
| 01:00-01:10   | 10 | 8.1 | Summary draft guidance by moderator <b>Corry Dekker?</b> (Stanford/BC)                       |
| 01:10-02:30   | 80 | 8.2 | Peer review with web audience guided by moderator & videoconference coordinator              |
| 02:30-03:00   | 30 | 9   | Next Steps: <b>Melanie Saville (CEPI)</b>                                                    |

## Annex 7: tentative agenda (CET, Brussels)

|                                     |                  |     |                                                                                                                                                                                                                                                                                               |
|-------------------------------------|------------------|-----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Day 1:<br>March. 12, 2020           | Total<br>Minutes |     |                                                                                                                                                                                                                                                                                               |
| 13:00-13:20 CET                     | 20               | 1   | Preliminaries                                                                                                                                                                                                                                                                                 |
| 13:00-13:10                         | 10               | 1.1 | Welcome & Introductions <b>Melanie Saville</b> (CEPI) <b>Bob Chen</b> (BC)                                                                                                                                                                                                                    |
| 13:10-13:15                         | 5                | 1.2 | Scope and objectives of the meeting- <b>Jakob Cramer</b> (CEPI)                                                                                                                                                                                                                               |
| 13:15-13:20                         | 5                | 1.3 | Videoconference logistics - <b>TBD</b>                                                                                                                                                                                                                                                        |
| 13:20-15:15                         | 115              | 2   | Lessons from animal models for zoonotic coronaviruses I and II                                                                                                                                                                                                                                |
| 13:20-13:40 Talk<br>13:40-13:45 Q&A | 20<br>5          | 2.1 | Lessons from SARS animal models - relevance for COVID-19<br>- Review of SARS animal models: young and old mice, mouse adapted virus, hamsters, NHP and ferret model<br>- Outcomes observed in vaccine studies for SARS in mice, hamster and NHP<br><br><b>Kanta Subbarao</b> (U of Melbourne) |
| 13:45-14:05 Talk<br>14:05-14:10 Q&A | 20<br>5          | 2.2 | Lessons from SARS animal models- relevance for COVID-19<br>- SARS hACE2 Tg mice model: immunologic aspects and hypothesis related to eosinophils and/or enhanced pathology<br>- Relevant findings from MERS models<br><br><b>Stanley Perlman</b> (U of Iowa)                                  |
| 14:10-14:20 Q&A                     | 10               | 2.3 | Joint Q&A with <b>Kanta Subbarao</b> and <b>Stanley Perlman</b>                                                                                                                                                                                                                               |
| 14:20-14:30 Talk<br>14:30-14:35 Q&A | 10<br>5          | 2.4 | Mouse model of COVID 19 using hACE2 transgenic mice<br><b>Qin Chuan</b> (Pekin Union Medical College)                                                                                                                                                                                         |
| 14:35-15:15                         | 40               | 2.5 | Drafting guidance on COVID-19 animal models;<br>moderator: <b>Paul-Henri Lambert</b> (Geneva Centre of Vaccinology)                                                                                                                                                                           |
| 15:15-15:20                         | 5                | 3   | Break                                                                                                                                                                                                                                                                                         |
| 15:20-17:45                         | 145              | 4   | Potential implication of IgG mediated pathology for vaccine design. Should one focus on ACE2-binding epitopes (RBD) to reduce the risk of enhanced antibody-mediated immunopathology?                                                                                                         |
| 15:20-15:40 Talk<br>15:40-15:55 Q&A | 20<br>15         | 4.1 | Structure and function of CoV spike protein<br><b>Ralph Baric</b> (UNC)                                                                                                                                                                                                                       |
| 15:55-16:15 Talk<br>16:15-16:30 Q&A | 20<br>15         | 4.2 | Immunogenicity and neutralizing efficacy of truncated spike antigens<br><b>Barney Graham</b> (NIH)                                                                                                                                                                                            |
| 16:30-16:50 Talk<br>16:50-17:05 Q&A | 20<br>15         | 4.3 | Which immunological/inflammatory markers should we monitor during a first Phase 1 trial, including impact of adjuvants? <b>Arnaud Didierlaurent</b> (Geneva Centre of Vaccinology)                                                                                                            |
| 17:05-17:45                         | 40               | 4.4 | Drafting guidance on COVID-19 immunological markers;<br>moderator: <b>Corry Dekker</b> (Stanford/BC)                                                                                                                                                                                          |
| 17:45-18:00                         | 15               | 5   | Summary, Prepare for Day 2 <b>Bob Chen</b> (BC)                                                                                                                                                                                                                                               |
| Day 2:<br>March 13, 2020            |                  |     |                                                                                                                                                                                                                                                                                               |
| 13:00-13:20                         | 20               | 5   | Preliminaries                                                                                                                                                                                                                                                                                 |
| 13:00-13:10                         | 10               | 5.1 | Welcome & Introductions <b>Melanie Saville</b> (CEPI) <b>Bob Chen</b> (BC)                                                                                                                                                                                                                    |
| 13:10-13:15                         | 5                | 5.2 | Scope and objectives of the meeting- <b>Jakob Cramer</b> (CEPI)                                                                                                                                                                                                                               |
| 13:15-13:20                         | 5                | 5.3 | Videoconference logistics - <b>TBD</b>                                                                                                                                                                                                                                                        |
| 13:20-14:50                         | 90               | 6   | Review draft guidance on COVID-19 animal models                                                                                                                                                                                                                                               |



|             |    |     |                                                                                              |
|-------------|----|-----|----------------------------------------------------------------------------------------------|
| 13:20-13:30 | 10 | 6.1 | Summary draft guidance by moderator <b>Paul-Henri Lambert</b> (Geneva Centre of Vaccinology) |
| 13:30-14:50 | 80 | 6.2 | Peer review with web audience guided by moderator & videoconference coordinator              |
| 14:50-15:00 | 10 | 7   | Break                                                                                        |
| 15:00-16:30 | 90 | 8   | Review draft guidance on COVID-19 immunological markers                                      |
| 15:00-15:10 | 10 | 8.1 | Summary draft guidance by moderator <b>Corry Dekker</b> (Stanford/BC)                        |
| 15:10-16:30 | 80 | 8.2 | Peer review with web audience guided by moderator & videoconference coordinator              |
| 16:30-17:00 | 30 | 9   | Next Steps: <b>Melanie Saville (CEPI)</b>                                                    |

## Re: URGENT: Save The Date: CEPI-BC meeting on preventing disease enhancement with COVID-19 vaccines

---

From: HENAO RESTREPO, Ana Maria <henaorestrepoa@who.int>  
To: Robert Chen <rtchen1135@gmail.com>, philip.krause@fda.hhs.gov, Simon Funnell <simon.funnell@phe.gov.uk>, William Dowling <william.dowling@cepi.net>, Cesar Munoz-Fontela <munoz-fontela@bnitm.de>, GSELL, Pierre <gsellp@who.int>  
Cc: qinchuan <qinchuan@pumc.edu.cn>, kanta.subbarao <kanta.subbarao@influenzacentre.org>, Perlman, Stanley <stanley-perlman@uiowa.edu>, rbaric <rbaric@email.unc.edu>, bgraham <bgraham@mail.nih.gov>, Arnaud .Didierlaurent <Arnaud.Didierlaurent@unige.ch>, Paul.Lambert <Paul.Lambert@unige.ch>, Steve Black <stevblack@gmail.com>, Corry Dekker <cdekker@stanford.edu>, Gaof@im.ac.cn, Andrew Pollard <andrew.pollard@paediatrics.ox.ac.uk>, StanleyPlotkin@vaxconsult.com, Marco.Cavaleri@ema.europa.eu, Gruber, Marion <marion.gruber@fda.hhs.gov>, COOKE, Emer <cookee@who.int>, Pieter.Neels@vaccine-advice.be, Miles.Carroll <Miles.Carroll@phe.gov.uk>, Simon Funnell <simon.funnell@phe.gov.uk>, Arnaud.Marchant@ulb.ac.be, geert.lerouxroels@ugent.be, lifang@umn.edu, jerry.weir@fda.hhs.gov, albert.osterhaus@tiho-hannover.de, rcouch@bcm.edu, gary.kobinger@phac-aspc.gc.ca, sktseng <sktseng@UTMB.EDU>, rodewaldl@chinacdc.cn, Flor Munoz <florm@bcm.edu>, brian.ward@mcgill.ca, eva.vanbraeckel@ugent.be, Svein Rune Andersen <svein.rune.andersen@cepi.net>, Jakob Cramer <jakob.cramer@cepi.net>, SPEAC Executive Board <eb@speac-cepi.net>, Imanol Urcola Lecuona <imanol@wedo-projects.com>  
Sent: March 5, 2020 2:20:22 AM CST  
Received: March 5, 2020 2:24:01 AM CST

Dear Bob,

Many thanks for the kind invitation.

Given the urgency and the public health imperatives it is important not to duplicate efforts? We would like to refer to the outcomes of the recent GLocal Research Forum for COVID -19, the discussions in our vaccine expert groups among others.

Also the same pool of experts is invited numerous times.

Any chance that this meetings and efforts focus on aspects not being yet included by other forums ?

Perhaps a mapping of questions and complementarities is pertinent?

I am copying Phil Krause who is the Chair our Vaccine expert group and the colleagues who are coordinating the animal model and enhanced disease expert group deliberations.

Thanks for consider including them in these deliberations.

Kind regards,

Ana Maria

Sent from my iPhone

On 4 Mar 2020, at 20:55, Robert Chen <rtchen1135@gmail.com> wrote:

Dear Colleague,

The Coalition for Epidemic Preparedness and Innovation (CEPI) has funded several programs to develop a vaccine against COVID-19 ([https://cepi.net/news\\_cepi/cepi-to-fund-three-programmes-to-develop-vaccines-against-the-novel-coronavirus-ncov-2019/](https://cepi.net/news_cepi/cepi-to-fund-three-programmes-to-develop-vaccines-against-the-novel-coronavirus-ncov-2019/)). CEPI has partnered with the Brighton Collaboration (BC) to support the safety assessment of its vaccine candidates ([https://cepi.net/news\\_cepi/cepi-partners-with-brighton-collaboration-to-support-safety-assessment-of-vaccine-candidates-against-emerging-infectious-diseases/](https://cepi.net/news_cepi/cepi-partners-with-brighton-collaboration-to-support-safety-assessment-of-vaccine-candidates-against-emerging-infectious-diseases/))

Some prior coronavirus vaccine candidates vs. SARS and MERS have shown enhanced disease (ED) can occur in immunized animals upon subsequent exposure to live virus. To better understand and hopefully prevent this phenomenon with COVID-19 vaccine candidates, CEPI and BC are organizing an urgent internal scientific consensus meeting (Draft Agenda attached; your suggestions welcome).

To cut the challenges, cost, and risk associated with traveling, we plan to hold this meeting on March 12-13, 2020 using an internet conference platform for 5 hours duration on two successive days at the following times on both days:

23:00-04:00+1 (Melbourne)

20:00-01:00+1 (Beijing)

12:00-17:00 GMT (London)

08:00-13:00 EDT (New York)

05:00-10:00 PDT (San Francisco)

You will receive a calendar invite shortly from Imanol Lecuola of WEDO, the meeting logistician shortly. Please accept if you are interested and available to attend as a speaker, moderator, peer reviewer, or observer (you're in last two category unless listed in draft agenda as a speaker or moderator).

We anticipate the meeting outcomes to be presented and published in multiple scientific and policy forums subsequently. We look forward to your reply on your availability and your contribution towards a fruitful meeting. We'll follow up with more details as soon as we can. Please let me know if you have any questions.

Best regards,

Robert (Bob) Chen MD MA

Scientific Director, Brighton Collaboration  
Land: 1-404-248-0536 Cell: 1-678-662-0516  
email: [rtchen1135@gmail.com](mailto:rtchen1135@gmail.com)

JAKOB CRAMER

Head of Clinical Development  
CEPI

<Draft agenda.Acc Assess ED.4Mar202011\_with annexes.pdf>

## RE : URGENT: Save The Date: CEPI-BC meeting on preventing disease enhancement with COVID-19 vaccines

---

From: Paul Henri Lambert <Paul.Lambert@unige.ch>  
To: HENAO RESTREPO, Ana Maria <henaorestrepoa@who.int>, Robert Chen <rtchen1135@gmail.com>, philip.krause@fda.hhs.gov, Simon Funnell <simon.funnell@phe.gov.uk>, William Dowling <william.dowling@cepi.net>, Cesar Munoz-Fontela <munoz-fontela@bnitm.de>, GSELL, Pierre <gsellp@who.int>  
Cc: qinchuan <qinchuan@pumc.edu.cn>, kanta.subbarao <kanta.subbarao@influenzacentre.org>, Perlman, Stanley <stanley-perlman@uiowa.edu>, rbaric <rbaric@email.unc.edu>, bgraham <bgraham@mail.nih.gov>, Arnaud Didierlaurent <Arnaud.Didierlaurent@unige.ch>, Steve Black <stevblack@gmail.com>, Corry Dekker <cdekker@stanford.edu>, Gaof@im.ac.cn, Andrew Pollard <andrew.pollard@paediatrics.ox.ac.uk>, StanleyPlotkin@vaxconsult.com, Marco.Cavaleri@ema.europa.eu, Gruber, Marion <marion.gruber@fda.hhs.gov>, COOKE, Emer <cookee@who.int>, Pieter.Neels@vaccine-advice.be, Miles.Carroll <Miles.Carroll@phe.gov.uk>, Simon Funnell <simon.funnell@phe.gov.uk>, Arnaud.Marchant@ulb.ac.be, geert.lerouxroels@ugent.be, lifang@umn.edu, jerry.weir@fda.hhs.gov, albert.osterhaus@tiho-hannover.de, rcouch@bcm.edu, gary.kobinger@phac-aspc.gc.ca, sktseng <sktseng@UTMB.EDU>, rodewaldl@chinacdc.cn, Flor Munoz <florm@bcm.edu>, brian.ward@mcgill.ca, eva.vanbraeckel@ugent.be, Svein Rune Andersen <svein.rune.andersen@cepi.net>, Jakob Cramer <jakob.cramer@cepi.net>, SPEAC Executive Board <eb@speac-cepi.net>, Imanol Urcola Lecuona <imanol@wedo-projects.com>  
Sent: March 5, 2020 2:32:19 AM CST  
Received: March 5, 2020 2:32:27 AM CST

Dear Ana Maria

These are very good points.

I think that the CEPI meeting as planned will be fully complementary to the global research forum.

Best regards

Paul-Henri

Provenance : [Courrier](#) pour Windows 10

---

De : [HENAO RESTREPO, Ana Maria](#)

Envoyé le : jeudi, 5 mars 2020 09:24

À : [Robert Chen](#); [philip.krause@fda.hhs.gov](mailto:philip.krause@fda.hhs.gov); [Simon Funnell](#); [William Dowling](#); [Cesar Munoz-Fontela](#); [GSELL, Pierre](#)

Cc : [qinchuan](#); [kanta.subbarao](#); [Perlman, Stanley](#); [rbaric](#); [bgraham](#); [Arnaud Didierlaurent](#); [Paul Henri Lambert](#); [Steve Black](#); [Corry Dekker](#); [Gaof@im.ac.cn](#); [Andrew Pollard](#); [StanleyPlotkin@vaxconsult.com](#); [Marco.Cavaleri@ema.europa.eu](#); [Gruber, Marion](#); [COOKE, Emer](#); [Pieter.Neels@vaccine-advice.be](#); [Miles.Carroll](#); [Simon Funnell](#); [Arnaud.Marchant@ulb.ac.be](#); [geert.lerouxroels@ugent.be](#); [lifang@umn.edu](#); [jerry.weir@fda.hhs.gov](#); [albert.osterhaus@tiho-hannover.de](#); [rcouch@bcm.edu](#); [gary.kobinger@phac-aspc.gc.ca](#); [sktseng](#); [rodewaldl@chinacdc.cn](#); [Flor Munoz](#); [brian.ward@mcgill.ca](#); [eva.vanbraeckel@ugent.be](#); [Svein Rune Andersen](#); [Jakob Cramer](#); [SPEAC Executive Board](#); [Imanol Urcola Lecuona](#)

Objet :Re: URGENT: Save The Date: CEPI-BC meeting on preventing disease enhancement with COVID-19 vaccines

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Perhaps a mapping of questions and complementarities is pertinent?  
I am copying Phil Krause who is the Chair of our Vaccine expert group and the colleagues who are coordinating the animal model and enhanced disease expert group deliberations.  
Thanks for consider including them in these deliberations.  
Kind regards,  
Ana Maria

Sent from my iPhone

On 4 Mar 2020, at 20:55, Robert Chen <rtchen1135@gmail.com> wrote:

Dear Colleague,

The Coalition for Epidemic Preparedness and Innovation (CEPI) has funded several programs to develop a vaccine against COVID-19 ([https://cepi.net/news\\_cepi/cepi-to-fund-three-programmes-to-develop-vaccines-against-the-novel-coronavirus-ncov-2019/](https://cepi.net/news_cepi/cepi-to-fund-three-programmes-to-develop-vaccines-against-the-novel-coronavirus-ncov-2019/)). CEPI has partnered with the Brighton Collaboration (BC) to support the safety assessment of its vaccine candidates ([https://cepi.net/news\\_cepi/cepi-partners-with-brighton-collaboration-to-support-safety-assessment-of-vaccine-candidates-against-emerging-infectious-diseases/](https://cepi.net/news_cepi/cepi-partners-with-brighton-collaboration-to-support-safety-assessment-of-vaccine-candidates-against-emerging-infectious-diseases/))

Some prior coronavirus vaccine candidates vs. SARS and MERS have shown enhanced disease (ED) can occur in immunized animals upon subsequent exposure to live virus. To better understand and hopefully prevent this phenomenon with COVID-19 vaccine candidates, CEPI and BC are organizing an urgent internal scientific consensus meeting (Draft Agenda attached; your suggestions welcome).

To cut the challenges, cost, and risk associated with traveling, we plan to hold this meeting on March 12-13, 2020 using an internet conference platform for 5 hours duration on two successive days at the following times on both days:

23:00-04:00+1 (Melbourne)

20:00-01:00+1 (Beijing)

12:00-17:00 GMT (London)

08:00-13:00 EDT (New York)

05:00-10:00 PDT (San Francisco)

You will receive a calendar invite shortly from Imanol Lecuola of WEDO, the meeting logistician shortly. Please accept if you are interested and available to attend as a speaker, moderator, peer reviewer, or observer (you're in last two category unless listed in draft agenda as a speaker or moderator).

We anticipate the meeting outcomes to be presented and published in multiple scientific and policy forums subsequently. We look forward to your reply on your availability and your contribution towards a fruitful meeting. We'll follow up with more details as soon as we can. Please let me know if you have any questions.

Best regards,

Robert (Bob) Chen MD MA  
Scientific Director, Brighton Collaboration  
Land: 1-404-248-0536 Cell: 1-678-662-0516  
email: [rtchen1135@gmail.com](mailto:rtchen1135@gmail.com)

JAKOB CRAMER

Head of Clinical Development  
CEPI

<Draft agenda.Acc Assess ED.4Mar202011 \_with annexes.pdf>

## Supplement grant application (R01AI139092) on 2019 novel coronavirus

---

From: Du, Lanying <LDu@nybc.org>  
To: Stemmy, Erik (NIH/NIAID) [E] <erik.stemmy@nih.gov>  
Cc: Perlman, Stanley <stanley-perlman@uiowa.edu>, Fang Li <lifang@umn.edu>  
Sent: March 6, 2020 2:06:32 PM CST  
Received: March 6, 2020 2:06:36 PM CST  
Attachments: NOT-AI-20-030 Supplement (R01AI139092)\_cover letter.pdf

Dear Dr. Stemmy,

Collaborating with Stanley and Fang, I have just submitted an urgent supplement grant application (to our current R01AI139092) for the rapid development of a novel structure-based subunit vaccine against 2019-nCoV (SARS-CoV-2). This application is in response to NOT-AI-20-030 on the novel coronavirus (2019-nCoV).

The application has been submitted successfully, but the online system did not allow us to upload a cover letter during the submission process. I attached the cover letter for your reference.

Please feel free to contact me if you need any further information.

Thanks,  
Lanying



**From:** Stemmy, Erik (NIH/NIAID) [E] <erik.stemmy@nih.gov>  
**Sent:** Thursday, February 6, 2020 10:04 AM  
**To:** Stemmy, Erik (NIH/NIAID) [E] <erik.stemmy@nih.gov>  
**Subject:** NIAID NOSI for Competitive Revisions

Dear Colleagues,

Many of you have been in touch regarding the possibility of supplementing your existing NIAID awards for work focusing in the novel coronavirus. NIAID has just published a Notice of Special Interest (NOSI) requesting supplement requests ([NOT-AI-20-030](#)). Importantly, this NOSI allows changes in scope of an active award. Supplement requests that do not require a change in scope should be submitted via the standing administrative supplement PA ([PA-18-935](#)).

I encourage you to submit any nCoV supplement requests and to share this information with others.

Best,  
Erik

<https://grants.nih.gov/grants/guide/pa-files/pa-18-935.html>  
<https://grants.nih.gov/grants/guide/notice-files/NOT-AI-20-030.html>

Erik J. Stemmy, Ph.D.  
Program Officer  
Respiratory Diseases Branch  
Division of Microbiology and Infectious Diseases NIAID/NIH/HHS  
5601 Fishers Lane, Room 8E18  
Bethesda, MD 20892-9825  
Phone: (240)-627-3380  
Email: [erik.stemmy@nih.gov](mailto:erik.stemmy@nih.gov)



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**1. NOT-AI-20-030 Supplement (R01AI139092)\_cover letter.pdf**

Type: application/pdf  
Size: 75 KB (77,707 bytes)

March 5<sup>th</sup>, 2020

National Institute of Allergy and Infectious Diseases (NIAID)  
National Institutes of Health (NIH)

Application for R01 Urgent Supplement Grant (to current R01 grant: R01AI139092)

Dear Dr. Stemmy,

This R01 Urgent Supplement Grant Application, entitled “**Structure-based design of RBD-based vaccines against 2019 novel coronavirus**”, aims to rapidly design and develop a safe and effective structure-based subunit vaccine against the novel coronavirus, 2019-nCoV (SARS-CoV-2). It is in response to the NIH funding notice “Notice of Special Interest (NOSI) regarding the Availability of Urgent Competitive Revisions for Research on the 2019 Novel Coronavirus (2019-nCoV)” (Notice Number: NOT-AI-20-030) (<https://grants.nih.gov/grants/guide/notice-files/NOT-AI-20-030.html>). This is a supplement application to the current R01 grant (R01AI139092) entitled “Structure-based design of coronavirus subunit vaccines” to develop structure-based subunit vaccines against SARS and MERS.

I had been busy with the grant reviews and served on the Study Section during the past weeks. So, we have just had time to complete this supplement grant application.

The participating Investigators and their institutions are indicated as follows. This is a strong research team with complementary expertise in the coronavirus studies, and the investigators are well-qualified for the proposed project.

**1) Lanying Du, Ph.D. (Contact PI)**

Member & Head  
Viral Immunology Lab  
Lindsley F. Kimball Research Institute  
New York Blood Center  
Phone: 212-570-3459  
Email: [LDu@nybc.org](mailto:LDu@nybc.org)

**2) Fang Li, Ph.D. (Co-Investigator)**

Associate Professor  
Department of Veterinary and Biomedical Sciences  
University of Minnesota Twin Cities  
Saint Paul, Minnesota, USA  
Phone: 612-625-6149  
Email: [lifang@umn.edu](mailto:lifang@umn.edu)

**3) Stanley Perlman, M.D. & Ph.D. (Co-investigator)**

Professor  
Departments of Microbiology and Immunology, and Pediatrics  
University of Iowa  
Iowa City, IA 52242, USA  
Phone: 319-335-8549  
E-mail: [stanley-perlman@uiowa.edu](mailto:stanley-perlman@uiowa.edu)

Thank you very much for your consideration!

## **Re: Supplement grant application (R01AI139092) on 2019 novel coronavirus**

---

From: Du, Lanying <LDu@nybc.org>  
To: Stemmy, Erik (NIH/NIAID) [E] <erik.stemmy@nih.gov>  
Cc: Perlman, Stanley <stanley-perlman@uiowa.edu>, Fang Li <lifang@umn.edu>, Han, Jeffrey <KHan@nybc.org>  
Sent: March 7, 2020 8:35:13 PM CST  
Received: March 7, 2020 8:35:19 PM CST

Thanks Dr. Stemmy for letting us know.

OK. Our Grant Director Jeff will resubmit this supplement application on Monday.

Best regards,

Lanying

**From:** Stemmy, Erik (NIH/NIAID) [E] <erik.stemmy@nih.gov>

**Sent:** Saturday, March 7, 2020 9:21 AM

**To:** Du, Lanying <LDu@nybc.org>

**Cc:** Perlman, Stanley <stanley-perlman@uiowa.edu>; Fang Li <lifang@umn.edu>

**Subject:** Re: Supplement grant application (R01AI139092) on 2019 novel coronavirus

Hi Lanying,

Thanks for letting me know. I saw your request come through our system. It looks like the work you are proposing is actually within the scope of your parent award, so the request can't go through the NOSI as that is specific for requests that would be a change in scope. I will have to reject the current submission and have you resubmit it through the standard administrative supplement mechanism (see link below). Let me know if you have any questions.

Thanks!

Erik

<https://grants.nih.gov/grants/guide/pa-files/PA-18-591.html>

Sent from my iPhone

On Mar 6, 2020, at 3:06 PM, Du, Lanying <[LDu@nybc.org](mailto:LDu@nybc.org)> wrote:

Dear Dr. Stemmy,

Collaborating with Stanley and Fang, I have just submitted an urgent supplement grant application (to our current R01AI139092) for the rapid development of a novel structure-based subunit vaccine against 2019-nCoV (SARS-CoV-2). This application is in response to NOT-AI-20-030 on the novel coronavirus (2019-nCoV).

The application has been submitted successfully, but the online system did not allow us to upload a cover letter during the submission process. I attached the cover letter for your reference.

Please feel free to contact me if you need any further information.

Thanks,

Lanying

□

**From:** Stemmy, Erik (NIH/NIAID) [E] <[erik.stemmy@nih.gov](mailto:erik.stemmy@nih.gov)>

**Sent:** Thursday, February 6, 2020 10:04 AM

**To:** Stemmy, Erik (NIH/NIAID) [E] <[erik.stemmy@nih.gov](mailto:erik.stemmy@nih.gov)>

**Subject:** NIAID NOSI for Competitive Revisions

Dear Colleagues,

Many of you have been in touch regarding the possibility of supplementing your existing NIAID awards for work focusing in the novel coronavirus. NIAID has just published a Notice of Special Interest (NOSI)

requesting supplement requests ([NOT-AI-20-030](#)). Importantly, this NOSI allows changes in scope of an active award. Supplement requests that do not require a change in scope should be submitted via the standing administrative supplement PA ([PA-18-935](#)).

I encourage you to submit any nCoV supplement requests and to share this information with others.

Best,  
Erik

<https://grants.nih.gov/grants/guide/pa-files/pa-18-935.html>  
<https://grants.nih.gov/grants/guide/notice-files/NOT-AI-20-030.html>

Erik J. Stemmy, Ph.D.  
Program Officer  
Respiratory Diseases Branch  
Division of Microbiology and Infectious Diseases NIAID/NIH/HHS  
5601 Fishers Lane, Room 8E18  
Bethesda, MD 20892-9825  
Phone: (240)-627-3380  
Email: [erik.stemmy@nih.gov](mailto:erik.stemmy@nih.gov)



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## RE: 2019-nCoV R01 application

---

From: Baric, Ralph S <rbaric@email.unc.edu>  
To: Fang Li <lifang@umn.edu>  
Sent: March 8, 2020 2:42:47 PM CDT  
Received: March 8, 2020 2:42:50 PM CDT

We need to submit before the 20<sup>th</sup>, but for safety we should submit by the 16-17<sup>th</sup>. Ralph

**From:** Fang Li <lifang@umn.edu>  
**Sent:** Sunday, March 8, 2020 12:23 PM  
**To:** Baric, Ralph S <rbaric@email.unc.edu>  
**Subject:** Re: 2019-nCoV R01 application

Hi Ralph,

Thanks for your email. I will work on it. When is the submission deadline?

Best,  
Fang

On Sat, Mar 7, 2020 at 9:31 PM Baric, Ralph S <[rbaric@email.unc.edu](mailto:rbaric@email.unc.edu)> wrote:

Hi Fang, my modifications including all of Aim 3 attached. Hope your doing well. We need to finish this up in about 7-8 days. Ralph

**From:** Fang Li <[lifang@umn.edu](mailto:lifang@umn.edu)>  
**Sent:** Tuesday, February 11, 2020 1:22 PM  
**To:** Baric, Ralph S <[rbaric@email.unc.edu](mailto:rbaric@email.unc.edu)>  
**Subject:** 2019-nCoV R01 application

Hi Ralph,

I have drafted some parts of the proposal. Please see attached.

I am currently working on the research portions for Aims 1 and 2.

Feel free to make changes.

When is the submission deadline?

Best,  
Fang

--

\*\*\*\*\*

Fang Li, Ph.D.  
Associate Professor  
Department of Veterinary and Biomedical Sciences  
University of Minnesota Twin Cities  
612-625-6149, [lifang@umn.edu](mailto:lifang@umn.edu)  
<http://www.msi.umn.edu/~lifang>  
\*\*\*\*\*

## RE: 2019-nCoV R01 application

---

From: Baric, Ralph S <rbaric@email.unc.edu>  
To: Fang Li <lifang@umn.edu>  
Sent: March 9, 2020 1:41:37 PM CDT  
Received: March 9, 2020 1:41:39 PM CDT

Hi Fang, could you propose a few [REDACTED] to test for improved use of [REDACTED] and for [REDACTED] in Aim 3? Thanks, ralph

**From:** Fang Li <lifang@umn.edu>  
**Sent:** Sunday, March 8, 2020 12:23 PM  
**To:** Baric, Ralph S <rbaric@email.unc.edu>  
**Subject:** Re: 2019-nCoV R01 application

Hi Ralph,

Thanks for your email. I will work on it. When is the submission deadline?

Best,  
Fang

On Sat, Mar 7, 2020 at 9:31 PM Baric, Ralph S <[rbaric@email.unc.edu](mailto:rbaric@email.unc.edu)> wrote:

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**From:** Fang Li <[lifang@umn.edu](mailto:lifang@umn.edu)>  
**Sent:** Tuesday, February 11, 2020 1:22 PM  
**To:** Baric, Ralph S <[rbaric@email.unc.edu](mailto:rbaric@email.unc.edu)>  
**Subject:** 2019-nCoV R01 application

Hi Ralph,

I have drafted some parts of the proposal. Please see attached.

I am currently working on the research portions for Aims 1 and 2.

Feel free to make changes.

When is the submission deadline?

Best,  
Fang

--

\*\*\*\*\*

Fang Li, Ph.D.  
Associate Professor  
Department of Veterinary and Biomedical Sciences  
University of Minnesota Twin Cities  
612-625-6149, [lifang@umn.edu](mailto:lifang@umn.edu)  
<http://www.msi.umn.edu/~lifang>

\*\*\*\*\*

## **RE: Supplement grant application (R01AI139092) on 2019 novel coronavirus**

---

From: Du, Lanying <LDu@nybc.org>  
To: Stemmy, Erik (NIH/NIAID) [E] <erik.stemmy@nih.gov>  
Cc: Han, Jeffrey <KHan@nybc.org>, Perlman, Stanley <stanley-perlman@uiowa.edu>, Fang Li <lifang@umn.edu>  
Sent: March 10, 2020 9:45:39 AM CDT  
Received: March 10, 2020 9:45:43 AM CDT

Thanks Dr. Stemmy.

Look forward to the good news soon.

Best regards,  
Lanying

---

**From:** Stemmy, Erik (NIH/NIAID) [E] <erik.stemmy@nih.gov>  
**Sent:** Monday, March 9, 2020 5:00 PM  
**To:** Du, Lanying <LDu@nybc.org>  
**Cc:** Han, Jeffrey <KHan@nybc.org>; Perlman, Stanley <stanley-perlman@uiowa.edu>; Fang Li <lifang@umn.edu>  
**Subject:** RE: Supplement grant application (R01AI139092) on 2019 novel coronavirus

Thank you Lanying, that's great.

Erik

---

**From:** Du, Lanying <LDu@nybc.org>  
**Sent:** Monday, March 9, 2020 4:55 PM  
**To:** Stemmy, Erik (NIH/NIAID) [E] <erik.stemmy@nih.gov>  
**Cc:** Han, Jeffrey <KHan@nybc.org>; Perlman, Stanley <stanley-perlman@uiowa.edu>; Fang Li <lifang@umn.edu>  
**Subject:** RE: Supplement grant application (R01AI139092) on 2019 novel coronavirus

Dear Dr. Stemmy,

We have just resubmitted this supplement application through the standard administrative supplement mechanism (PA-18-591) as mentioned below. Please feel free to contact us if you need any further information.

Thanks,  
Lanying

---

**From:** Du, Lanying <LDu@nybc.org>  
**Sent:** Saturday, March 7, 2020 9:35 PM  
**To:** Stemmy, Erik (NIH/NIAID) [E] <erik.stemmy@nih.gov>  
**Cc:** Perlman, Stanley <stanley-perlman@uiowa.edu>; Fang Li <lifang@umn.edu>; Han, Jeffrey <KHan@nybc.org>  
**Subject:** Re: Supplement grant application (R01AI139092) on 2019 novel coronavirus

Thanks Dr. Stemmy for letting us know.

OK. Our Grant Director Jeff will resubmit this supplement application on Monday.

Best regards,  
Lanying

---



**From:** Stemmy, Erik (NIH/NIAID) [E] <[erik.stemmy@nih.gov](mailto:erik.stemmy@nih.gov)>  
**Sent:** Saturday, March 7, 2020 9:21 AM  
**To:** Du, Lanying <[LDu@nybc.org](mailto:LDu@nybc.org)>  
**Cc:** Perlman, Stanley <[stanley-perlman@uiowa.edu](mailto:stanley-perlman@uiowa.edu)>; Fang Li <[lifang@umn.edu](mailto:lifang@umn.edu)>  
**Subject:** Re: Supplement grant application (R01AI139092) on 2019 novel coronavirus

Hi Lanying,

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Thanks!  
Erik

<https://grants.nih.gov/grants/guide/pa-files/PA-18-591.html>

Sent from my iPhone

On Mar 6, 2020, at 3:06 PM, Du, Lanying <[LDu@nybc.org](mailto:LDu@nybc.org)> wrote:

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The application has been submitted successfully, but the online system did not allow us to upload a cover letter during the submission process. I attached the cover letter for your reference.

Please feel free to contact me if you need any further information.

Thanks,  
Lanying

---

**From:** Stemmy, Erik (NIH/NIAID) [E] <[erik.stemmy@nih.gov](mailto:erik.stemmy@nih.gov)>  
**Sent:** Thursday, February 6, 2020 10:04 AM  
**To:** Stemmy, Erik (NIH/NIAID) [E] <[erik.stemmy@nih.gov](mailto:erik.stemmy@nih.gov)>  
**Subject:** NIAID NOSI for Competitive Revisions

Dear Colleagues,

Many of you have been in touch regarding the possibility of supplementing your existing NIAID awards for work focusing in the novel coronavirus. NIAID has just published a Notice of Special Interest (NOSI) requesting supplement requests ([NOT-AI-20-030](#)). Importantly, this NOSI allows changes in scope of an active award. Supplement requests that do not require a change in scope should be submitted via the standing administrative supplement PA ([PA-18-935](#)).

I encourage you to submit any nCoV supplement requests and to share this information with others.

Best,

Erik

<https://grants.nih.gov/grants/guide/pa-files/pa-18-935.html>

<https://grants.nih.gov/grants/guide/notice-files/NOT-AI-20-030.html>

Erik J. Stemmy, Ph.D.

Program Officer

Respiratory Diseases Branch

Division of Microbiology and Infectious Diseases NIAID/NIH/HHS

5601 Fishers Lane, Room 8E18

Bethesda, MD 20892-9825

Phone: (240)-627-3380

Email: [erik.stemmy@nih.gov](mailto:erik.stemmy@nih.gov)



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**Re: NIH Automated Email: Progress Report for Grant 5 R01 AI139092-03, Due by 03/15/2020**

---

From: Fang Li <lifang@umn.edu>  
To: Du, Lanying <LDu@nybc.org>  
Sent: March 10, 2020 11:18:56 AM CDT  
Attachments: FangLi\_CV\_research\_supports-March2020.pdf, Personnel doc for NY Year 2.pdf

I thought my department already sent these to you. Anyway, here they are again. Thanks.

On Tue, Mar 10, 2020 at 11:04 AM Du, Lanying <[LDu@nybc.org](mailto:LDu@nybc.org)> wrote:

Dear all,

I am working on year 2 progress report, which is due by 03/15/20. I assume we will have no greater than 25% of the total budget. Let me know ASAP if you think you might have.

I will need Stanley's other support file.

Looks like I have not received files from Fang. Please send me all related files, including personnel and other support, ASAP.

Best regards,

Lanying

---

**G.10 Estimated Unobligated Balance**

G.10.a Is it anticipated that an estimated unobligated balance (including prior year carryover) will be greater than 25% of the current year's total approved budget? Yes No

---

**From:** [era-notify@mail.nih.gov](mailto:era-notify@mail.nih.gov) <[era-notify@mail.nih.gov](mailto:era-notify@mail.nih.gov)>

**Sent:** Saturday, February 15, 2020 6:04 AM

**To:** Du, Lanying <[LDu@nybc.org](mailto:LDu@nybc.org)>

**Subject:** NIH Automated Email: Progress Report for Grant 5 R01 AI139092-03, Due by 03/15/2020

\*\*\* This is an automated notification - Please do not reply to this message. \*\*\*

The progress report for NIH Grant Number is due by 03/15/2020.

The next budget period start date for the above-referenced award is 05/01/ 2020. The due date for Progress Reports for grants excluded from the Streamlined Non-Competing Award Process (SNAP) authorities grants is the 1st of the month preceding the month in which the current budget period ends (e.g., if the budget period ends 11/30, the due date is 10/1). If the 1st falls on a weekend or Federal holiday, the due date is automatically extended to the next business day. If you are unsure whether the award is excluded from SNAP authorities, check the Notice of Award (NoA) under Section III Terms and Conditions.

**NOTE: NIH POLICY REQUIRES ELECTRONIC SUBMISSION OF ALL ANNUAL PROGRESS REPORTS USING THE RPPR MODULE IN eRA COMMONS** (see [NOT-OD-15-014](https://not-od-15-014)). RPPR instructions and resoures can be found at <http://grants.nih.gov/grants/rppr/index.htm>.

Questions regarding the eRA Commons should be addressed to:

eRA Commons Help Desk

**Web:** <http://era.nih.gov/help/> (Preferred method of contact)

**Toll-free:** 1-866-504-9552

**Phone:**301-402-7469

**Hours:** Mon-Fri, 7 a.m. to 8 p.m. Eastern Time

Please submit the progress report by the due date noted above. If you have already submitted the progress report, disregard this notice.

Thank you.



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\*\*\*\*\*

Fang Li, Ph.D.  
Associate Professor  
Department of Veterinary and Biomedical Sciences  
University of Minnesota Twin Cities  
612-625-6149, [lifang@umn.edu](mailto:lifang@umn.edu)  
<http://www.msi.umn.edu/~lifang>

\*\*\*\*\*

**1. FangLi\_CV\_research\_supports-March2020.pdf**

Type: application/pdf  
Size: 68 KB (70,067 bytes)

**2. Personnel doc for NY Year 2.pdf**

Type: application/pdf  
Size: 631 KB (647,006 bytes)

## RESEARCH SUPPORT

### Active

National Institutes of Health (allergy and infectious diseases) 06/7/2016 – 05/31/2021  
R01AI089728 (competitively renewed in 2016)

#### **Receptor recognition and cell entry of coronaviruses**

Role: Principal Investigator

Goal: This research investigates the molecular and structural mechanisms for the receptor recognition and cell entry of coronaviruses. It explores novel principles governing viral evolution, receptor recognition, cell entry, host ranges, cross-species infections, and tissue tropisms. These studies are critical for evaluating the emerging disease potentials of coronaviruses and for preventing, controlling and treating the spread of coronaviruses in humans or other animals.

National Institutes of Health (allergy and infectious diseases) 04/1/2015 – 03/31/2020  
R01AI110700

#### **Mechanisms of MERS-CoV entry, cross-species transmission and pathogenesis**

Role: Principal Investigator (The other PI: Ralph Baric, University of North Carolina)

Goal: This research investigates genetic pathways regulating MERS coronavirus cross species transmission and receptor homolog usage, establishes robust animal models of human disease, and discovers critical reagents for therapeutic and vaccine testing.

National Institutes of Health (allergy and infectious diseases) 05/21/2018 – 04/30/2023  
R01AI139092

#### **Structure-based design of coronavirus subunit vaccines**

Role: Co-Investigator (PI: Lanying Du, New York Blood Center)

Goal: This research establishes that artificially exposed unfavorable epitopes on viral subunit vaccines pose a severe intrinsic limitation to viral subunit vaccine designs. It further develops novel structure-based approaches to overcome this limitation in vaccine design. It produces highly effective subunit vaccines to combat the infections of highly pathogenic coronaviruses such as MERS and SARS coronaviruses, and also has implications for subunit vaccine design against other life-threatening viruses.

National Institutes of Health (cancer) 1/01/2020 – 12/31/2024  
R01CA245922

#### **Cyclic peptide protease inhibitors for the treatment of prostate cancer**

Role: Co-Investigator (PI: Aaron LeBeau, University of Minnesota)

Goal: This research is to develop clinically relevant therapeutics by targeting a cell surface protease overexpressed in aggressive variant prostate carcinoma. This approach has significant clinical potential to result in an effective treatment modality for a form of prostate cancer that is currently incurable.

March, 2020

University of Minnesota

10/01/2019-9/30/2022

Academic Investment Research Program

**Bioengineering conformation-stabilized HIV-1 Env immunogens**

Role: Co-Investigator (PI: Alon Herschhorn, University of Minnesota)

Goal: This research builds a new collaborative platform for the development of a conformation-defined HIV Envelope protein vaccine.



Program Director/Principal Investigator (Last, First, Middle):

**ALL PERSONNEL REPORT**

GRANT NUMBER

Place this form at the end of the signed original copy of the application. Do not duplicate.

Always list the PD/PI(s). In addition, list all other personnel who participated in the project during the current budget period for at least one person month or more, regardless of the source of compensation (a person month equals approximately 160 hours or 8.3% of annualized effort). Use the following abbreviated categories for describing Role on Project:

- PD/PI
- Co-Investigator
- Faculty
- Postdoctoral (scholar, fellow, or other postdoctoral position)
- Technician
- Staff Scientist (doctoral level)
- Statistician
- Graduate Student (research assistant)
- Non-student Research Assistant
- Undergraduate Student
- High School Student
- Consultant
- Other (please specify)

If personnel are supported by a Reentry or Diversity Supplement please indicate such after the Role on Project, using the following abbreviations: RS - Reentry Supplement; DS - Diversity Supplement.

Use Cal (calendar), Acad, or Summer to enter months devoted to project.

| Commons ID | Name | Degree(s) | SSN (last 4 digits) | Role on Project | DoB (MM /YY) | Cal | Acad | Summer |
|------------|------|-----------|---------------------|-----------------|--------------|-----|------|--------|
|            |      |           |                     |                 |              |     |      |        |

## Re: 2019-nCoV R01 application

---

From: Fang Li <lifang@umn.edu>  
To: Baric, Ralph S <rbaric@email.unc.edu>  
Sent: March 11, 2020 12:41:06 AM CDT  
Attachments: sars2-mutations-for-mACE2.tif

Hi Ralph,

Please see attached a figure describing [REDACTED]. If you have any questions, please let me know.

Best,  
Fang

On Mon, Mar 9, 2020 at 1:41 PM Baric, Ralph S <[rbaric@email.unc.edu](mailto:rbaric@email.unc.edu)> wrote:

Hi Fang, could you propose a few [REDACTED] to test for improved use of [REDACTED] [REDACTED] in Aim 3? Thanks, ralph

**From:** Fang Li <[lifang@umn.edu](mailto:lifang@umn.edu)>  
**Sent:** Sunday, March 8, 2020 12:23 PM  
**To:** Baric, Ralph S <[rbaric@email.unc.edu](mailto:rbaric@email.unc.edu)>  
**Subject:** Re: 2019-nCoV R01 application

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Best,  
Fang

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Hi Ralph,

I have drafted some parts of the proposal. Please see attached.

I am currently working on the research portions for Aims 1 and 2.

Feel free to make changes.

When is the submission deadline?

Best,

Fang

--

\*\*\*\*\*  
 Fang Li, Ph.D.  
 Associate Professor  
 Department of Veterinary and Biomedical Sciences  
 University of Minnesota Twin Cities  
 612-625-6149, [lifang@umn.edu](mailto:lifang@umn.edu)  
<http://www.msi.umn.edu/~lifang>  
 \*\*\*\*\*

--

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 Fang Li, Ph.D.  
 Associate Professor  
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 University of Minnesota Twin Cities  
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 \*\*\*\*\*

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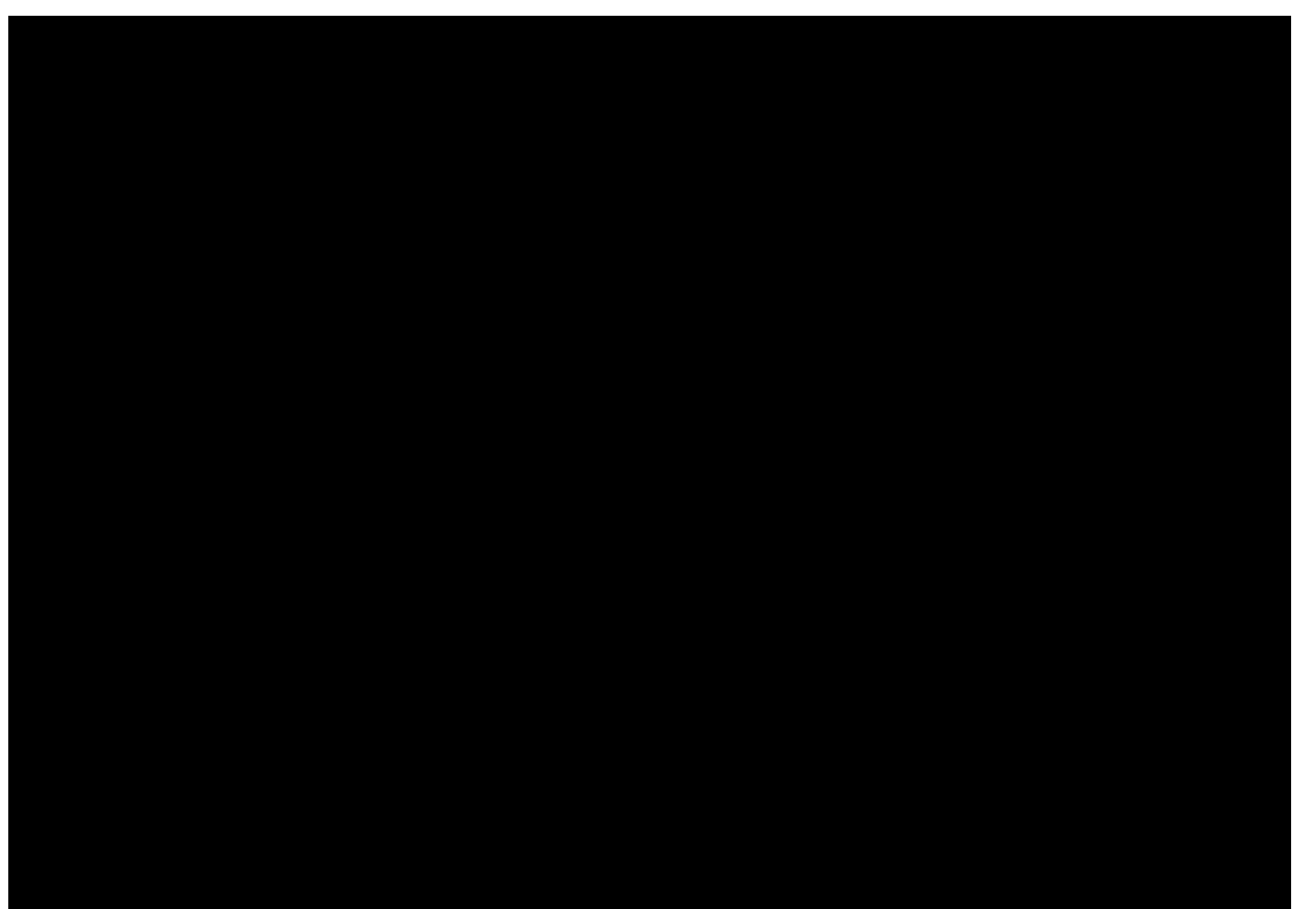
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\*\*\*\*\*

1. [REDACTED]

Type: image/tiff  
Size: 6 MB (7,268,974 bytes)



## **Fwd: 5R01AI139092-02 Supplement Requested through PA-18-591**

---

From: Du, Lanying <LDu@nybc.org>  
To: Stanley Perlman <stanley-perlman@uiowa.edu>, Fang Li <lifang@umn.edu>  
Sent: March 12, 2020 8:12:03 AM CDT  
Received: March 12, 2020 8:12:06 AM CDT

Sent from my iPhone

Begin forwarded message:

**From:** "era-notify@mail.nih.gov" <era-notify@mail.nih.gov>  
**Date:** March 12, 2020 at 12:02:56 AM EDT  
**To:** "Du, Lanying" <LDu@nybc.org>  
**Cc:** ResearchAdmin <ResearchAdmin@nybc.org>  
**Subject:** 5R01AI139092-02 Supplement Requested through PA-18-591  
**Reply-To:** eraNotifications@mail.nih.gov

\*\*\* This is an automated notification - Please do not reply to this message.\*\*\*

A request for an administrative supplement has been submitted to NIH through the eSubmission and may now be viewed in the eRA Commons on the Status Information screen for 5R01AI139092-02. You can also view the submitted administrative supplement through the Administrative Supplements Status page.

NIH will now review the administrative supplement request and either accept it for consideration or reject it. If accepted for consideration NIH will automatically forward the request to the appropriate grants management and program staff for further review and processing. If the request is not accepted for consideration you will receive a notification along with the reason it was not accepted.

If you have any questions about the administrative supplement request process at NIH, please contact the Grants Management Officer or the Grants Management Specialist identified in the Notice of Award (NoA).

For any further questions about this email, please contact the eRA Help Desk at our preferred method of contact <https://public.era.nih.gov/commonshelp> or call 1-866-504-9552 (tty: 301-451-5939) or [commons@od.nih.gov](mailto:commons@od.nih.gov). Please access the Commons at <http://public.era.nih.gov/commons/>

For more information please visit <http://era.nih.gov/>



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## [IMPORTANT] CEPI-BC COVID-19 Consensus Meeting - 12 March session feedback

---

From: Ángel Honrado <angel@wedo-projects.com>  
To: melanie.saville@cepi.net, Jakob Cramer (CEPI) <jakob.cramer@cepi.net>, Svein Rune Andersen <svein.rune.andersen@cepi.net>, paul.oloo@cepi.net, william.dowling@cepi.net, amol.chaudhari@cepi.net, debra.yeskey@cepi.net, Sarah.Gould@crl.com, carolyn.clark@cepi.net, amy.c.shurtleff@cepi.net, richard.hatchett@cepi.net, mike.whelan@cepi.net, nick.jackson@cepi.net, kwasi.amfo@cepi.net, in-kyu.yoon@cepi.net, shanni.dhooper@cepi.net, johan.holst@cepi.net, robert.chen@cepi.net, Steve Black <stevblack@gmail.com>, Cornelia L. Dekker <cdekker@stanford.edu>, Jim Mootrey (TFGH) <jmootrey-consultant@taskforce.org>, Ángel Honrado <angel@wedo-projects.com>, Barbara Law <barblaw2015@gmail.com>, Miriam Sturkenboom (STUR) <mcjm.sturkenboom@gmail.com>, Marc Gurwith <mjgurwith@gmail.com>, Wan-Ting Huang (TCDC) <pecuchet@gmail.com>, Imanol Urcola Lecuona <imanol@wedo-projects.com>, Chung, Lisa <lisa.chung@emory.edu>, Chantal Veira (TFGH) <cveira@taskforce.org>, mmckinlay@taskforce.org, Robert Chen <robert.chen@cepi.net>, kanta.subbarao@influenzacentre.org, qinchuan@pumc.edu.cn, stanley-perlman@uiowa.edu, rbaric@email.unc.edu, bgraham@mail.nih.gov, Gaof@im.ac.cn, Marco.Cavaleri@ema.europa.eu, Marion.Gruber@fda.hhs.gov, cookee@who.int, rodewald@chinacdc.cn, gerd.sutter@lmu.de, sarah.gilbert@ndm.ox.ac.uk, paul.roberts@nih.gov, vincent.munster@nih.gov, neeltje.vandoremalen@nih.gov, Robin.Levis@fda.hhs.gov, elwyn.griffiths2011@btinternet.com, Kaatje.Smits@fagg-afmps.be, darwyn.kobasa@canada.ca, Mireille.plamondon@canada.ca, ANZJ@chinacdc.cn, YUWZ@chinacdc.cn, LIKL@chinacdc.cn, yinzd@chinacdc.cn, Fernando.p.polack@vanderbilt.edu, spergel@email.chop.edu, Flor Muñoz-Rivas (BCM) <florm@bcm.edu>, brian.ward@mcgill.ca, stephane.pillet@mail.mcgill.ca, eva.vanbraeckel@ugent.be, francesco.berlanda-scorza@gatesfoundation.org, Jacqueline.Kirchner@gatesfoundation.org, Karen.Makar@gatesfoundation.org, lidia.oostvogels@curevac.com, Rhonda.Kuolee@nrc-cnrc.gc.ca, k.chappell@uq.edu.au, hilary.marston@nih.gov, Kate.Broderick <Kate.Broderick@inovio.com>, lhumeau@inovio.com, stefan.mueller@curevac.com, gianluca.quintini@curevac.com, olaf-oliver.wolz@curevac.com, benjamin.petsch@curevac.com, susanne.rauch@curevac.com, katell.bidethuang@curevac.com, christina.neske@curevac.com, ebru.cabadowns@curevac.com, brosen@novavax.com, gsmith@novavax.com, ckeech@novavax.com, gglen@novavax.com, npatel@novavax.com, lifang@umn.edu, jerry.weir@fda.hhs.gov  
Cc: SPEAC PMO <pmo@speac-cepi.net>  
Sent: March 12, 2020 5:33:50 PM CDT  
Received: March 12, 2020 5:33:55 PM CDT

Dear all,

Thank you very much for attending the first session of the **Consensus meeting on preventing disease enhancement with COVID-19 vaccines**. We appreciate your participation and hope you have found it enriching and useful.

As attendee, we would like to share with you a link to a questionnaire on **considerations on possible approaches to assess the risk of disease enhancement with COVID-19 vaccines**. Please **click on the link** and share your comments and answers about the topics discussed today.

All the feedback received will be triaged tomorrow before the meeting and will be used for conducting the discussions and peer review sessions.

<https://app.smartsheet.com/b/form/00a09890a15a4c139c5e4d245ee7a086>

Please, put your comments in the document before **10am GMT tomorrow (Friday, March 13)** so both moderators and rapporteurs can do the triage before the beginning of tomorrow's session.

Thank you for your collaboration, we look forward to seeing you tomorrow.

Best regards

Ángel Honrado

WeDo | Project Intelligence Made Easy

*Visiting Address: Utopicus Plaça Catalunya  
Ronda Sant Pere 16, 08010, Barcelona (Catalonia, Spain)*



E/ [angel@wedo-projects.com](mailto:angel@wedo-projects.com)

T/ [+34 657 039 949](tel:+34657039949)

W/ [www.wedo-projects.com](http://www.wedo-projects.com)

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We inform you that your data will be treated for administrative, accounting and fiscal management, as well as to send commercial communications about our products and/or services. Data provided will be stored for the length of our commercial relationship or for as long as required to fulfil legal obligations. Data will not be disclosed to third parties unless it exists a legal obligation.

We also inform that you can exercise on your personal data your rights of: access, rectification, deletion, limitation, opposition, portability and withdrawal of consent by sending an email to [hola@wedo-projects.com](mailto:hola@wedo-projects.com) You can also contact the competent Authorities to obtain additional information or to address any claim.

If you do not wish to receive our information please contact us by sending an email to [hola@wedo-projects.com](mailto:hola@wedo-projects.com)

Data owner:

**WeDo** | Project Intelligence Made Easy SL

C/ Rosselló 248, P 5 PTA2, 08008, Barcelona, Spain



Please consider the environment before printing this e-mail

## RE: 2019-nCoV R01 application

---

From: Baric, Ralph S <rbaric@email.unc.edu>  
To: Fang Li <lifang@umn.edu>  
Sent: March 16, 2020 5:22:45 AM CDT  
Received: March 16, 2020 5:22:48 AM CDT

Thanks, congrats on the structure!

**From:** Fang Li <lifang@umn.edu>  
**Sent:** Monday, March 16, 2020 2:58 AM  
**To:** Baric, Ralph S <rbaric@email.unc.edu>  
**Subject:** Re: 2019-nCoV R01 application

Hi Ralph,

Please see attached the proposal. Please feel free to modify.

If you have questions, I would be happy to chat on the phone.

Thanks,  
Fang

On Sun, Mar 15, 2020 at 3:15 PM Fang Li <lifang@umn.edu> wrote:

Hi Ralph,

I will send it to you tomorrow morning.

Thanks,  
Fang

On Sun, Mar 15, 2020 at 2:51 PM Baric, Ralph S <rbaric@email.unc.edu> wrote:

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**Sent:** Wednesday, March 11, 2020 1:41 AM  
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When is the submission deadline?

Best,  
Fang

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Fang Li, Ph.D.  
Associate Professor

Department of Veterinary and Biomedical Sciences  
University of Minnesota Twin Cities  
612-625-6149, [lifang@umn.edu](mailto:lifang@umn.edu)  
<http://www.msi.umn.edu/~lifang>

\*\*\*\*\*

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612-625-6149, [lifang@umn.edu](mailto:lifang@umn.edu)  
<http://www.msi.umn.edu/~lifang>

\*\*\*\*\*

## Virtual Speaking Engagement: COVID-19 Summit, Washington, DC

---

From: Edna Santos <events@covid-19-summit.net>  
To: LDu@nybc.org, lifang@umn.edu  
Sent: March 16, 2020 11:46:20 AM CDT  
Received: March 16, 2020 11:46:23 AM CDT

Dear Dr. Du,

It is my pleasure to invite you to speak via satellite at the upcoming Coronavirus Preparedness Summit planned for this June 17<sup>th</sup> to 19<sup>th</sup>.

We can (dependent on availability) facilitate your participation either at a local studio, convenient to you, or a camera crew can visit you at your office or home.

Our virtual attendees are from the United States and also attendees from more than 45 countries.

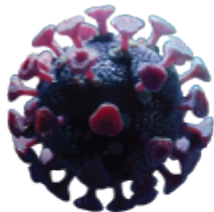
Topics include, but not limited to:

- CoVID-19 Management at Points of Entry
- Mass Fatality Management Planning
- Preparing Communities Strategies; Local Partnership and Participation
- Benefit-Risk Assessment: Public Health, Industry and Regulatory Perspectives
- Prevention Education Efforts and Risk Communication
- Emergency Management Services
- Command, Control and Management
- Delivery of Vaccine and Antiviral Medication
- Business-Based Planning
- Community-Based Planning
- Community Spread
- Nosocomial Transmission
- Social Distancing
- Hospital and Emergency Medical Services
- School/University Pandemic Planning
- Infectious Medical Waste
- Symptomless Spreaders
- Contact Tracing

I greatly appreciate your consideration of this request.

Best Regards,

**Edna Santos**  
(703) 651-2092  
[events@covid-19-summit.net](mailto:events@covid-19-summit.net)  
Events Coordinator



**CORONAVIRUS**  
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**SUMMIT & WORKSHOP**

WASHINGTON, DC    JUNE 17-19, 2020  
Syllabusx

11250 Roger Bacon Drive #10, Reston, VA 20190

## RE: 2019-nCoV R01 application

---

From: Baric, Ralph S <rbaric@email.unc.edu>  
To: Fang Li <lifang@umn.edu>  
Sent: March 17, 2020 10:35:32 AM CDT  
Received: March 17, 2020 10:35:34 AM CDT

Hi Fang, can you send along your endnote files? Nice job on the grant. Thanks, ralph

**From:** Fang Li <lifang@umn.edu>  
**Sent:** Monday, March 16, 2020 2:58 AM  
**To:** Baric, Ralph S <rbaric@email.unc.edu>  
**Subject:** Re: 2019-nCoV R01 application

Hi Ralph,

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Fang

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Thanks very helpful. We will make it. How is the body of the grant coming? Hope your doing well. Thanks, ralph

## Re: 2019-nCoV R01 application-need authentication of reagents blerb

---

From: Fang Li <lifang@umn.edu>  
To: Baric, Ralph S <rbaric@email.unc.edu>  
Sent: March 17, 2020 11:20:27 PM CDT

OK, I am working on it. Will send it to you shortly.

On Tue, Mar 17, 2020 at 10:45 PM Baric, Ralph S <[rbaric@email.unc.edu](mailto:rbaric@email.unc.edu)> wrote:

Hi Fang, do you have a [REDACTED] and can you include sentences regarding how the structures will be deposited in public databases? This goes out tomorrow, so if you can get it to me quick that would be great. I'll send along a copy when its in. hope you are well and stay safe, this bug is nasty. Thanks, ralph

**From:** Fang Li <[lifang@umn.edu](mailto:lifang@umn.edu)>  
**Sent:** Tuesday, March 17, 2020 11:48 AM  
**To:** Baric, Ralph S <[rbaric@email.unc.edu](mailto:rbaric@email.unc.edu)>  
**Subject:** Re: 2019-nCoV R01 application

Hi Ralph,

Please see attached the endnote files.

On a separate note, if there is still space in the proposal, you can add a subaim 4 for Aim 1 with a few sentences describing adaptation of [REDACTED] from different species in cell culture. It is up to you. Either way is fine with me.

Thanks,

Fang

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Fang

On Sat, Mar 7, 2020 at 9:31 PM Baric, Ralph S <[rbaric@email.unc.edu](mailto:rbaric@email.unc.edu)> wrote:

Hi Fang, my modifications including all of Aim 3 attached. Hope your doing well. We need to finish this up in about 7-8 days. Ralph

**From:** Fang Li <[lifang@umn.edu](mailto:lifang@umn.edu)>  
**Sent:** Tuesday, February 11, 2020 1:22 PM  
**To:** Baric, Ralph S <[rbaric@email.unc.edu](mailto:rbaric@email.unc.edu)>  
**Subject:** 2019-nCoV R01 application

Hi Ralph,

I have drafted some parts of the proposal. Please see attached.

I am currently working on the research portions for Aims 1 and 2.

Feel free to make changes.

When is the submission deadline?

Best,

Fang

--

\*\*\*\*\*  
Fang Li, Ph.D.  
Associate Professor  
Department of Veterinary and Biomedical Sciences  
University of Minnesota Twin Cities  
612-625-6149, [lifang@umn.edu](mailto:lifang@umn.edu)  
<http://www.msi.umn.edu/~lifang>  
\*\*\*\*\*

## Re: 2019-nCoV R01 application-need authentication of reagents blerb

---

From: Fang Li <lifang@umn.edu>  
To: Baric, Ralph S <rbaric@email.unc.edu>  
Sent: March 17, 2020 11:28:18 PM CDT

Coordinates and structure factors will be deposited to the Protein Data Bank (PDB) for public sharing.

Thanks for working so hard on the grant!  
Fang

On Tue, Mar 17, 2020 at 10:45 PM Baric, Ralph S <[rbaric@email.unc.edu](mailto:rbaric@email.unc.edu)> wrote:

Hi Fang, do you have a [REDACTED] and can you include sentences regarding how the structures will be deposited in public databases? This goes out tomorrow, so if you can get it to me quick that would be great. I'll send along a copy when its in. hope you are well and stay safe, this bug is nasty. Thanks, ralph

**From:** Fang Li <[lifang@umn.edu](mailto:lifang@umn.edu)>  
**Sent:** Tuesday, March 17, 2020 11:48 AM  
**To:** Baric, Ralph S <[rbaric@email.unc.edu](mailto:rbaric@email.unc.edu)>  
**Subject:** Re: 2019-nCoV R01 application

Hi Ralph,

Please see attached the endnote files.

On a separate note, if there is still space in the proposal, you can add a subaim 4 for Aim 1 with a few sentences describing adaptation of SARS-CoV-2 to ACE2 from different species in cell culture. It is up to you. Either way is fine with me.

Thanks,

Fang

On Tue, Mar 17, 2020 at 10:35 AM Baric, Ralph S <[rbaric@email.unc.edu](mailto:rbaric@email.unc.edu)> wrote:

Hi Fang, can you send along your endnote files? Nice job on the grant. Thanks, ralph

## **FW: experimental approach attached**

---

**From:** Baric, Ralph S <rbaric@email.unc.edu>  
**To:** lifang@umn.edu  
**Sent:** March 18, 2020 1:54:29 PM CDT  
**Received:** March 18, 2020 1:54:42 PM CDT  
**Attachments:** Baric\_Wuhan R01 Grant Package.pdf

Submitted. And were off and running.

---

**From:** Caldwell, Chandra <ccaldwel@email.unc.edu>  
**Sent:** Wednesday, March 18, 2020 11:57 AM  
**To:** Baric, Ralph S <rbaric@email.unc.edu>  
**Subject:** RE: experimental approach attached

Hi Ralph,

Attached is the grant for your review.

Thanks,  
Chandra

---

**From:** Baric, Ralph S <rbaric@email.unc.edu>  
**Sent:** Wednesday, March 18, 2020 10:14 AM  
**To:** Caldwell, Chandra <ccaldwel@email.unc.edu>; McGlaughon, Ben <benmcg@email.unc.edu>  
**Subject:** experimental approach attached

Hi Chandra, Am I missing anything? Thanks, ralph

**1. Baric\_Wuhan R01 Grant Package.pdf**

Type: application/pdf  
Size: 1 MB (2,019,697 bytes)

**SF 424 R&R**

|                                                                                                                                                                        |             |                                                                                                                            |                                           |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|
|                                                                                                                                                                        |             | <b>3. DATE RECEIVED BY STATE</b>                                                                                           | <b>State Application Identifier</b>       |
| <b>1. TYPE OF SUBMISSION</b><br><input type="radio"/> Pre-application <input checked="" type="radio"/> Application <input type="radio"/> Changed/Corrected Application |             | <b>4. a. Federal Identifier</b>                                                                                            | AI110700                                  |
| <b>2. DATE SUBMITTED</b>                                                                                                                                               |             | <b>Applicant Identifier</b>                                                                                                | <b>b. Agency Routing Identifier</b>       |
|                                                                                                                                                                        |             |                                                                                                                            | <b>c. Previous Grants.gov Tracking ID</b> |
| <b>5. APPLICANT INFORMATION</b>                                                                                                                                        |             | <b>Organizational DUNS:</b> 608195277                                                                                      |                                           |
| Legal Name: The University of North Carolina at Chapel Hill                                                                                                            |             | Division: Research                                                                                                         |                                           |
| Department: Office of Sponsored Research                                                                                                                               |             | Street2: Suite 2200                                                                                                        |                                           |
| Street1: 104 Airport Drive, CB 1350                                                                                                                                    |             | County/Parish: Orange                                                                                                      |                                           |
| City: Chapel Hill                                                                                                                                                      |             | State: NC: North Carolina                                                                                                  |                                           |
| Province:                                                                                                                                                              |             | Country: USA: UNITED STATES                                                                                                |                                           |
|                                                                                                                                                                        |             | ZIP / Postal Code: 27599-1350                                                                                              |                                           |
| Person to be contacted on matters involving this application                                                                                                           |             |                                                                                                                            |                                           |
| Prefix:                                                                                                                                                                | First Name: | Middle Name:                                                                                                               | Last Name:                                |
|                                                                                                                                                                        | Ronda       |                                                                                                                            | Farrell                                   |
| Position/Title: Contract and Grant Specialist                                                                                                                          |             | Suffix:                                                                                                                    |                                           |
| Street1: 104 Airport Drive, Suite 2200                                                                                                                                 |             | Street2:                                                                                                                   |                                           |
| City: Chapel Hill                                                                                                                                                      |             | County/Parish: Orange                                                                                                      |                                           |
| Province:                                                                                                                                                              |             | State: NC: North Carolina                                                                                                  |                                           |
|                                                                                                                                                                        |             | Country: USA: UNITED STATES                                                                                                |                                           |
|                                                                                                                                                                        |             | ZIP / Postal Code: 27599-1350                                                                                              |                                           |
| Phone Number: (919) 962-4396                                                                                                                                           |             | Fax Number: (919) 962-5011                                                                                                 |                                           |
|                                                                                                                                                                        |             | Email: farrelrl@email.unc.edu                                                                                              |                                           |
| <b>6. EMPLOYER IDENTIFICATION NUMBER (EIN) or (TIN):</b> 1-566001393-A1                                                                                                |             |                                                                                                                            |                                           |
| <b>7. TYPE OF APPLICANT:</b> H: Public/State Controlled Institution of Higher Education                                                                                |             |                                                                                                                            |                                           |
| Other (Specify):                                                                                                                                                       |             |                                                                                                                            |                                           |
| <b>Small Business Organization Type</b> <input type="radio"/> Women Owned <input type="radio"/> Socially and Economically Disadvantaged                                |             |                                                                                                                            |                                           |
| <b>8. TYPE OF APPLICATION:</b>                                                                                                                                         |             | If Revision, mark appropriate box(es).                                                                                     |                                           |
| <input type="radio"/> New <input type="radio"/> Resubmission                                                                                                           |             | <input type="radio"/> A. Increase Award <input type="radio"/> B. Decrease Award <input type="radio"/> C. Increase Duration |                                           |
| <input checked="" type="radio"/> Renewal <input type="radio"/> Continuation <input type="radio"/> Revision                                                             |             | <input type="radio"/> D. Decrease Duration <input type="radio"/> E. Other (specify):                                       |                                           |
| Is this application being submitted to other agencies? <input type="radio"/> Yes <input checked="" type="radio"/> No What other Agencies?                              |             |                                                                                                                            |                                           |
| <b>9. NAME OF FEDERAL AGENCY:</b>                                                                                                                                      |             | <b>10. CATALOG OF FEDERAL DOMESTIC ASSISTANCE NUMBER:</b>                                                                  |                                           |
| National Institutes of Health                                                                                                                                          |             | TITLE:                                                                                                                     |                                           |
| <b>11. DESCRIPTIVE TITLE OF APPLICANT'S PROJECT:</b>                                                                                                                   |             |                                                                                                                            |                                           |
| Cell entry, cross-species transmission and pathogenesis of novel coronavirus from Wuhan                                                                                |             |                                                                                                                            |                                           |
| <b>12. PROPOSED PROJECT:</b>                                                                                                                                           |             | <b>13. CONGRESSIONAL DISTRICT OF THE APPLICANT:</b>                                                                        |                                           |
| Start Date                                                                                                                                                             | Ending Date | NC-004                                                                                                                     |                                           |
| 12/01/2020                                                                                                                                                             | 11/30/2025  |                                                                                                                            |                                           |

|                                                                        |                              |                                                                    |                    |                             |
|------------------------------------------------------------------------|------------------------------|--------------------------------------------------------------------|--------------------|-----------------------------|
| <b>14. PROJECT DIRECTOR/PRINCIPAL INVESTIGATOR CONTACT INFORMATION</b> |                              |                                                                    |                    |                             |
| Prefix:                                                                | First Name:                  | Middle Name:                                                       | Last Name:         | Suffix:                     |
|                                                                        | Ralph                        | S                                                                  | Baric              |                             |
| Position/Title:                                                        | Professor                    | Organization Name: The University of North Carolina at Chapel Hill |                    |                             |
| Department:                                                            | Epidemiology                 | Division: School of Public Health                                  |                    |                             |
| Street1:                                                               | 3303 Michael Hooker Res Bldg | Street2: CB: 7435                                                  |                    |                             |
| City:                                                                  | Chapel Hill                  | County/Parish:                                                     | Orange             | State:                      |
| Province:                                                              |                              | Country:                                                           | USA: UNITED STATES | NC: North Carolina          |
| Phone Number:                                                          | (919) 966-3895               | Fax Number:                                                        | (919) 966-2089     | ZIP / Postal Code:          |
|                                                                        |                              |                                                                    |                    | 27599-7435                  |
|                                                                        |                              |                                                                    |                    | Email: rbaric@email.unc.edu |

|                                      |                |                                                                                     |                                                                                                                                    |
|--------------------------------------|----------------|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|
| <b>15. ESTIMATED PROJECT FUNDING</b> |                | <b>16. IS APPLICATION SUBJECT TO REVIEW BY STATE EXECUTIVE ORDER 12372 PROCESS?</b> |                                                                                                                                    |
| a. Total Federal Funds Requested     | \$3,759,357.00 | a. YES                                                                              | <input type="radio"/> THIS PREAPPLICATION/APPLICATION WAS MADE AVAILABLE TO THE STATE EXECUTIVE ORDER 12372 PROCESS FOR REVIEW ON: |
| b. Total Non-Federal Funds           | \$0.00         | DATE:                                                                               |                                                                                                                                    |
| c. Total Federal & Non-Federal Funds | \$3,759,357.00 | b. NO                                                                               | <input checked="" type="radio"/> PROGRAM IS NOT COVERED BY E.O. 12372; OR                                                          |
| d. Estimated Program Income          | \$0.00         |                                                                                     | <input type="radio"/> PROGRAM HAS NOT BEEN SELECTED BY STATE FOR REVIEW                                                            |

**17. By signing this application, I certify (1) to the statements contained in the list of certifications\* and (2) that the statements herein are true, complete and accurate to the best of my knowledge. I also provide the required assurances \* and agree to comply with any resulting terms if I accept an award. I am aware that any false, fictitious, or fraudulent statements or claims may subject me to criminal, civil, or administrative penalties. (U.S. Code, Title 18, Section 1001)**

I agree

The list of certifications and assurances, or an Internet site where you may obtain this list, is contained in the announcement or agency specific instructions.

**18. SFLLL or other Explanatory Documentation.** File Name: Mime Type:

|                                               |                               |                                                                    |                    |                            |
|-----------------------------------------------|-------------------------------|--------------------------------------------------------------------|--------------------|----------------------------|
| <b>19. Authorized Representative</b>          |                               |                                                                    |                    |                            |
| Prefix:                                       | First Name:                   | Middle Name:                                                       | Last Name:         | Suffix:                    |
| Dr.                                           | Terry                         |                                                                    | Magnuson           | Ph.D.                      |
| Position/Title:                               | Vice Chancellor for Research  | Organization Name: The University of North Carolina at Chapel Hill |                    |                            |
| Department:                                   | Office of Sponsored Research  | Division: Research                                                 |                    |                            |
| Street1:                                      | 104 Airport Drive, Suite 2200 | Street2: CB 1350                                                   |                    |                            |
| City:                                         | Chapel Hill                   | County/Parish:                                                     | Orange             | State:                     |
| Province:                                     |                               | Country:                                                           | USA: UNITED STATES | NC: North Carolina         |
| Phone Number:                                 | (919) 966-3411                | Fax Number:                                                        | (919) 962-3352     | ZIP / Postal Code:         |
|                                               |                               |                                                                    |                    | 27599-1350                 |
|                                               |                               |                                                                    |                    | Email: resadminosr@unc.edu |
| <b>Signature of Authorized Representative</b> |                               |                                                                    | <b>Date Signed</b> |                            |
| _____                                         |                               |                                                                    | _____              |                            |

**20. Pre-application** File Name: Mime Type:

**21. Cover Letter Attachment** File Name: Cover\_Letter1043902866.pdf Mime Type: application/pdf





UNC  
GILLINGS SCHOOL OF  
GLOBAL PUBLIC HEALTH

DEPARTMENT OF EPIDEMIOLOGY  
MCGAVRAN-GREENBERG HALL  
CAMPUS BOX 7435  
CHAPEL HILL, NC 27599-7435

THE UNIVERSITY  
of NORTH CAROLINA  
at CHAPEL HILL

National Institutes of Health  
Center for Scientific Review  
6701 Rockledge Dr, Bethesda, MD 20817

3/17/2020

RE: A1110700, Late RO1 renewal Application due to NIH Study Section Service by the PI,  
VirB Scientific Review Officer :Neerja Kaushik-Basu (301-435-1742)( [neerja.kaushik-basu@nih.gov](mailto:neerja.kaushik-basu@nih.gov))

To whom it may concern,

Please find the R01 A1110700 proposal entitled "Cell entry, cross-species transmission and pathogenesis of novel coronavirus, SARS2 from Wuhan", which is Co-directed by Dr. Fang Li and Dr. Ralph Baric. Dr. Baric is the contact PI for this proposal. Please note that the original title "Mechanisms of MERS-CoV Entry, Cross-species Transmission and Pathogenesis" has been changed in the renewal application in response to the emerging SARS-CoV2 pandemic that is sweeping across the globe. SARS2 has caused over 200,000 cases and 8,000 deaths, including ~6500 cases in the US. Dr. Baric was a member of the VirB study Section, which met in San Francisco in February 20-21, under the direction of Dr. Neerja Kaushik-Basu. In keeping with policy, the renewal deadline was March 5, 2020 and we have submitted this application within 14 days of the original renewal deadline. We note that our group published close to 30 papers during the first 5 year cycle.

The proposal has three aims and importantly studies atomic level interactions that regulate SARS-CoV2 docking and entry, to receptor cross species transmission and the SARS-CoV2 virus-host interactions that regulate these processes. Moreover, the proposal develops key reagents for the SARS-CoV2 research community including two different reverse genetic platforms for early circulating strains, recombinant viruses bearing indicator genes, and improved mouse models of human disease. These studies, consequently, are key to the development of countermeasures like vaccines, drugs and therapeutics, which are desperately needed to control the expanding pandemic.

Please do not hesitate to contact me should you require additional information. We are committed to assisting in the global efforts to control the spread and disease severity of this new pandemic virus.

Sincerely,

Ralph S. Baric, PhD  
Kenan Professor of Epidemiology  
Gillings School of Global Public Health  
University of North Carolina at Chapel Hill  
Chapel Hill, NC 27599-7435  
919-966-3895  
[rbaric@email.unc.edu](mailto:rbaric@email.unc.edu)

## Project/Performance Site Location(s)

---

### Project/Performance Site Primary Location

Organization Name: The University of North Carolina at Chapel Hill

\* Street1: 104 Airport Drive, CB 1350                      Street2: Suite 2200  
\* City: Chapel Hill                      County: Orange                      \* State: NC: North Carolina  
Province:                      \* Country: USA: UNITED STATES                      \* Zip / Postal Code: 27599-1350  
DUNS Number: 608195277                      \* Project/Performance Site Congressional District: NC-004

---

### Project/Performance Site Location 1

Organization Name: Regents of the University of Minnesota

\* Street1: 200 Oak Street SE                      Street2: 450 McNamara Alumni Center  
\* City: Minneapolis                      County:                      \* State: MN: Minnesota  
Province:                      \* Country: USA: UNITED STATES                      \* Zip / Postal Code: 55455-0000  
DUNS Number: 555917996                      \* Project/Performance Site Congressional District: MN-005

---

File Name

Mime Type

**Additional Location(s)**

**RESEARCH & RELATED Other Project Information**

1. \* Are Human Subjects Involved?     Yes     No

1.a. If YES to Human Subjects

    Is the Project Exempt from Federal regulations?     Yes     No

    If yes, check appropriate exemption number

    Exemption Number:     1     2     3     4     5     6     7     8

    If no, is the IRB review Pending?     Yes     No

    IRB Approval Date:

    Human Subject Assurance Number

---

2. \* Are Vertebrate Animals Used?     Yes     No

2.a. If YES to Vertebrate Animals

    Is the IACUC review Pending?     Yes     No

    IACUC Approval Date:

    Animal Welfare Assurance Number                      A3410-01

---

3. \* Is proprietary/privileged information  Yes     No included in the application?

---

4.a. \* Does the Project have an Actual or Perceived Impact – positive or negative – on the environment?     Yes     No

4.b. If yes, please explain:

4.c. If this project has an actual or potential impact on the environment, has an exemption been authorized or an environmental assessment (EA) or environmental impact statement (EIS) been performed?     Yes     No

4.d. If yes, please explain:

---

5.a. \* Is the research performance site designated, or eligible to be designated, as a historic place?     Yes     No

5.b. If yes, please explain:

---

6.a. \* Does this project involve activities outside the U.S. or partnership with International Collaborators?     Yes     No

6.b. If yes, identify countries:

6.c. Optional Explanation:

---

|                                    |                                |                            |
|------------------------------------|--------------------------------|----------------------------|
| 7. Project Summary/Abstract        | Abstract1043823220.pdf         | Mime Type: application/pdf |
| 8. Project Narrative               | Narrative1043823221.pdf        | Mime Type: application/pdf |
| 9. Bibliography & References Cited | References_final1043902869.pdf | Mime Type: application/pdf |
| 10. Facilities & Other Resources   | Facilities_ALL1043823222.pdf   | Mime Type: application/pdf |
| 11. Equipment                      | Equipment1043823223.pdf        | Mime Type: application/pdf |

## **Abstract**

The 21<sup>st</sup> century has recorded the emergence of three highly pathogenic respiratory coronaviruses, including Severe Acute Respiratory Coronavirus (SARS-CoV) in 2003, the ongoing Middle East Respiratory Coronavirus (MERS-CoV) in 2013 and a novel SARS-like coronavirus SARS-CoV2 (SARS2) in Wuhan, China in Dec 2019. SARS2 causes COVID19, a severe acute respiratory distress syndrome (ARDS) and has infected 95000 individuals with ~20% severe cases and a ~3% mortality rate, resulting in over 3700 deaths. In the elderly, mortality rates approach 15%. The overall program goals are to identify the viral and host determinants, which regulate the atomic-level interactions between the SARS2 S-glycoprotein and various ACE2 receptor and associated entry components such as cellular proteases. The impact of these studies are high, as these interactions regulate 2019-nCoV species specificity and host tropism, which play critical roles in viral pathogenesis and inform the evolutionary pathways leading to virus emergence and spread in humans and perhaps other intermediate hosts. In parallel, we apply these and other findings to developing robust mouse models of SARS2-mediated human disease, which is critical for not only evaluating viral pathogenesis but also for future testing of antiviral drugs, immunotherapeutics and vaccines.

## **Project Narrative**

The proposal studies the mechanisms by which the SARS-like clade 1 SARS2 epidemic and zoonotic precursor strains use novel interaction networks to regulate cross species transmission and pathogenesis in mammals. The proposal develops novel reagents and animal models that support the global effort to control the spread and severity of COVID-19 disease.

## References:

1. A. S. Cockrell *et al.*, A mouse model for MERS coronavirus-induced acute respiratory distress syndrome. *Nat Microbiol* **2**, 16226 (2016).
2. A. Wahl *et al.*, Precision mouse models with expanded tropism for human pathogens. *Nat Biotechnol* **37**, 1163-1173 (2019).
3. D. Corti *et al.*, Prophylactic and postexposure efficacy of a potent human monoclonal antibody against MERS coronavirus. *Proc Natl Acad Sci U S A* **112**, 10473-10478 (2015).
4. Y. Zheng *et al.*, Lysosomal Proteases Are a Determinant of Coronavirus Tropism. *J Virol* **92**, (2018).
5. V. D. Menachery *et al.*, Trypsin Treatment Unlocks Barrier for Zoonotic Bat Coronavirus Infection. *J Virol* **94**, (2020).
6. Y. Yang *et al.*, Two Mutations Were Critical for Bat-to-Human Transmission of Middle East Respiratory Syndrome Coronavirus. *J Virol* **89**, 9119-9123 (2015).
7. J. Shang *et al.*, Cryo-EM structure of infectious bronchitis coronavirus spike protein reveals structural and functional evolution of coronavirus spike proteins. *PLoS Pathog* **14**, e1007009 (2018).
8. C. M. Luo *et al.*, Discovery of Novel Bat Coronaviruses in South China That Use the Same Receptor as Middle East Respiratory Syndrome Coronavirus. *J Virol* **92**, (2018).
9. S. J. Anthony *et al.*, Further Evidence for Bats as the Evolutionary Source of Middle East Respiratory Syndrome Coronavirus. *mBio* **8**, (2017).
10. N. Lee *et al.*, A major outbreak of severe acute respiratory syndrome in Hong Kong. *New England Journal of Medicine* **348**, 1986-1994 (2003).
11. I. T. S. Yu *et al.*, Evidence of airborne transmission of the severe acute respiratory syndrome virus. *New England Journal of Medicine* **350**, 1731-1739 (2004).
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## **FACILITIES AND OTHER RESOURCES BARIC LABORATORY**

**Research Environment.** The Department of Epidemiology is internationally recognized as a leader in epidemiologic research and training. The Department offers research training in most specialized areas including cancer, cardiovascular diseases, environmental and occupational health, health services/clinical epidemiology, reproductive health and infectious diseases. For the fiscal year 2010/2011, the Department was awarded in excess of \$28 million in sponsored funding (research, training and public service) and ranks in the top five largest units at the University of North Carolina at Chapel Hill in the area of sponsored research awards. The department's current faculty consists of 51 regular full-time faculty and 151 adjunct faculty members. The department has 218 graduate students enrolled, including 20 in the MPH program, 5 in the MSPH program, 20 in the MSCR program and 173 in the Ph.D. program. The Department of Epidemiology is headquartered in the four-story McGavran-Greenberg Building, adjacent to Rosenau Hall directly across the street from the Carolina Vaccine Center in the School of Medicine. The epidemiology administrative and office space occupies 10,928 sq. ft. and provides additional classroom space. Most of the department's research staff occupies a research annex consisting of approximately 7,000 square feet of contiguous rental space in a commercial office building that is a 10-minute walk from McGavran/Greenberg Hall.

**BSL2 Facility.** Dr. Baric has three laboratories of ~2400 sq. ft. equipped as BL2 space for the molecular biology, virology, immunology and recombinant DNA techniques proposed in the application in Hooker Research Center. Equipment includes gel electrophoresis equipment, power supplies, thermal cyclers, a programmable heat block, heat blocks, water baths, CO<sub>2</sub> incubators (2), several -70°C freezers, one -140°C freezer, refrigerators, DNA documentation system, DNA sequencing and computer assisted sequence analysis programs, several microfuges, two Nikon microscopes with photographic and fluorescent capabilities, several class 2 environmental hoods, refrigerated water baths, several IBM and Apple Pentium II/III computers with accompanying software, three thermocyclers, a fume hood, Nuclisens reader, hybridization oven, real time thermocyclers, three fluorescent inverted scopes with computer software (Olympus IX51), and a spectrophotometer. A Roche Light Cycler 480II is available for real time measurements. The laboratory has an ELISA plate reader, an illuminometer, 200 cages for animal maintenance and breeding in Seal-Safe housing, Bio Rad low-pressure chromatography system, ELISA plate washer, spectrophotometers, and other equipment that is routinely used in characterizing antibody-protein interactions.

**BSL 3 Facility.** The Baric laboratory contains an additional 1200+ square feet of BSL3 facilities with enhanced features including 1) shower in/shower out facility, 2) dual anteroom access, 3) Hepa filtered exhaust, 4) redundant exhaust fans, 4) Card key access, alarm system to Public Health/Campus Police, Lab controlled combination lock, and 5) Techniplast Sealsafe™ Hepa filtered animal housing for rodents (mice (~300 cages). PAPR and tyvek suits are worn at all times in the BSL3 facility. The BL3 facilities are in an adjacent, attached building (3221D McGavran-Greenberg Hall) or in Room 3104 Hooker Research Center, the latter space is directly adjacent to Dr. Baric's BSL2 laboratory resources. Each facility is equipped with sterile hoods (BSCIIA), four CO<sub>2</sub> incubators, gel electrophoresis equipment, thermal cyclers and power supplies, and related equipment necessary for virus cultivation and molecular genetic research. The facilities each house a -70C freezer, an inverted Nikon fluorescent microscope with an assortment of filters, magnifications and digital camera, an ELISA plate reader and illuminometer. Both facilities contain rodent-sized Seal-Safe systems (~192 cages) for maintaining animals in a Hepa-filtered Air in/out environment, exhausted into the BSL3 Hepa-filtered exhaust system. An 8 chamber Buxco plethysmography system which allows for repetitive, noninvasive measures of the number of breaths, tidal volume, airway responsiveness, enhanced pause, respiratory gases, etc. from live control and infected mice in a contained system is available in the main BSL3 laboratory in McGavran Greenberg Hall (<http://www.buxco.com/FinePointe.aspx?Page=FinePointe>).

**Departmental and University Services.** The department provides cold-room, autoclave, centralized dishwashing and a darkroom with an automated developer. The campus has central facilities for DNA oligonucleotide synthesis, histopathology, DNA sequencing, EM, light and confocal microscopy, automated PCR genotyping and Taqman facilities, and Fluorescent activated cell sorter facilities (FAC). As a member of

the Department of Microbiology and Immunology and UNC Cancer center, our laboratory has access to these facilities and receives discounts. The University provides a variety of core services including sequencing and deep sequencing cores, genomics cores, oligonucleotide synthesis cores, hybridoma cores, transgenic cores, structural biology cores, etc. typical of any world class research institution. Campus wide core facilities are available for oligonucleotide synthesis, Sanger and 454

## **University of Minnesota Resources**

### (1) Laboratory:

Biochemical and structural portions of the proposal will be conducted in Dr. Fang Li's laboratory at the University of Minnesota. Dr. Li's laboratory has six benches, each allowing two experimenters to work simultaneously.

### (2) Computers:

We have free access to computers in the Basic Sciences Computing Laboratory at the University of Minnesota.

### (3) Other:

Crystallization screens will be performed using Rigaku's CrystalMation (crystal growth automation equipment).

In house X-ray data will be collected at the Kahlert Structural Biology Laboratory at the University of Minnesota.

Synchrotron X-ray data will be collected at national synchrotron facilities including the Advanced Photon Source near Chicago IL and Advanced Light Source at Berkeley CA.

Negative-stain electron microscopic images will be collected using a new FEI electron microscope operating at 300 kV at the University of Minnesota.

Cryo-electron microscopic data will be collected using a Titan-Krios TEM at Purdue University or FEI Titan-Krios TEM at Arizona State University.

Surface plasmon resonance experiments to measure protein-protein binding interactions will be performed using a Biacore 3000 at the University of Minnesota.

We also have access to the University of Minnesota Masonic Cancer Center Flow Cytometry facility, which contains BD LSRII and 3 FACS Calibur flow cytometers as well as high-speed cell sorting capabilities up to 22,000 events/sec with the FACSDiVa and FACS Aria cell sorters.

## University of Minnesota - Major Equipments

The following major equipments are available at the PI's laboratory or other facilities at the University of Minnesota:

Protein purification facilities: AKTA purifier protein purification systems, Pall Minimate concentrator, protein purification chromatography columns. Protein binding measurement facilities: Biacore 3000, AlphaScreen, BLITZ, Isothermal Titration Calorimeter. Cell culture hoods: two 4 ft. Thermo Sci Class II A2 biosafety hoods. Dishwasher: Miele G7804 lab glass and plastic washer. Freezers: Thermo Sci Revco UltraPlus -80°C, Thermo Sci Isotemp -20°C. Refrigerator: Thermo Sci chromatography sliding double-door refrigerator. Incubators: Thermo Sci Excellar E25 incubator/shaker, Thermo Sci MaxQ 4000 incubator/shaker, three Thermo Sci Forma Steri-Cycle CO<sub>2</sub> incubators with gas cylinder monitor and two CO<sub>2</sub> regulators, and two Bellco Bench Top Incubators with Bellco Rocker Platform, Bellco Orbital Shaker, and Bellco Cell-Production Roller Apparatus. Microscopy: Leica DMIL inverted-stand microscope with 3.2, 10, 20, and 40X phase objectives and fluorescence capabilities. Microcentrifuges: Sorvall Biofuge Pico and Sorvall Biofuge Fresco. Table-top centrifuge: Sorvall Legend RT plus refrigerated centrifuge with swinging bucket rotor and adaptors for 50, 15, and 5ml tubes, and 96-well plates. Floor model centrifuge: Beckman Avanti JE with JA-17 and JLA 10.5 rotors. Sonicator: Fisher Scientific 60 Sonic Dismembrator with Sonobox Accoustic Enclosure. Thermal cycler: BioRad DNA engine. Plate reader: Molecular Devices SpectraMaxM5 Plate Reader with SOFTmax PRO Software. Power supplies: BioRad PowerPac Universal, BioRad Power Pac 200, BioRad Power Pac 1000, and EC Apparatus Corporation EC-150 units. Electrophoresis: Two BioRad Transblot Cells, two BioRad Mini PROTEAN 3 Cells, two Continental Lab Products 12 cm x 14 cm horizontal electrophoresis devices, 1 Continental Lab Products mini-gel horizontal electrophoresis device, two BioRad Protean II xi vertical electrophoresis rigs. Miscellaneous: Mettler-Toledo PB-S/FACT series balance, Denver Instrument PI series analytical balance, Fisher Scientific Accumet Basic AB15 pH Meter, and Panasonic Microwave. Bellco pipet plugger. Biomate 3 spectrophotometer. Thermo Sci drying oven. FEI electron microscope operating at 300 kV.

Kahlert Structural Biology Lab: one RigakuMSC Micromax 007 X-ray generator with a Cr anode, VariMax Confocal Max-Flux Cr optics, R-axis IV++ image plate, helium cone, and X-stream low temperature device for *ab initio* structure solution by sulfur single wavelength anomalous diffraction (S-SAD); one RigakuMSC Micromax HF X-ray generator with a Cu anode, and two data collection systems; (1) VariMax Confocal Max-Flux optics, R-axis IV++ image plate, 2 $\theta$  stage, and RigakuMSC XStream low temperature device for high resolution in-house X-ray data collection; (2) Confocal Blue optics, inverse phi, and Oxford Instruments low temperature Cryojet for crystal screening; one RigakuMSC Micromax 007 HFM X-ray generator with a Cu anode, VariMax-HF Confocal Max-Flux optics, an AFC11 goniometer, a RigakuMSC Saturn 944+ CCD detector, and an X-Stream 2000 low temperature system. Multiple crystal incubators, running at a range of temperatures, are available for crystallization trials, and multiple stereomicroscopes enable crystals to be visualized and photographed. Two data processing computers. Rigaku's CrystalMation (crystal growth automation equipment).

Basic Sciences Computing Laboratory: three shared memory systems (SGI Altix 3700, SGI Onyx4, Sun V880), sixteen workstations (linux, SGI, and PC), and all major software for structural biology.

**RESEARCH & RELATED Senior/Key Person Profile (Expanded)**

| PROFILE - Project Director/Principal Investigator |                                                 |                               |                   |         |
|---------------------------------------------------|-------------------------------------------------|-------------------------------|-------------------|---------|
| Prefix:                                           | First Name*: Ralph                              | Middle Name S                 | Last Name*: Baric | Suffix: |
| Position/Title*:                                  | Professor                                       |                               |                   |         |
| Organization Name*:                               | The University of North Carolina at Chapel Hill |                               |                   |         |
| Department:                                       | Epidemiology                                    |                               |                   |         |
| Division:                                         | School of Public Health                         |                               |                   |         |
| Street1*:                                         | 3303 Michael Hooker Res Bldg                    |                               |                   |         |
| Street2:                                          | CB: 7435                                        |                               |                   |         |
| City*:                                            | Chapel Hill                                     |                               |                   |         |
| County:                                           | Orange                                          |                               |                   |         |
| State*:                                           | NC: North Carolina                              |                               |                   |         |
| Province:                                         |                                                 |                               |                   |         |
| Country*:                                         | USA: UNITED STATES                              |                               |                   |         |
| Zip / Postal Code*:                               | 27599-7435                                      |                               |                   |         |
| Phone Number*: (919) 966-3895                     | Fax Number: (919) 966-2089                      | E-Mail*: rbaric@email.unc.edu |                   |         |
| Credential, e.g., agency login: RALPH_BARIC       |                                                 |                               |                   |         |
| Project Role*: PD/PI                              |                                                 | Other Project Role Category:  |                   |         |
| Degree Type:                                      |                                                 | Degree Year:                  |                   |         |
|                                                   |                                                 | File Name                     |                   |         |
| <b>Attach Biographical Sketch*:</b>               |                                                 | Baric_Biosketch1043823667.pdf |                   |         |
| <b>Attach Current &amp; Pending Support:</b>      |                                                 |                               |                   |         |

| PROFILE - Senior/Key Person                  |                                             |                                   |                       |         |
|----------------------------------------------|---------------------------------------------|-----------------------------------|-----------------------|---------|
| Prefix:                                      | First Name*: Lisa                           | Middle Name E                     | Last Name*: Gralinski | Suffix: |
| Position/Title*:                             | Assistant Professor                         |                                   |                       |         |
| Organization Name*:                          | University of North Carolina at Chapel Hill |                                   |                       |         |
| Department:                                  | Epidemiology                                |                                   |                       |         |
| Division:                                    | School of Public Health                     |                                   |                       |         |
| Street1*:                                    | 3109 Michael Hooker Research Bldg           |                                   |                       |         |
| Street2:                                     | CB: 7435                                    |                                   |                       |         |
| City*:                                       | Chapel Hill                                 |                                   |                       |         |
| County:                                      | Orange                                      |                                   |                       |         |
| State*:                                      | NC: North Carolina                          |                                   |                       |         |
| Province:                                    |                                             |                                   |                       |         |
| Country*:                                    | USA: UNITED STATES                          |                                   |                       |         |
| Zip / Postal Code*:                          | 27599-7435                                  |                                   |                       |         |
| Phone Number*: 919-966-7991                  | Fax Number: 919-966-2089                    | E-Mail*: lgralins@email.unc.edu   |                       |         |
| Credential, e.g., agency login:              |                                             |                                   |                       |         |
| Project Role*: Co-Investigator               |                                             | Other Project Role Category:      |                       |         |
| Degree Type:                                 |                                             | Degree Year:                      |                       |         |
|                                              |                                             | File Name                         |                       |         |
| <b>Attach Biographical Sketch*:</b>          |                                             | Gralinski_biosketch1043823671.pdf |                       |         |
| <b>Attach Current &amp; Pending Support:</b> |                                             |                                   |                       |         |

| PROFILE - Senior/Key Person |                      |                     |                     |         |
|-----------------------------|----------------------|---------------------|---------------------|---------|
| Prefix:                     | First Name*: Timothy | Middle Name Patrick | Last Name*: Sheahan | Suffix: |

|                                              |                                             |                              |                       |
|----------------------------------------------|---------------------------------------------|------------------------------|-----------------------|
| Position/Title*:                             | Assistant Professor                         |                              |                       |
| Organization Name*:                          | University of North Carolina at Chapel Hill |                              |                       |
| Department:                                  | Epidemiology                                |                              |                       |
| Division:                                    | School of Public Health                     |                              |                       |
| Street1*:                                    | 3303 Michael Hooker Research Center         |                              |                       |
| Street2:                                     | CB: 7435                                    |                              |                       |
| City*:                                       | Chapel Hill                                 |                              |                       |
| County:                                      | Orange                                      |                              |                       |
| State*:                                      | NC: North Carolina                          |                              |                       |
| Province:                                    |                                             |                              |                       |
| Country*:                                    | USA: UNITED STATES                          |                              |                       |
| Zip / Postal Code*:                          | 27599-7435                                  |                              |                       |
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|                                              |                                             | E-Mail*:                     | sheahan@email.unc.edu |
| Credential, e.g., agency login:              |                                             |                              |                       |
| Project Role*:                               | Co-Investigator                             | Other Project Role Category: |                       |
| Degree Type:                                 | Degree Year:                                |                              |                       |
|                                              |                                             | File Name                    |                       |
| <b>Attach Biographical Sketch*:</b>          | Sheahan_Biosketch1043823672.pdf             |                              |                       |
| <b>Attach Current &amp; Pending Support:</b> |                                             |                              |                       |

| PROFILE - Senior/Key Person                  |                                        |                              |                |         |
|----------------------------------------------|----------------------------------------|------------------------------|----------------|---------|
| Prefix:                                      | First Name*:                           | Middle Name                  | Last Name*:    | Suffix: |
|                                              | Fang                                   |                              | Li             |         |
| Position/Title*:                             | Associate Professor                    |                              |                |         |
| Organization Name*:                          | Regents of the University of Minnesota |                              |                |         |
| Department:                                  | Veterinary                             |                              |                |         |
| Division:                                    |                                        |                              |                |         |
| Street1*:                                    | 1988 Fitch Ave                         |                              |                |         |
| Street2:                                     | [REDACTED] AnSci/VetMed Bldg           |                              |                |         |
| City*:                                       | St Paul                                |                              |                |         |
| County:                                      |                                        |                              |                |         |
| State*:                                      | MN: Minnesota                          |                              |                |         |
| Province:                                    |                                        |                              |                |         |
| Country*:                                    | USA: UNITED STATES                     |                              |                |         |
| Zip / Postal Code*:                          | 55108-6009                             |                              |                |         |
| Phone Number*:                               | 612-625-6149                           | Fax Number:                  |                |         |
|                                              |                                        | E-Mail*:                     | lifang@umn.edu |         |
| Credential, e.g., agency login: fangli       |                                        |                              |                |         |
| Project Role*:                               | PD/PI                                  | Other Project Role Category: |                |         |
| Degree Type:                                 | Degree Year:                           |                              |                |         |
|                                              |                                        | File Name                    |                |         |
| <b>Attach Biographical Sketch*:</b>          | Biosketch_Li1043823525.pdf             |                              |                |         |
| <b>Attach Current &amp; Pending Support:</b> |                                        |                              |                |         |

## BIOGRAPHICAL SKETCH

Provide the following information for the Senior/key personnel and other significant contributors.  
Follow this format for each person. **DO NOT EXCEED FIVE PAGES.**

NAME: Baric, Ralph Steven

eRA COMMONS USER NAME (credential, e.g., agency login): RALPH\_BARIC

POSITION TITLE: Professor, Kenan Distinguished Professor

EDUCATION/TRAINING (*Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.*)

| INSTITUTION AND LOCATION                                     | DEGREE<br>(if applicable) | Completion Date<br>MM/YYYY | FIELD OF STUDY |
|--------------------------------------------------------------|---------------------------|----------------------------|----------------|
| N.C. State University, Raleigh, NC                           | B.S.                      | 1977                       | Zoology        |
| N.C. State University, Raleigh, NC                           | Ph.D.                     | 1982                       | Microbiology   |
| University of Southern CA, School of Med., (Los Angeles, CA) | Post-Doc                  | 1986                       | Microbiology   |

### A. Personal Statement

We use systems genetic, biochemical, molecular and immunologic approaches to study the molecular mechanisms regulating viral evolution, virus immunity, virus-host interactions, virus pathogenesis and vaccine mediated protective immunity primarily using coronaviruses (SARS-CoV, MERS-CoV), noroviruses (GII.4 and related strains) and flaviviruses (Dengue, Zikv) as models. Additional studies have focused on the pathogenesis of influenza and Ebola viruses. My major contributions include publications describing: **a)** emerging coronavirus, Dengue 1-4 and Zikv reverse genetic platforms, **b)** the identification of human host susceptibility alleles that regulate norovirus infection and pathogenesis, **c)** the identification of host susceptibility alleles that regulate SARS-CoV and Ebola virus pathogenesis and immunity using the Collaborative Cross Genetic Reference Population, **d)** the development of platform strategies and animal models to identify and culture emerging, pre-epidemic human viruses from outbreak samples or in silico sequences, **e)** the functional mapping of human monoclonal antibodies and their epitopes against all of the viruses described above, **f)** pioneering approaches in structure guided immunogen design to develop bivalent vaccine and immune diagnostic viruses and VLPs to all three virus families noted above, **e)** the mapping and characterization of the primary targets of polyclonal neutralizing antibodies following infection and vaccination, **g)** the design and testing of broadly cross protective coronavirus, norovirus and dengue virus vaccines, **h)** the identification novel antivirals targeting the emerging human, contemporary and prepandemic threat viruses and **i)** structure-function studies of viral genes involved in replication, pathogenesis, innate immune evasion and cross species transmission. We also helped to demonstrate the existence of the first proof-reading enzyme in an RNA virus. I have extensively collaborated with Dr. Li and his team in the past including joint publications and grants and developing new animal models of human disease.

1. Lindesmith L, Moe C, Marionneau S, Ruvoen N, Jiang X, Lindblad L, Stewart P, LePendou J, **Baric R** (2003). Human susceptibility and resistance to Norwalk virus infection. **Nat Med** ;9(5):548-53. PMID:12692541.
2. Graham RL, Becker MM, Eckerle LD, Bolles M, Denison MR, **Baric RS**. 2012. A live, impaired-fidelity coronavirus vaccine protects in an aged, immunocompromised mouse model of lethal disease. **Nat Med** 6;18(12):1820-6. PMID: PMC3518599.
3. Menachery VD, Yount BL, Debbink K, Agnihothram S, Gralinski LE, Plante JA, Graham RL, Scobey T, Ge S-Y, Donaldson EF, Randell SH, Lanzavecchia A, Marasco WA, Shi Z-L, **Baric RS** (2015). Novel platform identifies threat posed by a SARS-like cluster of circulating bat coronavirus. **Nature Med** 21(12):1508-13. PMID:4797993.



4. Cockrell AS, Yount BL, Scobey T, Jensen K, Douglas M, Beall A, Tang XC, Marasco WA, Heise MT, **Baric RS** (2016). A mouse model for MERS coronavirus-induced acute respiratory distress syndrome. **Nat Microbiol** 28;2:16226. PMID:27892925.

## **B. Position and Honors**

### **Positions and Employment**

- 1986 -1992 Assistant Professor, Department of Parasitology and Laboratory Practice and Department of Epidemiology, University of North Carolina (UNC), Chapel Hill, NC
- 1992 -2001 Associate Professor, Departments of Epidemiology and Microbiology & Immunology, UNC Chapel Hill
- 2001 - Professor, Departments of Epidemiology and Microbiology and Immunology, UNC Chapel Hill

### **Other Experience and Professional Membership**

- 2005 -09 Permanent Member, NIH VirB Study Section
- 2005 -15 Review Board, J. Virology
- 2006 -07 Acting Chair and Chair, Division T RNA Viruses, American Society of Microbiology
- 2007 -08 Associate Editor, Plos Pathogens
- 2008 Nat'l Acad Sci: Working Group: Gene Sequence Methods for Classification of Select Agents
- 2008 -17 Senior Editor, Plos Pathogens
- 2014 National Academy of Sciences: Working Group on Risks and Benefits of Gain of Function Research
- 2015 MERS-CoV Stakeholders Workshop, Organizer and Invited panelist, NIH
- 2015 Natl. Acad. Of Sciences "China-U.S. Workshop on the Challenges of Emerging Infections, Laboratory Safety, and Global Health Security" September 28-30 in Beijing, China
- 2017 Natl. Acad. Of Sciences "China-U.S. Workshop on the Challenges of Emerging Infections, Laboratory Safety, and Global Health Security" Jan 16-18<sup>th</sup> in Galveston-Texas.
- 2018 Natl. Acad. Of Sciences "China-U.S. Workshop on the Challenges of Emerging Infections, Laboratory Safety, and Global Health Security" Jan 6-10<sup>th</sup> in Harbin China.

### **Honors**

- 1984 -86 Harvey Weaver Scholar, National Multiple Sclerosis Society
- 1984 -87 Established Investigator: American Heart Association
- 2003 Finalist/Runner-up, World Technology Award
- 2011 Innovation/Inspiration Award for Faculty Research, UNC Gillins School of Public Health
- 2019 Kenan Distinguished Professor

## **C. Contribution to Science**

**1. Contributions to Virology:** My group studies coronavirus, norovirus and flavivirus immunology, molecular biology, virus-host interactions, genetics, pathogenesis, vaccine and therapeutic design, using traditional and new technologies like structure guided immunogen design, synthetic genome design, and systems genetics. We developed new approaches to identify and recover pre-pandemic viruses.

- a. Yount B, Curtis K, Fritz L, Hensley L, Jahrling P, Prentice E, Denison M, Geisbert T, **Baric RS** (2003). Reverse Genetics with a full-length infectious cDNA for the SARS Coronavirus. **Proc Natl Acad Sci USA** 100(22):12995-13000. PMID: PMC240733.
- b. Wan Y, Shang J, Graham R, **Baric RS**, Li F. Receptor recognition by novel coronavirus from Wuhan: An analysis based on decade-long structural studies of SARS. *J Virol.* 2020 Jan 29. pii: JVI.00127-20.
- c. Sheahan TP, Sims AC, Graham RL, Menachery VD, Galinski LE, Case JB, Leist SR, Pirc K, Feng JY, Trantcheva I, Bannister R, Park Y, Babusis D, Clarke MO, Mackman RL, Spahn JE, Palmiotti CA, Siegel D, Ray AS, Cihlar T, Jordan R, Denison MR, **Baric RS** (2017). Broad-spectrum antiviral GS-5734 inhibits both epidemic and zoonotic CoV. **Sci Transl Med** 28;9(396). PMID: PMC5567817.
- d. Menachery VD, Yount BL Jr, (+15 other authors) and **Baric RS** (2016). SARS-like WIV1-CoV poised for human emergence. **Proc Natl Acad Sci USA** 113:3048-3053, PMID: PMC4801244.

**2. Virus Receptor Interaction and Immunity.** We have extensively studied mechanisms of zoonotic coronavirus cross species transmission mechanisms. Our group has pioneered the use of structure-guided immunogen design, coupled with reverse genetic strategies, to transfer complex conformational immunogen epitopes between viruses (or viral proteins), using noroviruses and dengue/zikv virus as model platforms.

- a. Yang Y, Du L, Liu C, Wang L, Ma C, Tang J, **Baric RS**, Jiang S, **Li F**. Receptor usage and cell entry of bat coronavirus HKU4 provide insight into bat-to-human transmission of MERS coronavirus. **Proc Natl Acad Sci U S A**. 2014 Aug 26;111(34):12516-21. PMC4151778
- b. Yang Y, Liu C, Du L, Jiang S, Shi Z, **Baric RS**, **Li F**. Two Mutations Were Critical for Bat-to-Human Transmission of Middle East Respiratory Syndrome Coronavirus. *J Virol*. 2015 Sep;89(17):9119-23. PMC4524054.
- c. Zheng Y, Shang J, Yang Y, Liu C, Wan Y, Geng Q, Wang M, **Baric R**, **Li F**. Lysosomal Proteases Are a Determinant of Coronavirus Tropism. *J Virol*. 2018 Nov 27;92(24). pii: e01504-18. PMC6258935
- d. Lindesmith LC, McDaniel JR, Changela A, Verardi R, Kerr SA, Costantini V, Brewer-Jensen PD, Mallory ML, Voss WN, Boutz DR, Blazeck JJ, Ippolito GC, Vinje J, Kwong PD, Georgiou G, **Baric RS**. Sera Antibody Repertoire Analyses Reveal Mechanisms of Broad and Pandemic Strain Neutralizing Responses after Human Norovirus Vaccination. **Immunity**. 2019 Jun 18;50(6):1530-1541.e8. PMID:31216462.

**3. Animal Models, Molecular Genetics/Immunity.** My group has pioneered strategies for performing reverse genetic analyses in coronaviruses and flaviviruses, We also developed novel animal models of human disease and studied the immunogenetic mechanisms regulating virus evolution in the face of human herd immunity.

- a. Wahl A, De C, Abad Fernandez M, Lenarcic EM, Xu Y, Cockrell AS, Cleary RA, Johnson CE, Schramm NJ, Rank LM, Newsome IG, Vincent HA, Sanders W, Aguilera-Sandoval CR, Boone A, Hildebrand WH, Dayton PA, **Baric RS**, Pickles RJ, Braunstein M, Moorman NJ, Goonetilleke N, Victor Garcia J. Precision mouse models with expanded tropism for human pathogens. **Nat Biotechnol**. 2019 Oct;37(10):1163-1173. PMC6776695.
- b. Lindesmith LC, Beltramello M, Donaldson EF, Corti D, Swanstrom J, Debbink K, Lanzavecchia A, **Baric RS** (2012). Immunogenetic mechanisms driving norovirus GII.4 antigenic variation. **PLoS Pathog** 8(5):e1002705. PMID: PMC3355092.
- c. Menachery VD, Einfeld AJ, (+23 other authors) and Baric RS. Pathogenic influenza viruses and coronaviruses utilize similar and contrasting approaches to control interferon-stimulated gene responses. **Mbio** 5:e01174-14, 2014. PMID: PMC4030454.
- d. Graham JB, Swarts JL, Menachery VD, Gralinski LE, Schäfer A, Plante KS, Morrison CR, Voss KM, Green R, Choonoo G, Jeng S, Miller DR, Mooney MA, McWeeney SK, Ferris MT, Pardo-Manuel de Villena F, Gale M, Heise MT, **Baric RS**, Lund JM. Immune Predictors of Mortality After Ribonucleic Acid Virus Infection. **J Infect Dis**. 2020 Mar 2;221(6):882-889. PMID:31621854

**4.Host Susceptibility/Innate Immune Antagonism.** Coronaviruses, noroviruses and DENV are major causes of human morbidity and mortality worldwide. We have used the **Collaborative Cross Mice** to identify host susceptibility alleles that regulate SARS-CoV and EBoV pathogenesis, and demonstrated common epigenetic control mechanisms that antagonize antigen presentation after infection.

- a. Gralinski LE, Ferris MT, (+16 other authors) and **Baric RS** (2015). Genome Wide Identification of SARS-CoV Susceptibility Loci Using the Collaborative Cross. **PLoS Genet** 11:e1005504, PMC4599853.
- b. Gralinski L, Menachery V, (+9 other authors) and **Baric RS** (2017). *Ticam2* contributes to SARS-CoV pathogenesis. **G3** 7;7(6):1653-1663. PMID: 28592648. PMID: PMC5473747.
- c. Rasmussen AL, Okumura A, (**Baric RS** + 18 others) and Katze MG (2014). Host genetic diversity enables Ebola hemorrhagic fever pathogenesis and resistance. **Science** 346:987-991, PMC4241145.
- d. Menachery VD, Schäfer A, (+12 other authors), Sims AC, Kawaoka Y, **Baric RS** (2018). MERS-CoV and H5N1 influenza virus antagonize antigen presentation by altering the epigenetic landscape. **Proc Natl Acad Sci USA** 30;115(5):E1012-E1021. PMID: 29339515. PMID: PMC5798318.

**5.Pathogenesis and Intervention Studies.** Our group has studied the role of virus-host interactions in susceptibility, pathogenesis and vaccine design, including studies in the Collaborative Cross Mice.

- a. Adams Waldorf KM, Nelson BR, Stencel-Baerenwald JE, Studholme C, Kapur RP, Armistead B, Walker CL, Merillat S, Vornhagen J, Tisoncik-Go J, Baldessari A, Coleman M, Dighe MK, Shaw DWW, Roby JA, Santana-Ufret V, Boldenow E, Li J, Gao X, Davis MA, Swanstrom JA, Jensen K, Widman DG, **Baric RS et al** (2018). Congenital Zika virus infection as a silent pathology with loss of neurogenic output in the fetal brain. **Nat Med** 24(3):368-374. PMC5839998.
- b. Ferris MT, Aylor DL, Bottomly D, Whitmore AC, Aicher LD, Bell TA, Bradel-Tretheway B, Bryan JT, Buus RJ, Gralinski LE, Haagmans BL, McMillan L, Miller DR, Rosenzweig E, Valdar W, Wang J,

Churchill GA, Threadgill DW, McWeeney SK, Katze MG, Pardo-Manuel de Villena F, **Baric RS**, Heise MT. Modeling host genetic regulation of influenza pathogenesis in the collaborative cross. **PLoS Pathog**. 2013 Feb;9(2):e1003196. PMC3585141

- c. Zhang S, Kostyuchenko VA, Ng TS, Lim XN, Ooi JS, Lambert S, Tan TY, Widman DG, Shi J, **Baric RS**, Lok SM (2016). Neutralization mechanism of a highly potent antibody against Zika virus. **Nat Commun** 24;7:13679. PMID: 27882950. PMCID: PMC5123051.
- d. Menachery VD, Dinnon KH 3rd, Yount BL Jr, McAnarney ET, Gralinski LE, Hale A, Graham RL, Scobey T, Anthony SJ, Wang L, Graham B, Randell SH, Lipkin WI, **Baric RS**. Trypsin Treatment Unlocks Barrier for Zoonotic Bat Coronavirus Infection. *J Virol*. 2020 Feb 14;94(5). pii: e01774-19. PMC7022341

#### **Complete List of Publications in MyBibliography:**

<http://www.ncbi.nlm.nih.gov/sites/myncbi/ralph.baric.1/bibliography/40583903/public/?sort=date&direction=ascending>. 342 total publications, >115 since 2014, overall H-index:89; 25135 total citations.

#### **D. Additional Information: Research Support and/or Scholastic Performance**

##### **Ongoing Research Support**

U19 AI 100625 (NIH/NIAID) Baric/Heise (MPI) 09/01/17-08/31/22

##### **Systems Immunogenetics of Biodefense Pathogens in the Collaborative Cross**

The Collaborative Cross, a mouse resource designed to study complex genetic interactions in diverse populations, to identify novel polymorphic genes regulating immune responses to SARS, influenza and West Nile viruses, gain new insights into genetic interactions that shape immune phenotypes in mice and humans, and generate panels of genetically defined mice to probe how sets of polymorphic genes affect immune responses against a variety of pathogens or other immune stimuli.

R01 AI108197 (Vanderbilt/NIAID) Denison/Baric (MPI) 05/01/18-04/30/23

##### **Determinants of Coronavirus Fidelity in Replication and Pathogenesis**

Experiments in this aim will test the hypothesis that nsp14 functions in maintaining high replication fidelity and viral RNA synthesis are coupled and that targeted engineered mutations across nsp14 alter: a) RNA fidelity outcomes; b) sensitivity to nucleoside mutagens and polymerase inhibitors; c) sensitivity to innate immunity.

U19 AI 142759 (NIH/NIAID) Whitley (PI) 03/07/19-02/28/24

##### **Antiviral Drug Discovery and Development Center**

The specific aims of the proposal will identify small molecule inhibitors of CoV fidelity and RNA capping, define their mechanism of action, and determine their efficacy against SARS-CoV and across CoV families using in vivo mouse models of acute and persistent CoV disease. Role: Co-Investigator

R01 AI110700 (NIH/NIAID) Baric (PI) 04/20/15-03/31/20

##### **Mechanisms of MERS-CoV Entry, Cross-species Transmission and Pathogenesis**

The overall goal is to build a comprehensive understanding of the molecular mechanisms guiding group 2c CoV receptor recognition, entry and pathogenesis.

P01 AI106695 (NIH/NIAID) Harris (PI) 07/1/2015-6/30/20

##### **Protective immunity following dengue virus natural infections and vaccination**

Project 2: Aravinda deSilva and Ralph S. Baric (Co-PI).

The goal is to identify natural correlates of protective immunity following natural infection and or vaccination. Role: Co-Investigator

R01 AI125198 (NIH/NIAID) de Silva (PI) 06/01/16 – 5/31/21

##### **Preclinical assays to predict dengue vaccine efficacy**

We use samples from DENV tetravalent vaccine clinical trials with the Sanofi Pasteur vaccine to identify mechanisms and correlates of protective immunity or breakthrough infections in vaccinees. Role: Co-investigator.

R01 1AI132178 (NIH/NIAID) Baric/Sheahan (MPI) 08/15/17-8/14/22

##### **Broad-spectrum antiviral GS-5734 to treat MERS-CoV and related emerging CoV.**

The goal of this proposal is collaborate with Gilead Inc. and obtain GS-5734 preclinical data for IND development and translational studies, all designed to move the therapeutic into human trials.

- R01 AI 089728 Li (PI) 07/01/16-06/30/21  
University of Minnesota/NIAID  
**Receptor recognition and cell entry of coronaviruses**  
The program studies receptor usage and cell entry mechanisms of emerging coronaviruses, focused on PEDV, MHV and SARS-like Coronaviruses. Role: Co-Investigator
- R21 AI135682 Georgiou (PI) 04/01/18-03/30/20  
UT Austin/NIAID  
**Molecular Analysis of Serum Antibody Constituents in Zika Virus Infection.**  
The goal of this application is to identify antibodies that make up the serologic repertoire after Zikv infection of naive and DENV preimmune individuals. Role: Co-investigator.
- R21 AI137887 (NIH/NIAID) Moorman/Heise (MPI) 02/05/18-01/31/2021  
**Molecular Characterization of Functional RNA Structures in the ZikV genome**  
The goal of this project is to study The RNA Structure of Zika virus, an emerging pathogen that is associated with severe congenital neurologic defects, such as microcephaly. The proposed studies will identify new viral virulence determinants that can be targeted to generate safer and more effective Zika virus vaccines and therapeutics. Role: Co-Investigator.
- HHSN272201700036I Baric, (PI) 07/15/2019-7/14/22  
**Task Order: 75N93019F00131-Establishment of Chronic Bacterial Infection Models in Mouse Models of Cystic Fibrosis with Pseudomonas aeruginosa and Staphylococcus aureus.**  
The goal is to create a robust mouse model for chronic bacterial infections in Cystic Fibrosis mouse models for eventual testing of drugs and therapeutics. **Project Leader:** Dr. Matthew Wolfgang, UNC Chapel Hill.
- R01AI127845 (PI: Becker-Dreps) 09/27/16-08/31/21  
**Natural history, immunity, and transmission patterns of sapovirus in a Nicaraguan birth cohort**  
To characterize the natural history and risk factors for sapovirus gastroenteritis, elucidate the development of immunity to sapovirus in early childhood and the potential protective effect of maternal immunity, and apply novel genetic and analytic tools to characterize patterns of sapovirus transmission in households and communities. Role: Investigator
- D43 TW010923 (PI: Becker-Dreps) 05/10/18-02/28/23  
**Nicaraguan Emerging and Endemic Diseases (NEED)**  
The goals of this program are to 1) train young Nicaraguan scientists in Infectious Disease Epidemiology at the UNC, 2) create a sustainable supply of scientists in the region by establishing an accredited PhD program in Biomedical Sciences at the Universidad Nacional Autonoma de Nicaragua Leon 3) foster professional growth and development among trainees & local faculty to ensure academic and research success. Role: Invest.
- R01 AI 107731 (PI: De Silva) 01/1/19-12/30/24  
**Molecular Basis of Dengue Virus Neutralization by Human Antibodies**  
These studies proposed here are directly relevant to developing simple assays to predict the mechanisms by which human antibodies neutralize DENV1-4 and ZIKV after natural primary and secondary infections. Role: Investigator
- U01AI149644 (Baric, PI) 5/1/2019-4/30/2024  
NIH/NIAID **Respiratory Virus Vaccine and Adjuvant Exploration**  
To use systems genetic approaches to map susceptibility alleles that regulate vaccine and adjuvant performance in genetic reference models of outbred populations.

### Completed Research Support

- University College London/Burroughs Wellcome Trust Breuer (PI) 02/01/17-01/31/20  
**Why do Norovirus pandemics occur and how can we control them?**  
The program uses hospital and community cohorts of NoV infected individuals to ask fundamental questions into the molecular and evolutionary epidemiology of human NoV infections, focusing on the GII.4 strains, leading to new models of virus emergence and disease prevention. Role: Co-Investigator:

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## BIOGRAPHICAL SKETCH

Provide the following information for the Senior/key personnel and other significant contributors.  
Follow this format for each person. **DO NOT EXCEED FIVE PAGES.**

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NAME: Lisa E. Gralinski

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eRA COMMONS USER NAME (credential, e.g., agency login): LISA\_GRALINSKI

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POSITION TITLE: Assistant Professor

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EDUCATION/TRAINING (*Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.*)

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| INSTITUTION AND LOCATION                    | DEGREE<br>(if applicable) | Completion<br>Date<br>MM/YYYY | FIELD OF STUDY               |
|---------------------------------------------|---------------------------|-------------------------------|------------------------------|
| Haverford College, Haverford, PA            | BA                        | 05/2002                       | Biology                      |
| University of Michigan, Ann Arbor, MI       | PhD                       | 12/2008                       | Microbiology &<br>Immunology |
| University of North Carolina at Chapel Hill |                           | 08/2013                       | Virology                     |

### A. Personal Statement

My research is focused on unbiased discovery of host genes that contribute to viral pathogenesis with a long term goal of identifying polymorphic alleles and combinations of alleles that influence disease outcome. Through my studies of host-virus interactions I aim to identify host genetic signatures that predict general risk factors and individual disease severity allowing for personalized medical intervention as well as factors that enable zoonotic transmission. Towards this end I have focused on 1) systems biology approaches to mapping pathogenic or protective host response networks, 2) host susceptibility QTL mapping in a mammalian genetic reference panel, 3) mechanistic studies on QTL-derived candidate genes to determine function and 4) applying this knowledge to understanding mechanisms of disease emergence in humans.

As a graduate student I examined viral and host proteins that dictated the immune response and course of disease in response to MAV-1 infection. Continuing that theme, as a postdoc the Baric laboratory I focused on the host response to coronavirus infection, including SARS-CoV, MERS-CoV and newly identified SARS-like bat coronaviruses. I have published extensively (40 publications) on the topics of viral pathogenesis, systems immunogenetics and systems virology, identifying both essential pathways and critical allelic variation that dictate the outcome of SARS-CoV infection. For the past nine years I have been using mouse genetic reference populations such as the Collaborative Cross (CC) to study how host genetic variation impacts susceptibility to virus-induced disease and to identify polymorphic host genes that are associated with the variation in disease susceptibility. Using systems immunogenetics to examine the role of host allelic variation to response to infection I identified and validated the roles of *Trim55* and *Ticam2* in protecting from SARS-CoV-induced disease. Analysis of additional QTL and candidate genes continues with the goal of identifying functional allelic variation that contributes to all of our SARS-CoV infection phenotypes. Additionally, using the wealth of data generated from systems biology studies of *in vivo* SARS-CoV infections, I identified host extracellular matrix remodeling pathways as critical in determining a lethal or a recovery phenotype and validated *Serping1* as an essential gene in that pathway.

Therefore, my expertise in coronavirus virology, the use of mouse models, and genetic resources such as the Collaborative Cross, leaves me well positioned to study host polymorphic host genes and gene expression networks impact susceptibility to SARS-CoV-induced disease. Ultimately these combined data will give a broad and yet detailed picture of how dysregulation of the host immune response leads to viral pathogenesis. My work contributes to a greater understanding of the genetic underpinnings of immune responses in genetically complex populations, with the goal of reducing disease burdens in human populations.

- **Gralinski LE**, Bankhead A, Jeng S, Menachery VD, Proll S, Belisle SE, Matzke M, Webb-Robertson BJ, Luna ML, Shukla AK, Ferris MT, Bolles M, Chang J, Aicher L, Waters KM, Smith RD, Metz TO, Law GL, Katze MG, McWeeney S, Baric RS. Mechanisms of severe acute respiratory syndrome coronavirus-induced acute lung injury. *mBio*. 2013 Aug 6;4(4). PMC3747576.
- **Gralinski LE**, Ferris MT, Aylor DL, Whitmore AC, Green R, Frieman MB, Deming D, Menachery VD, Miller DR, Buus RJ, Bell TA, Churchill GA, Threadgill DW, Katze MG, McMillan L, Valdar W, Heise MT, Pardo-Manuel de Villena F, Baric RS. Genome Wide Identification of SARS-CoV Susceptibility Loci Using the Collaborative Cross. *PLoS Genet*. 2015 Oct 9;11(10):e1005504. doi: 10.1371/journal.pgen.1005504.
- **Gralinski LE**, Menachery VD, Morgan AP, Totura AL, Beall A, Kocher J, Plante J, Harrison-Shostak DC, Schäfer A, Pardo-Manuel de Villena F, Ferris MT, Baric RS. Allelic Variation in the Toll-Like Receptor Adaptor Protein *Ticam2* Contributes to SARS-Coronavirus Pathogenesis in Mice. *G3 (Bethesda)*. 2017 Jun 7;7(6):1653-1663. doi: 10.1534/g3.117.041434.
- **Gralinski LE**, Sheahan TP, Morrison TE, Menachery VD, Jensen K, Leist S, Whitmore A, Heise MT, Baric RS. Complement activation contributes to SARS-Coronavirus pathogenesis. *MBio*. 2018 Oct 9;9(5). pii: e01753-18.

## B. Positions and Honors

### Positions and Employment

|           |                                                                                                   |
|-----------|---------------------------------------------------------------------------------------------------|
| 2002-2008 | Graduate Student, Laboratory of Dr. Katherine Spindler, University of Michigan, Ann Arbor, MI.    |
| 2008-2013 | Postdoctoral Fellow, Laboratory of Ralph S. Baric, University of North Carolina, Chapel Hill, NC. |
| 2013-2016 | Research Associate, Laboratory of Ralph S. Baric, University of North Carolina, Chapel Hill, NC.  |
| 2016-     | Assistant Professor, Department of Epidemiology, University of North Carolina, Chapel Hill, NC.   |

### Honors

|            |                                                                           |
|------------|---------------------------------------------------------------------------|
| 1998-2002  | Magill-Rhodes Scholar, Haverford College                                  |
| 2004-2005  | Molecular Mechanisms of Microbial Pathogenesis Training Grant (T32)       |
| 2006       | DNA Tumor Virus Meeting travel award                                      |
| 2006, 2007 | Horace H. Rackham School of Graduate Studies Travel Award                 |
| 2008-2010  | American Society of Virology Travel Award                                 |
| 2011       | UNC Microbiology and Immunology Postdoc Symposium Award Winner            |
| 2013       | 27th International Mammalian Genome Conference Travel Award               |
| 2013       | 27th International Mammalian Genome Conference - Outstanding Presentation |
| 2014       | Keystone Symposia scholarship                                             |

### Professional Memberships

2005- present Member, American Society for Virology

### Professional Service

|                |                                                                             |
|----------------|-----------------------------------------------------------------------------|
| 2016 – Present | Reviewer, Scientific Reports                                                |
| 2016 – Present | Reviewer, Case Reports in Neurological Medicine                             |
| 2017 – Present | Reviewer, International Journal of Molecular Sciences                       |
| 2017 – Present | Reviewer, Viruses, Virology                                                 |
| 2019 – Present | Reviewer, Cell Reports                                                      |
| 2019 – 2022    | Member, American Society of Virology Student/Postdoc Travel Award Committee |
| 2020-Present   | Reviewer, Frontiers in Genetics, BMC Medicine                               |

## C. Contributions to Science

**1. Zoonotic viruses and their potential for emergence.** SARS-CoV and MERS-CoV are two recent examples of viruses that have emerged from zoonotic populations to cause devastating disease in humans. Zoonotic emergence has multiple factors and my studies aim to identify correlates of emergence from both the virus and host side of that equation. We have created chimeric viruses using synthetic-genome platforms and also re-derived full length viruses from sequence to allow for testing in mouse models. Critically, this work has

shown that circulating bat coronaviruses are capable of efficiently infecting primary human airway epithelial cells with no adaptive mutations required.

- Agnihothram S, Yount BL Jr, Donaldson EF, Huynh J, Menachery VD, **Gralinski LE**, Graham RL, Becker MM, Tomar S, Scobey TD, Osswald HL, Whitmore A, Gopal R, Ghosh AK, Mesecar A, Zambon M, Heise M, Denison MR, Baric RS. A mouse model for Betacoronavirus subgroup 2c using a bat coronavirus strain HKU5 variant. *MBio*. 2014 Mar 25;5(2):e00047-14. doi: 10.1128/mBio.00047-14.
- Menachery VD, Yount BL Jr, Debbink K, Agnihothram S, **Gralinski LE**, Plante JA, Graham RL, Scobey T, Ge XY, Donaldson EF, Randell SH, Lanzavecchia A, Marasco WA, Shi ZL, Baric RS. A SARS-like cluster of circulating bat coronaviruses shows potential for human emergence. *Nat Med*. 2015 Dec;21(12):1508-13. doi: 10.1038/nm.3985. Epub 2015 Nov 9.
- Menachery VD, Yount BL Jr, Sims AC, Debbink K, Agnihothram SS, **Gralinski LE**, Graham RL, Scobey T, Plante JA, Royal SR, Swanstrom J, Sheahan TP, Pickles RJ, Corti D, Randell SH, Lanzavecchia A, Marasco WA, Baric RS. SARS-like WIV1-CoV poised for human emergence. *Proc Natl Acad Sci U S A*. 2016 Mar 15;113(11):3048-53.
- Trypsin Treatment Unlocks Barrier for Zoonotic Bat Coronavirus Infection. Menachery VD, Dinnon KH 3rd, Yount BL Jr, McAnarney ET, **Gralinski LE**, Hale A, Graham RL, Scobey T, Anthony SJ, Wang L, Graham B, Randell SH, Lipkin WI, Baric RS. *J Virol*. 2020 Feb 14;94(5). pii: e01774-19. doi: 10.1128/JVI.01774-19.

**2. Understanding how host genetic diversity contributes to viral pathogenesis.** My ongoing studies focus on a systems genetics approach to understanding the role of host genes in contributing to viral pathogenesis. I have examined the role of host genetics in the response to SARS-CoV using the incipient lines of the Collaborative Cross (CC) as well as fully inbred CC lines. A wide range of responses to infection are observed spanning resistance to SARS-CoV infection to extreme susceptibility including early mortality; similar to the disease range observed in humans. In multiple mapping studies we have identified numerous quantitative trait loci responsible for a number of pathogenic phenotypes that have led to identification of novel host alleles that contribute to or protect from disease. I am leading several collaborative studies that follow up on this work, continuing efforts to map SARS-CoV susceptibility alleles and to also look for genes that have broad relevance for viral infection by comparing our SARS-CoV datasets to those being generated by our collaborators investigating West Nile Virus and Influenza A Virus.

- Bottomly D, Ferris MT, Aicher LD, Rosenzweig E, Whitmore A, Aylor DL, Haagmans BL, **Gralinski LE**, Bradel-Tretheway BG, Bryan JT, Threadgill DW, de Villena FP, Baric RS, Katze MG, Heise M, McWeeney SK. Expression quantitative trait Loci for extreme host response to influenza a in pre-collaborative cross mice. *G3 (Bethesda)*. 2012 Feb;2(2):213-21.
- Ferris MT, Aylor DL, Bottomly D, Whitmore AC, Aicher LD, Bell TA, Bradel-Tretheway B, Bryan JT, Buus RJ, **Gralinski LE**, Haagmans BL, McMillan L, Miller DR, Rosenzweig E, Valdar W, Wang J, Churchill GA, Threadgill DW, McWeeney SK, Katze MG, Pardo-Manuel de Villena F, Baric RS, Heise MT. Modeling host genetic regulation of influenza pathogenesis in the collaborative cross. *PLoS Pathog*. 2013 Feb;9(2):e1003196. doi: 10.1371/journal.ppat.1003196.
- **Gralinski LE**, Ferris MT, Aylor DL, Whitmore AC, Green R, Frieman MB, Deming D, Menachery VD, Miller DR, Buus RJ, Bell TA, Churchill GA, Threadgill DW, Katze MG, McMillan L, Valdar W, Heise MT, Pardo-Manuel de Villena F, Baric RS. Genome Wide Identification of SARS-CoV Susceptibility Loci Using the Collaborative Cross. *PLoS Genet*. 2015 Oct 9;11(10):e1005504. doi: 10.1371/journal.pgen.1005504.
- **Gralinski LE**, Menachery VD, Morgan AP, Tatura AL, Beall A, Kocher J, Plante J, Harrison-Shostak DC, Schäfer A, Pardo-Manuel de Villena F, Ferris MT, Baric RS. Allelic Variation in the Toll-Like Receptor Adaptor Protein *Ticam2* Contributes to SARS-Coronavirus Pathogenesis in Mice. *G3 (Bethesda)*. 2017 Jun 7;7(6):1653-1663. doi: 10.1534/g3.117.041434.

**3. Systems biology based analysis of host-virus interactions.** In order to better understand the host response to both lethal and sublethal SARS-CoV infection I have used a systems biology approach to analyze transcriptomics and proteomics data from the lungs of infected mice. We used statistical analysis of differentially expressed genes to identify eigengenes and conserved signaling pathways with significant changes in expression between lethally infected mice and sublethally infected mice. This analysis identified extracellular matrix remodeling pathways, in particular the urokinase pathway, as being significantly

dysregulated following lethal SARS-CoV infection. Continuing analysis of this omics data has revealed pathogenic roles for both TNF $\alpha$  and complement pathway signaling, highlighting well-known aspects of the immune response as potential targets for therapeutic treatment following coronavirus infection.

- **Gralinski LE**, Bankhead A, Jeng S, Menachery VD, Proll S, Belisle SE, Matzke M, Webb-Robertson BJ, Luna ML, Shukla AK, Ferris MT, Bolles M, Chang J, Aicher L, Waters KM, Smith RD, Metz TO, Law GL, Katze MG, McWeeney S, Baric RS. Mechanisms of severe acute respiratory syndrome coronavirus-induced acute lung injury. *mBio*. 2013 Aug 6;4(4). PMC3747576.
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- Menachery VD, Einfeld AJ, Josset L, Sims AC, Schaefer A, Proll S, Fan S, Li C, Neumann G, Tilton SC, Chang J, **Gralinski LE**, Long C, Green R, Matzke MM, Webb-Robertson BJ, Shukula AK, Burkett S, Metz TO, Pickles R, Smith RD, Waters KM, Katze MG, Kawaoka Y, Baric RS. Pathogenic influenza and coronaviruses utilize similar and contrasting approaches to control global interferon stimulated gene responses. *mBio*. 2014 May 20; 5(3): e1174-14. PMC4030454.
- McDermott JE, Mitchell HD, **Gralinski LE**, Einfeld AJ, Josset L, Bankhead A 3rd, Neumann G, Tilton SC, Schäfer A, Li C, Fan S, McWeeney S, Baric RS, Katze MG, Waters KM. The effect of inhibition of PP1 and TNF $\alpha$  signaling on pathogenesis of SARS coronavirus. *BMC Syst Biol*. 2016 Sep 23;10(1):93.

**4. Viral genes and their role in infection and pathogenesis.** Viral genomes encode a variety of proteins that interact with host factors and modulate infection. My work has sought to identify the role of specific viral factors in infection and pathogenesis. My thesis work focused on the role of the MAV-1 E3gp11k protein in contributing to pathogenesis and I have continued to study the function of viral genes in relation to disease using coronaviruses. In particular, the accessory genes encoded by SARS-CoV and MERS-CoV are attractive targets for deletion in generating attenuated virus strains as potential vaccines.

- Sims AC, Tilton SC, Menachery VD, **Gralinski LE**, Schäfer A, Matzke MM, Webb-Robertson BJ, Chang J, Luna ML, Long CE, Shukla AK, Bankhead AR 3rd, Burkett SE, Zornetzer G, Tseng CT, Metz TO, Pickles R, McWeeney S, Smith RD, Katze MG, Waters KM, Baric RS. Release of severe acute respiratory syndrome coronavirus nuclear import block enhances host transcription in human lung cells. *J Virol*. 2013 Apr;87(7):3885-902. doi: 10.1128/JVI.02520-12.
- Menachery VD, Yount BL Jr, Josset L, **Gralinski LE**, Scobey T, Agnihothram S, Katze MG, Baric RS. Attenuation and restoration of severe acute respiratory syndrome coronavirus mutant lacking 2'-O-methyltransferase activity. *J Virol*. 2014 Apr;88(8):4251-64. doi: 10.1128/JVI.03571-13
- Menachery VD, Mitchell HD, Cockrell AS, **Gralinski LE**, Yount BL Jr, Graham RL, McAnarney ET, Douglas MG, Scobey T, Beall A, Dinno K 3rd, Kocher JF, Hale AE, Stratton KG, Waters KM, Baric RS. MERS-CoV Accessory ORFs Play Key Role for Infection and Pathogenesis. *MBio*. 2017 Aug 22;8(4). pii: e00665-17. doi: 10.1128/mBio.00665-17.
- **Gralinski LE**, Sheahan TP, Morrison TE, Menachery VD, Jensen K, Leist S, Whitmore A, Heise MT, Baric RS. Complement activation contributes to SARS-Coronavirus pathogenesis. *MBio*. 2018 Oct 9;9(5). pii: e01753-18.

#### **Complete List of Published Work in NCBI MyBibliography:**

<https://www.ncbi.nlm.nih.gov/myncbi/1Vcz2CJWQmYAG/bibliography/public/>

#### **D. Additional Information: Research Support and/or Scholastic Performance**

##### **Active Research Support**

**U19 A1 AI100625 (PI Baric/Heise)**

September 2017 – July 2022

##### **Systems Immunogenetics of Biodefense Pathogens in the Collaborative Cross, NIAID, NIH**

In this proposal, we are utilizing the Collaborative Cross (CC), a novel panel of reproducible, recombinant inbred (RI) mouse lines to identify genes and gene interactions which regulate the induction, kinetics, and magnitude of the innate, inflammatory and adaptive arms of the immune response following virus infection. Specifically, we will develop novel modeling algorithms to predict and validate the causal relationships between natural genetic variation and host signaling networks, immune cell recruitment, and immune function.

Role: Investigator



**Completed Research Support**

**U19 AI109761 CETR (PI: Lipkin)**

March 2014-February 2020

**Diagnostic and Prognostic Biomarkers for Viral Severe Lung Disease**

The overall goal of this program is to develop new platform technologies that use functional genomics as diagnostic and prognostic indicators of severe end stage lung disease following virus infection of the lung.

Role: Investigator

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## BIOGRAPHICAL SKETCH

Provide the following information for the Senior/key personnel and other significant contributors.  
Follow this format for each person. **DO NOT EXCEED FIVE PAGES.**

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NAME: Sheahan, Timothy Patrick

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eRA COMMONS USER NAME (credential, e.g., agency login): tsheahan

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POSITION TITLE: Assistant Professor

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EDUCATION/TRAINING (*Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.*)

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| INSTITUTION AND LOCATION                    | DEGREE<br>(if<br>applicable) | Completion<br>Date<br>MM/YYYY | FIELD OF STUDY                  |
|---------------------------------------------|------------------------------|-------------------------------|---------------------------------|
| University of New Hampshire                 | B.S.                         | 06/1999                       | Microbiology/Water<br>Resources |
| University of North Carolina at Chapel Hill | Ph.D.                        | 05/2008                       | Virology                        |
| The Rockefeller University                  | Postdoctoral                 | 03/2013                       | Systems Virology                |

### A. Personal Statement

I have over a fifteen years of experience performing translational research focused on evaluating antiviral therapeutics and elucidating virus and host factor targets for antiviral development. Through my academic and industrial training, I have acquired a broad skillset necessary to lead this program and meet our milestones. I gained extensive knowledge of coronavirus (CoV) molecular biology, pathogenesis, vaccinology, and animal model development within which to evaluate therapeutics through my graduate research at UNC Chapel Hill with Dr. Ralph S. Baric. The goals of my graduate research were to gain a better understand of the molecular mechanisms guiding CoV zoonotic emergence and to evaluate the efficacy of vaccines and antibodies against epidemic CoV and zoonotic CoV. During my graduate career I published extensively on zoonotic CoV and therapeutics (15 publications) and the skills gained executing these studies continue to be of use today. Under the guidance of Dr. Charles M. Rice at The Rockefeller University, my postdoctoral research focused on the creation of single cell systems within which to better understand the molecular mechanisms guiding hepatitis C virus (HCV) chronic infection. During my tenure at Rockefeller, I was awarded an NIH F32 fellowship through which I gained my first experience independently guiding milestone driven research. To carry out proposed grant aims, I developed a systems virology approach coupling primary human hepatocyte cultures and laser-capture microdissection facilitating the isolation and transcriptional profiling of HCV infected cells at a resolution approaching that of a single cell. This work was also featured on Dr. Vincent Racaniello's popular podcast "This Week in Virology." After my postdoctoral fellowship, I became an investigator at the Antiviral Discovery Performance Unit at GlaxoSmithKline (GSK) based in Research Triangle Park. At GSK, I was part of several programs focused on developing and evaluating host targeting small molecules as antivirals. Through this work, I gained expertise in whole genome siRNA screens and triage of hits, antiviral assay development, and design of in vivo efficacy studies. Importantly, I became fluent in the language of preclinical drug development through interactions with experts in drug metabolism, pharmacokinetics, drug safety and toxicology. I also led a three-way public private partnership between GSK, Perkin Elmer and the University of Wisconsin at Madison to develop in vivo imaging technology that facilitated the imaging of virus replication and pulmonary inflammation in live animals. Not only did this program result in a publication on in vivo imaging techniques for influenza virus, but I also gained expertise in managing research collaborations between academia and industry which continues to be of great value. In July of 2015, I became faculty at UNC Chapel Hill in the Department of Epidemiology focusing on broad-spectrum therapeutic approaches targeting CoV with the long-term goal of developing vaccines, therapeutic antibodies and small molecules to prevent future pandemics. Through a Partnership R01 (PI Sheahan/Baric) awarded in 2016, we have been working with Gilead Sciences and Vanderbilt School of Medicine to accelerate the preclinical development of the broad-spectrum antiviral, remdesivir, to treat MERS-CoV and related CoVs. The publications resulting from this

program (see below) have in part facilitated the initiation of a clinical trial for remdesivir in China to treat nCoV-2019. My training and experience make me well suited to support this program to better understand coronavirus host range and pathogenesis.

## **B. Positions and Honors**

### **Positions and Employment**

- 1999-2001 Laboratory Technician, Harvard Gene Therapy Initiative, Harvard Medical School, Boston, MA.
- 2001-2003 Laboratory Technician, Tissue Engineering Laboratory of Joseph Vacanti. Massachusetts General Hospital, Boston, MA.
- 2003-2008 Graduate Student, Laboratory of Ralph S. Baric, University of North Carolina, Chapel Hill, NC.
- 2008-2014 Postdoctoral Fellow, Laboratory of Charles M. Rice, The Rockefeller University, NY, NY.
- 2014-2015 Investigator, Antiviral Discovery Performance Unit, GlaxoSmithKline, RTP, NC.
- 2015- Assistant Professor, Department of Epidemiology, University of North Carolina, Chapel Hill, NC.

### **Other Experience and Professional Memberships**

- 2002- Member, American Society for Microbiology
- 2007- Member, American Society for Virology
- 2019- Member, International Society for Antiviral Research

### **Honors**

- 1998 Gordon Byers Scholarship for an Outstanding Water Resources Student.
- 2002 Partners in Excellence Award, Massachusetts General Hospital.
- 2009 Ruth L. Kirschstein National Research Service Award (Postdoctoral Fellowship).
- 2015 Third Place Regional GSK Beautiful Biology Award. *"In vivo imaging: A new platform to accelerate drug discovery at the host/pathogen interface"*.
- 2015 Second Place Global GSK Beautiful Biology Award. *"In vivo imaging: A new platform to accelerate drug discovery at the host/pathogen interface"*.

## **C. Contributions to Science**

1. My early work focused on the molecular mechanisms guiding zoonotic CoV emergence and viral/host determinants of SARS-CoV pathogenesis. We elucidated mutations in the SARS-CoV required to increase pathogenesis in mice and shift zoonotic CoV host range to infect human cells. The mouse models created through these studies continue to be of use today as we evaluate new therapies targeting CoV. Moreover, these studies provided the technical foundation for synthetic genome design and recovery of recombinant zoonotic CoV, which has since been repeated multiple times by the Baric Lab.
  - a. Roberts A, Deming D, Paddock CD, Cheng A, Yount B, Vogel L, Herman BD, **Sheahan T**, Heise M, Genrich GL, Zaki SR, Baric R, Subbarao K. A mouse-adapted SARS-coronavirus causes disease and mortality in BALB/c mice. *PLoS Pathogens*. 2007 Jan;3(1):e5.
  - b. **Sheahan T**, Rockx B, Donaldson E, Sims A, Pickles R, Corti D, Baric R. Mechanisms of Zoonotic SARS-CoV Host Range Expansion in Human Airway Epithelium. *Journal of Virology*. 2008 Mar;82(5):2274-85.
  - c. **Sheahan T**, Rockx B, Donaldson E, Corti D, Baric R. Pathways of Cross Species Transmission of Synthetically Reconstructed Zoonotic SARS-CoV. *Journal of Virology*. 2008 Sep;82(17):8721-32.
  - d. **Sheahan T**, Morrison T, Funkhouser W, Akira S, Heise M, Baric R. MyD88 is required for protection from lethal infection with a mouse adapted SARS-CoV. *PLoS Pathogens*. 2008 Dec;4(12):e1000240.
2. Throughout my career, I have placed a special emphasis on pursuing and performing translational research, which is summarized in select publications below. My work on HCV in primary human hepatocytes demonstrated that specific interferon lambda alleles within hepatocytes were associated with permissiveness to infection corroborating phenotypes seen clinically. For the first time, these data showed

that genetic defects in hepatocytes likely guide the development of chronic HCV infection. More recently, I have been focusing on developing broad-spectrum antivirals for emerging coronavirus. We have published multiple high impact papers describing the preclinical development of the nucleoside analog, remdesivir, which are noted below. Together, these studies highlight my commitment to translational research and the development of therapeutics for emerging viral diseases.

- a. **Sheahan TP**, Imanaka N, Marukian S, Dorner M, Liu P, Ploss A, Rice CM. Interferon Lambda Alleles Predict Innate Antiviral Immune Responses and Hepatitis C Virus Permissiveness. *Cell Host and Microbe*. 2014 Feb 12;15(2):190-202.
  - b. **Sheahan TP**, Sims AC, Graham RL, Menachery VD, Gralinski LE, Case JB, Leist SR, Pyrc K, Feng JY, Trantcheva I, Bannister R, Park Y, Babusis D, Clarke MO, Mackman RL, Spahn JE, Palmiotti CA, Siegel D, Ray AS, Cihlar T, Jordan R, Denison MR, Baric RS. Broad-spectrum antiviral GS-5734 inhibits both epidemic and zoonotic coronaviruses. *Sci Transl Med*. 2017 Jun 28;9(396).
  - c. Brown AJ, Won JJ, Graham RL, Dinnon KH 3rd, Sims AC, Feng JY, Cihlar T, Denison MR, Baric RS, **Sheahan TP**. Broad spectrum antiviral remdesivir inhibits human endemic and zoonotic deltacoronaviruses with a highly divergent RNA dependent RNA polymerase. *Antiviral Res*. 2019 Jun 21;169:104541
  - d. **Sheahan TP**, Sims AC, Leist SR, Schäfer A, Won J, Brown AJ, Montgomery SA, Hogg A, Babusis D, Clarke MO, Spahn JE, Bauer L, Sellers S, Porter D, Feng JY, Cihlar T, Jordan R, Denison MR, Baric RS. Comparative therapeutic efficacy of remdesivir and combination lopinavir, ritonavir, and interferon beta against MERS-CoV. *Nat Commun*. 2020 Jan 10;11(1):222.
3. New technologies facilitate advances in science by accelerating the pace of discovery and increasing observational resolution. The work below highlights how new technologies can refine and accelerate translational research. With in vivo bioluminescent imaging, virus replication can be visualized in live animals. When applied to drug efficacy studies, inhibition of virus replication can be observed instantaneously in a single animal over time thus eliminating the need for large cohorts and sacrifice of mice over time to measure virus replication. Antivirals often inhibit virus replication. Single molecule RNA fluorescence in situ hybridization (smRNA FISH) techniques facilitate the simultaneous quantitation of viral RNAs and cellular RNAs at the single cell level. When applied to drug development as in the publication below, this technique can be applied to define the stage of replication inhibited by an antiviral and help refine the mechanism of action. Lastly, we established readily translatable metrics like complete blood count at BSL3 for both SARS and MERS-CoV.
- a. Tran V, Poole DS, Jeffery JJ, **Sheahan TP**, Creech D, Yevtodiyenko A, Peat AJ, Francis KP, You S, Mehle A. Multi-Modal Imaging with a Toolbox of Influenza A Reporter Viruses. *Viruses*. 2015 Oct 13;7(10):5319-27.
  - b. Ramanan V, Trehan K, Ong ML, Luna JM, Hoffmann HH, Espiritu C, **Sheahan TP**, Chandrasekar H, Schwartz RE, Christine KS, Rice CM, van Oudenaarden A, Bhatia SN. Viral genome imaging of hepatitis C virus to probe heterogeneous viral infection and responses to antiviral therapies. *Virology*. 2016 Apr 26;494:236-247. doi: 10.1016/j.virol.2016.04.020. PMID: 27128351
  - c. Leist SR, Jensen KL, Baric RS, **Sheahan TP**. Increasing the translation of mouse models of MERS coronavirus pathogenesis through kinetic hematological analysis. *PLoS One*. 2019 Jul 24;14(7):e0220126.

#### **Complete List of Published Work in NCBI MyBibliography:**

<http://www.ncbi.nlm.nih.gov/myncbi/browse/collection/40066608/?sort=date&direction=descending>

#### **D. Additional Information: Research Support and/or Scholastic Performance**

##### **Ongoing Research Support**

**U19 AI142759 CETR** (PI: Whitley)  
UAB/NIH/NIAID

03/01/19-02/28/24

##### **Antiviral Drug Discovery and Development Center**

The specific aims of the proposal will identify small molecule inhibitors of CoV replication, define their mechanism of action, and determine their efficacy against SARS-CoV, MERS-CoV and across CoV families using in vivo mouse models of acute and persistent CoV disease.

Role: Investigator

**R01 AI131688-01** (PI: Rice)

03/15/17-02/28/22

Rockefeller/NIH

**Analysis of immunity, viral adaptation and pathogenesis in a new mouse model of HCV-related rodent hepacivirus infection**

Mechanisms that contribute to the persistence of hepatotropic viruses, such as HCV, are not well understood. We have recently established the first immune-competent mouse model of an HCV-related virus. With this new model, we propose to systematically study immunity and host-virus interactions during a hepatotropic RNA virus infection in vivo. The specific aims of this proposal are to 1) characterize the innate and adaptive responses to NrHV infection in WT mice, 2) create new NrHV pathogenesis models through the adaptation of virus in WT and immune deficient mice and through the screening of CC mouse strains for increased susceptibility. Loci driving enhanced pathogenesis and resistance will be mapped, and 3) develop new models with mouse adapted virus to better model the effects of age, obesity and alcohol on the development of liver disease.

Role: Subcontract PI

**R01 AI132178-01** (MPI: Sheahan/Baric)

08/09/17-07/31/22

NIH

**Broad-spectrum antiviral GS-5734 to treat MERS-CoV and related emerging CoV**

In partnership with Gilead Sciences, we aim to accelerate the preclinical development of GS-5734 and promote IND licensure. We define the pharmacokinetics, pharmacodynamics, resistance profile, efficacy breadth and mechanism of action of GS-5734 against MERS-CoV and related emerging CoV.

**R01AI108197-06** (MPI: Baric/Denison)

03/01/18-02/28/23

Vanderbilt/NIH

**Determinants of Coronavirus Fidelity in Replication and Pathogenesis**

To identify common and unique determinants of CoV nsp14-ExoN functions CoV replication, fidelity and IFN sensitivity across CoVs; To determine pathways of adaptation to loss of nsp14-ExoN activity in vitro and in vivo; and to define mechanisms of ExoN-regulated CoV sensitivity to the innate antiviral immune response.

Role: Co-Investigator

**U01AI149644** (PI: Baric)

04/19/19-03/31/24

NIH

**Respiratory Virus Vaccine and Adjuvant Exploration**

Vaccination is one of the most effective public health measures for protecting against infectious disease, and the proposed studies will identify adjuvants and adjuvant combinations that safely elicit long lived protective immunity against emerging pathogens in at risk populations.

Role: Investigator

**BIOGRAPHICAL SKETCH**

Provide the following information for the Senior/key personnel and other significant contributors.  
Follow this format for each person. **DO NOT EXCEED FIVE PAGES.**

NAME: Fang Li

eRA COMMONS USER NAME (credential, e.g., agency login): fangli

POSITION TITLE: Associate Professor with Tenure

EDUCATION/TRAINING (*Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.*)

| INSTITUTION AND LOCATION                                | DEGREE<br>(if applicable) | Completion Date<br>MM/YYYY | FIELD OF STUDY                        |
|---------------------------------------------------------|---------------------------|----------------------------|---------------------------------------|
| Beijing University, Beijing, China                      | B.S.                      | 07/1996                    | Biochemistry and Molecular Biology    |
| Yale University, New Haven, CT                          | Ph.D.                     | 05/2002                    | Molecular Biophysics and Biochemistry |
| Yale University, New Haven, CT                          | Postdoctoral              | 06/2002 - 06/2003          | Structural Biology                    |
| Harvard Medical School, Children's Hospital, Boston, MA | Postdoctoral              | 07/2003 - 12/2006          | Structural Virology                   |

**A. Personal Statement**

I am a structural and molecular biologist, with a unique combination of technical skills in cutting-edge X-ray crystallography, cryo-electron microscopy, protein biochemistry, molecular virology, and computer design. Using these multidisciplinary skills, I study the molecular mechanisms of virus infections and cancer.

My main research interest is to understand how viruses infect host cells and transmit among host species. I am best known for pioneering work on the animal origins and cross-species transmissions of SARS and MERS coronaviruses. My group has determined many structures of coronavirus invasion proteins and discovered the molecular events that lead to coronavirus entry into host cells. My research has been one of the major driving forces in shaping up what we now know about receptor recognition and cell entry of coronaviruses. Moreover, we have developed structure-based strategies for viral vaccine designs and antibody developments. Our research provides foundational knowledge for the field of coronaviruses.

My second major area of research resides in the structural biology of cancer. My group has determined the structures of enzymes critical for tumor growth and invasion. An important new direction of my research is to identify new strategies to treat cancer.

My long-term goals are to (i) identify novel principles in virology that govern viral evolution, receptor recognition, cell entry, cross-species transmission and epidemics, (ii) understand the structure and function of proteins that are critical for virus infections and cancer, and (iii) develop novel therapy strategies to treat these human diseases.

1. Li, F., Li, W., Farzan, M., Harrison S.C. (2005) Structure of SARS coronavirus spike receptor-binding domain complexed with receptor. *Science*, 309, 1864-1868 (PMID: 16166518)
2. Peng, G., Sun, D., Rajashankar, K., Qian, Z., Holmes, K., Li, F. (2011) Crystal structure of mouse coronavirus receptor-binding domain complexed with its murine receptor. *Proceedings of the National Academy of Sciences USA*, 108, 10696-10701 (PMID: 21670291; PMCID: PMC3127895)
3. Chen, L., Lin, Y.L., Peng, G., Li, F. (2012) Structural basis for multifunctional roles of mammalian aminopeptidase N. *Proceedings of the National Academy of Sciences USA*, 109, 17966-17971 (PMID: 23071329; PMCID: PMC3497818)
4. Yang, Y., Du, L., Liu, C., Wang, L., Ma, C., Tang, J., Baric, R.S., Jiang, S., Li, F. (2014) Receptor usage and cell entry of bat coronavirus HKU4 provide insight into bat-to-human transmission of MERS

coronavirus. *Proceedings of the National Academy of Sciences USA*, 111, 12516-12521 (PMID: 25114257; PMCID: PMC4151778)

## B. Positions and Honors

- 1996 – 2002 Ph.D. Student, Department of Molecular Biophysics and Biochemistry, Yale University, (Advisor: Nobel laureate Dr. Thomas A. Steitz), New Haven, CT
- 2002 – 2003 Postdoctoral Fellow, Department of Molecular Biophysics and Biochemistry, Yale University, (Sponsor: Dr. Thomas A. Steitz), New Haven, CT
- 2003 – 2006 Postdoctoral Fellow, Department of Biological Chemistry and Molecular Pharmacology, Harvard Medical School, Boston Children’s Hospital (Sponsor: Dr. Stephen C. Harrison) Boston, MA
- 2007 – 2014 Assistant Professor (tenure track), Department of Pharmacology, University of Minnesota, Minneapolis, MN
- 2014 – 2017 Associate Professor (with tenure), Department of Pharmacology, University of Minnesota, Minneapolis, MN
- 2017-present Associate Professor (with tenure), Department of Veterinary and Biomedical Sciences, University of Minnesota, Saint Paul, MN

## Professional Memberships

- American Society for Virology – lifetime member  
American Society for Microbiology – full member  
American Crystallographic Association – full member  
American Society for Biochemistry and Molecular Biology – full member

## C. Contributions to Science

1. Animal origins and cross-species transmissions of SARS and MERS coronaviruses: SARS coronavirus (SARS-CoV) and MERS coronaviruses (MERS-CoV) both originated from animals and transmitted to humans, causing serious threat to global health. One of the main goals of my research is to elucidate the molecular mechanisms by which emerging animal viruses transmit to humans. To this end, I study the structures and functions of coronavirus spike proteins, which guide coronavirus entry into host cells. I determined the crystal structures of the spike receptor-binding domains (RBDs) from different SARS-CoV strains complexed with their receptor from different host species. My research has revealed that receptor recognition serves as a critical barrier for cross-species transmissions of viruses and that a few RBD mutations allowed SARS-CoV to transmit from animals to humans. Moreover, I examined the cell entry mechanisms of MERS-CoV. My research showed for the first time that cellular proteases from different host species serve as a barrier for cross-species transmissions of viruses and identified mutations in the protease cleavage sites in MERS-CoV spike protein that allowed MERS-CoV to transmit from animals to humans. Overall, my research has contributed critically to the knowledge about animal origins and cross-species transmissions of viruses, and has important implications on epidemic monitoring, prevention, and control.
  - a. Wan, Y., Shang, J., Graham, R., Baric, R.S., **Li, F.** (2020) Receptor recognition by novel coronavirus from Wuhan: an analysis based on decade-long structural studies of SARS. *Journal of Virology*, *In Press*
  - b. **Li, F.**, Li, W., Farzan, M., Harrison S.C. (2005) Structure of SARS coronavirus spike receptor-binding domain complexed with receptor. *Science*, 309, 1864-1868 (PMID: 16166518)
  - c. Wu, K., Peng, G., Wilken, M., Geraghty, R., **Li, F.** (2012) Mechanisms of host receptor adaptation by severe acute respiratory syndrome coronavirus. *Journal of Biological Chemistry*, 287, 8904-8911 (PMID: 22291007; PMCID: PMC3308800)
  - d. Yang, Y., Du, L., Liu, C., Wang, L., Ma, C., Tang, J., Baric, R.S., Jiang, S., **Li, F.** (2014) Receptor usage and cell entry of bat coronavirus HKU4 provide insight into bat-to-human transmission of MERS coronavirus. *Proceedings of the National Academy of Sciences USA*, 111, 12516-12521 (PMID: 25114257; PMCID: PMC4151778)

2. Receptor recognition mechanisms of coronaviruses: Coronaviruses recognize a variety of receptors, and display a complex receptor recognition pattern. Another major goal of my research is to elucidate the receptor recognition mechanisms of coronaviruses and to provide insights into how coronaviruses have evolved such a complex receptor recognition pattern. To this end, I have determined numerous crystal structures of coronavirus spike RBDs either alone or in complex with their respective receptor. My lab also identified the receptors for a number of coronaviruses. My research has shown that coronaviruses have undergone both divergent and convergent evolutions, resulting in (i) very different coronavirus RBDs recognizing a virus-binding hotspot on the same receptor, (ii) very similar coronavirus RBDs recognizing completely different receptors through subtle structural changes in their RBDs, and (iii) coronaviruses stealing a host protein and evolving it into viral RBD with novel receptor binding specificity. Overall, my research has established novel principles on the evolution and receptor recognition of viruses.
  - a. Wu, K., Li, W., Peng, G., **Li, F.** (2009) Crystal structure of NL63 respiratory coronavirus receptor-binding domain complexed with its human receptor. *Proceedings of the National Academy of Sciences USA*, *106*, 19970-19974 (PMID: 19901337; PMCID: PMC2785276)
  - b. Peng, G., Sun, D., Rajashankar, K., Qian, Z., Holmes, K., **Li, F.** (2011) Crystal structure of mouse coronavirus receptor-binding domain complexed with its murine receptor. *Proceedings of the National Academy of Sciences USA*, *108*, 10696-10701 (PMID: 21670291; PMCID: PMC3127895)
  - c. Chen, Y., Rajashankar, K.R., Yang, Y., Agnihothram, S.S., Liu, C., Lin, Y.L., Baric, R.S., **Li, F.** (2013) Crystal structure of the receptor-binding domain from newly emerged Middle East respiratory syndrome coronavirus. *Journal of Virology*, *87*, 10777-10783 (PMID: 23903833; PMCID: PMC3807420)
  - d. Shang, J., Zheng, Y., Yang, Y., Liu, C., Geng, Q., Luo, C., Zhang, W., **Li, F.** (2018) Cryo-EM structure of infectious bronchitis coronavirus spike protein reveals structural and functional evolution of coronavirus spike proteins. *PLOS Pathogens*, *14*, e1007009 (PMID: 29684066; PMCID: PMC5933801)
  
3. Cell entry mechanisms of coronaviruses: For coronaviruses to enter host cells, their spike proteins must be proteolytically activated by host proteases and then undergo dramatic conformational changes. Using electron microscopy, I established distinct conformations of coronavirus spikes, corresponding to their conformations before and after cell entry, respectively. My lab has also determined high-resolution cryo-electron microscopic structures of coronavirus spikes. Moreover, my lab identified the specific proteases that activate the cell entry of coronaviruses, and the corresponding protease motifs in coronavirus spikes. Importantly, we showed for the first time that different activities of host protease serve as a critical barrier for the cross-species transmissions of viruses. Overall, my research has revealed how host proteases regulate viral entry, host range, tissue tropism, and pathogenesis.
  - a. **Li, F.**, Berardi, M., Li, W., Farzan, M., Dormitzer, P.R., Harrison, S.C. (2006) Conformational states of the severe acute respiratory syndrome coronavirus spike protein ectodomain. *Journal of Virology*, *80*, 6794-6800 (PMID: 16809285; PMCID: PMC1489032)
  - b. Liu, C., Tang, J., Ma, Y., Liang, X., Yang, Y., Peng, G., Qi, Q., Jiang, S., Li, J., Du, L., **Li, F.** (2015) Receptor usage and cell entry to porcine epidemic diarrhea coronavirus. *Journal of Virology*, *89*, 6121-6125 (PMID: 25787280; PMCID: PMC4442452)
  - c. Yang, Y., Liu, C., Du, L., Jiang, S., Shi, Z., Baric, R.S., **Li, F.** (2015) Two mutations were critical for bat-to-human transmission of MERS coronavirus. *Journal of Virology*, *89*, 9119-9123 (PMID: 26063432; PMCID: PMC4524054)
  - d. Shang, J., Zheng, Y., Yang, Y., Liu, C., Geng, Q., Tai, W., Du, L., Zhou, Y., Zhang, W., **Li, F.** (2018) Cryo-electron microscopic structure of porcine deltacoronavirus spike protein in the pre-fusion state. *Journal of Virology*, *92*, e01556-17 (PMID: 29070693; PMCID: PMC5790952)
  
4. Therapy strategies to control coronavirus infections. Based on my research on the receptor recognition and cell entry mechanisms of coronaviruses, I seek novel strategies to control coronavirus infections. Two major approaches are being pursued: (i) development of neutralizing antibodies (both conventional antibodies and nanobodies) targeting coronavirus spike proteins; (ii) design of spike-protein-based subunit vaccines. Our collaborators and we have successfully developed antibodies and nanobodies that bind to coronavirus RBD with high affinity and specificity and neutralize coronavirus entry efficiently. Moreover, we have identified intrinsic limitations of viral subunit vaccines, and developed



strategies to overcome these limitations. Our goal is to extend our research on the structures and functions of coronavirus spikes to novel designs and developments of neutralizing antibodies and subunit vaccines against highly pathogenic coronaviruses as well as other viruses such as ZIKA virus.

- a. Du, L., Tai, W., Yang, Y., Zhao, G., Zhu, Q., Sun, S., Liu, C., Tao, X., Tseng, C., Perlman, S., Jiang, S., Zhou, Y., **Li, F.** (2016) Introduction of neutralizing immunogenicity index to the rational design of MERS coronavirus subunit vaccines. *Nature Communications*, 7, 13473 (PMID: 27874853; PMCID: PMC5121417)
  - b. Du, L., Zhao, G., Yang, Y., Qiu, H., Wang, L., Kou, Z., Tao, X., Yu, H., Sun, S., Tseng, K.C., Jiang, S., **Li, F.** \*, Zhou, Y. \* (\* co-correspondence) (2014) A conformation-dependent neutralizing monoclonal antibody specifically targeting receptor-binding domain in Middle East respiratory syndrome coronavirus spike protein. *Journal of Virology*, 88, 7045-7053 (PMID: 24719424; PMCID: PMC4054355)
  - c. Zhao, G., He, L., Sun, S., Qiu, H., Tai, W., Chen, J., Li, J., Chen, Y., Guo, Y., Wang, Y., Shang, J., Ji, K., Fan, R., Du, E., Jiang, S., **Li, F.**, Du, L., Zhou, Y. (2018) A novel nanobody targeting Middle East Respiratory Syndrome Coronavirus (MERS-CoV) receptor-binding domain has potent cross-neutralizing activity and protective efficacy against MERS-CoV. *Journal of Virology*, 92, e00116-18 (PMID: 29669833; PMCID: PMC6146697)
  - d. Tai, W., Chen, J., Zhao, G., Geng, Q., He, L., Chen, Y., Zhou, Y., **Li, F.** \*, Du, L.\* (\* co-correspondence) (2019) Rational design of Zika virus subunit vaccine with enhanced efficacy. *Journal of Virology*, 93, e02187-18 (PMID: 31189716; PMCID: PMC6146697)
5. Multifunctional roles of proteases in cancer growth and cancer treatment: Human cell-surface aminopeptidases cleave residues from the N-terminus of proteins, and play multifunctional roles in cancer growth. My lab has determined the crystal structures of two such enzymes, aminopeptidase N (APN) and aminopeptidase A (APA). My research on APN elucidated the detailed catalytic mechanism of APN, demonstrated the unique structural features of APN that allow many of its ligands to access its enzymatic site, and revealed a unified mechanism for the APN-based tumor cell motility and tumor-homing therapy. Overall, my research explores the structural and molecular mechanisms of cancer growth and seeks treatment of cancer based on these mechanisms.
- a. Chen, L., Lin, Y.L., Peng, G., **Li, F.** (2012) Structural basis for multifunctional roles of mammalian aminopeptidase N. *Proceedings of the National Academy of Sciences USA*, 109, 17966-17971 (PMID: 23071329; PMCID: PMC3497818)
  - b. Yang, Y., Liu, C., Lin, Y.L., **Li F.** (2013) Structural insights into central hypertension regulation by human aminopeptidase A. *Journal of Biological Chemistry*, 288, 25638-25645 (PMID: 23888046; PMCID: PMC3757224)
  - c. Liu, C., Yang, Y., Chen, L., Lin, Y.L., **Li, F.** (2014) A unified mechanism for aminopeptidase N-based tumor cell motility and tumor-homing therapy. *Journal of Biological Chemistry*, 289, 34520-34529 (PMID: 25359769; PMCID: PMC4263860)
  - d. Joshi, S., Chen, L., Winter, M., Lin, Y.L., Yang, Y., Shapovalova, M., Smith, P., Liu, C., **Li, F.** \*, LeBeau, A. \* (\* co-correspondence) (2017) The rational design of therapeutic peptides for aminopeptidase N using a substrate-based approach. *Scientific Reports*, 7, 1424 (PMID: 28465619; PMCID: PMC5431086)

#### Complete List of Published Work:

<https://www.ncbi.nlm.nih.gov/sites/myncbi/collections/bibliography/48338253/>

#### D. Additional Information: Research Support and/or Scholastic Performance

##### Active

National Institutes of Health (allergy and infectious diseases)  
2R01AI089728 (competitively renewed in 2016)

06/7/2016 – 05/31/2021

##### **Receptor Recognition and Cell Entry of Coronaviruses**

Role: Principal Investigator

Goal: This research investigates the molecular and structural mechanisms for the receptor recognition and cell entry of coronaviruses. It explores novel principles governing viral evolution, receptor recognition, cell entry, host ranges, cross-species infections, and tissue tropisms. These studies are critical for evaluating the emerging disease potentials of coronaviruses and for preventing, controlling and treating the spread of coronaviruses in humans or other animals.

National Institutes of Health (allergy and infectious diseases) 04/1/2015 – 03/31/2020  
R01AI110700

Role: Co-Principal Investigator (The other Co-PI: Ralph Baric, University of North Carolina)

**Mechanisms of MERS-CoV Entry, Cross-species Transmission and Pathogenesis**

Goal: This research investigates genetic pathways regulating MERS coronavirus cross species transmission and receptor homolog usage, establishes robust animal models of human disease, and discovers critical reagents for therapeutic and vaccine testing.

National Institutes of Health (allergy and infectious diseases) 05/21/2018 – 04/30/2023  
R01AI139092

**Structure-based design of coronavirus subunit vaccines**

Role: Co-Investigator (PI: Lanying Du, New York Blood Center)

Goal: This research establishes that artificially exposed unfavorable epitopes on viral subunit vaccines pose a severe intrinsic limitation to viral subunit vaccine designs. It further develops novel structure-based approaches to overcome this limitation in vaccine design. It produces highly effective subunit vaccines to combat the infections of highly pathogenic coronaviruses such as MERS and SARS coronaviruses, and also has implications for subunit vaccine design against other life-threatening viruses.

National Institutes of Health (cancer) 01/01/2020 – 12/31/2025  
R01CA245922

**Cyclic peptide protease inhibitors for the treatment of prostate cancer**

Role: Co-Investigator (PI: Aaron LeBeau, University of Minnesota)

Goal: This research is to develop clinically relevant therapeutics by targeting a cell surface protease overexpressed in aggressive variant prostate carcinoma with novel cyclic peptides. This approach has significant clinical potential to result in an effective treatment modality for a form of prostate cancer that is incurable.

University of Minnesota 10/01/2019-9/30/2022  
Academic Investment Research Program

**Bioengineering conformation-stabilized HIV-1 Env immunogens**

Role: Co-Investigator (PI: Alon Herschhorn, University of Minnesota)

Goal: This research builds a new collaborative platform for the development of a conformation-defined HIV Envelope protein vaccine.

Completed

National Institutes of Health 05/15/2010 – 04/30/2015  
R01AI089728

Role: Principal Investigator

**Receptor recognition mechanisms of coronaviruses**

Goal: This research investigates how coronaviruses recognize their receptors and how they interact with receptors from different hosts. It explores novel principles governing viral evolution, virus-receptor interactions, viral host ranges and cross-species infections, and may lead to new approaches in the prevention and treatment of coronavirus infections in humans and other animals.

**RESEARCH & RELATED BUDGET - SECTION A & B, BUDGET PERIOD 1**

\* ORGANIZATIONAL DUNS: 608195277

\* Budget Type:  Project  Subaward/Consortium

Enter name of Organization: The University of North Carolina at Chapel Hill

\* Start Date: 12-01-2020

\* End Date: 11-30-2021

Budget Period: 1

| <b>A. Senior/Key Person</b>                                                  |              |             |             |            |                 |                  |             |                                |             |                         |                        |                        |
|------------------------------------------------------------------------------|--------------|-------------|-------------|------------|-----------------|------------------|-------------|--------------------------------|-------------|-------------------------|------------------------|------------------------|
| Prefix                                                                       | * First Name | Middle Name | * Last Name | Suffix     | * Project Role  | Base Salary (\$) | Cal. Months | Acad. Months                   | Sum. Months | * Requested Salary (\$) | * Fringe Benefits (\$) | * Funds Requested (\$) |
| 1.                                                                           | Ralph        | S           | Baric       |            | PD/PI           | 197,300.00       | 1.2         |                                |             | 19,730.00               | 5,536.00               | 25,266.00              |
| 2.                                                                           | Lisa         | E           | Gralinski   |            | Co-Investigator | 88,404.00        | 1.8         |                                |             | 13,261.00               | 4,243.00               | 17,504.00              |
| 3.                                                                           | Timothy      | Patrick     | Sheahan     |            | Co-Investigator | 93,989.00        | 1.8         |                                |             | 14,098.00               | 4,451.00               | 18,549.00              |
| <b>Total Funds Requested for all Senior Key Persons in the attached file</b> |              |             |             |            |                 |                  |             |                                |             |                         |                        |                        |
| <b>Additional Senior Key Persons:</b>                                        |              |             |             |            |                 |                  |             |                                |             |                         |                        |                        |
| File Name:                                                                   |              |             |             | Mime Type: |                 |                  |             | <b>Total Senior/Key Person</b> |             |                         | <b>61,319.00</b>       |                        |

| <b>B. Other Personnel</b> |                                     |  |  |  |                |             |              |             |                              |                   |                                                      |                   |
|---------------------------|-------------------------------------|--|--|--|----------------|-------------|--------------|-------------|------------------------------|-------------------|------------------------------------------------------|-------------------|
| * Number of Personnel     |                                     |  |  |  | * Project Role | Cal. Months | Acad. Months | Sum. Months | * Requested Salary (\$)      | * Fringe Benefits | * Funds Requested (\$)                               |                   |
| 1                         | Post Doctoral Associates            |  |  |  |                | 6           |              |             | 26,502.00                    | 4,683.00          | 31,185.00                                            |                   |
|                           | Graduate Students                   |  |  |  |                |             |              |             |                              |                   |                                                      |                   |
|                           | Undergraduate Students              |  |  |  |                |             |              |             |                              |                   |                                                      |                   |
|                           | Secretarial/Clerical                |  |  |  |                |             |              |             |                              |                   |                                                      |                   |
| 1                         | Research Specialis                  |  |  |  |                | 3           |              |             | 21,503.00                    | 6,923.00          | 28,426.00                                            |                   |
| 1                         | Research Technician                 |  |  |  |                | 6           |              |             | 23,320.00                    | 8,951.00          | 32,271.00                                            |                   |
| <b>3</b>                  | <b>Total Number Other Personnel</b> |  |  |  |                |             |              |             | <b>Total Other Personnel</b> |                   | <b>91,882.00</b>                                     |                   |
|                           |                                     |  |  |  |                |             |              |             |                              |                   | <b>Total Salary, Wages and Fringe Benefits (A+B)</b> | <b>153,201.00</b> |

RESEARCH & RELATED Budget (A-B) (Funds Requested)

**RESEARCH & RELATED BUDGET - SECTION C, D, & E, BUDGET PERIOD 1**

\* ORGANIZATIONAL DUNS: 608195277

\* Budget Type:  Project  Subaward/Consortium

Enter name of Organization: The University of North Carolina at Chapel Hill

\* Start Date: 12-01-2020

\* End Date: 11-30-2021

Budget Period: 1

| <b>C. Equipment Description</b>                                            |                        |                        |
|----------------------------------------------------------------------------|------------------------|------------------------|
| List items and dollar amount for each item exceeding \$5,000               |                        |                        |
|                                                                            | Equipment Item         | * Funds Requested (\$) |
| 1.                                                                         | CO2 incubator          | 6,500.00               |
| <b>Total funds requested for all equipment listed in the attached file</b> |                        |                        |
|                                                                            | <b>Total Equipment</b> | <b>6,500.00</b>        |
| <b>Additional Equipment:</b>                                               | File Name:             | Mime Type:             |

| <b>D. Travel</b>                                                       | <b>Funds Requested (\$)</b> |
|------------------------------------------------------------------------|-----------------------------|
| 1. Domestic Travel Costs ( Incl. Canada, Mexico, and U.S. Possessions) | 4,500.00                    |
| 2. Foreign Travel Costs                                                |                             |
| <b>Total Travel Cost</b>                                               | <b>4,500.00</b>             |

| <b>E. Participant/Trainee Support Costs</b> | <b>Funds Requested (\$)</b>                    |
|---------------------------------------------|------------------------------------------------|
| 1. Tuition/Fees/Health Insurance            |                                                |
| 2. Stipends                                 |                                                |
| 3. Travel                                   |                                                |
| 4. Subsistence                              |                                                |
| 5. Other:                                   |                                                |
| <b>Number of Participants/Trainees</b>      | <b>Total Participant/Trainee Support Costs</b> |
|                                             | <b>0.00</b>                                    |

RESEARCH & RELATED Budget {C-E} (Funds Requested)

**RESEARCH & RELATED BUDGET - SECTIONS F-L, BUDGET PERIOD 1**

\* ORGANIZATIONAL DUNS: 608195277

\* Budget Type:  Project  Subaward/Consortium

Enter name of Organization: The University of North Carolina at Chapel Hill

\* Start Date: 12-01-2020

\* End Date: 11-30-2021

Budget Period: 1

| F. Other Direct Costs                     | Funds Requested (\$) |
|-------------------------------------------|----------------------|
| 1. Materials and Supplies                 | 79,168.00            |
| 2. Publication Costs                      |                      |
| 3. Consultant Services                    |                      |
| 4. ADP/Computer Services                  |                      |
| 5. Subawards/Consortium/Contractual Costs | 378,327.00           |
| 6. Equipment or Facility Rental/User Fees |                      |
| 7. Alterations and Renovations            |                      |
| <b>Total Other Direct Costs</b>           | <b>457,495.00</b>    |

| G. Direct Costs                      | Funds Requested (\$) |
|--------------------------------------|----------------------|
| <b>Total Direct Costs (A thru F)</b> | <b>621,696.00</b>    |

| H. Indirect Costs                             |                              |                                  |                         | * Funds Requested (\$) |
|-----------------------------------------------|------------------------------|----------------------------------|-------------------------|------------------------|
|                                               | Indirect Cost Type           | Indirect Cost Rate (%)           | Indirect Cost Base (\$) |                        |
| 1.                                            | Organized Research_On Campus | 55.5                             | 261,869.00              | 145,337.00             |
| <b>Total Indirect Costs</b>                   |                              |                                  |                         | <b>145,337.00</b>      |
| <b>Cognizant Federal Agency</b>               |                              | DHHS, Darryl Mayes, 202-401-2808 |                         |                        |
| (Agency Name, POC Name, and POC Phone Number) |                              |                                  |                         |                        |

| I. Total Direct and Indirect Costs                           | Funds Requested (\$) |
|--------------------------------------------------------------|----------------------|
| <b>Total Direct and Indirect Institutional Costs (G + H)</b> | <b>767,033.00</b>    |

| J. Fee | Funds Requested (\$) |
|--------|----------------------|
|--------|----------------------|

| K. Total Costs and Fee             | Funds Requested (\$) |
|------------------------------------|----------------------|
| <b>Total Costs and Fee (I + J)</b> | <b>767,033.00</b>    |

| L. * Budget Justification | File Name:                                | Mime Type: application/pdf |
|---------------------------|-------------------------------------------|----------------------------|
|                           | UNC_Budget_Justification_RV1043823702.pdf |                            |
| (Only attach one file.)   |                                           |                            |

RESEARCH & RELATED Budget {F-L} (Funds Requested)

**RESEARCH & RELATED BUDGET - SECTION A & B, BUDGET PERIOD 2**

\* ORGANIZATIONAL DUNS: 608195277

\* Budget Type:  Project  Subaward/Consortium

Enter name of Organization: The University of North Carolina at Chapel Hill

\* Start Date: 12-01-2021

\* End Date: 11-30-2022

Budget Period: 2

| <b>A. Senior/Key Person</b>                                                  |              |             |             |        |                 |                  |                                |              |             |                         |                        |                        |
|------------------------------------------------------------------------------|--------------|-------------|-------------|--------|-----------------|------------------|--------------------------------|--------------|-------------|-------------------------|------------------------|------------------------|
| Prefix                                                                       | * First Name | Middle Name | * Last Name | Suffix | * Project Role  | Base Salary (\$) | Cal. Months                    | Acad. Months | Sum. Months | * Requested Salary (\$) | * Fringe Benefits (\$) | * Funds Requested (\$) |
| 1.                                                                           | Ralph        | S           | Baric       |        | PD/PI           | 197,300.00       | 1.2                            |              |             | 19,730.00               | 5,536.00               | 25,266.00              |
| 2.                                                                           | Lisa         | E           | Gralinski   |        | Co-Investigator | 88,404.00        | 1.8                            |              |             | 13,261.00               | 4,243.00               | 17,504.00              |
| 3.                                                                           | Timothy      | Patrick     | Sheahan     |        | Co-Investigator | 93,989.00        | 1.8                            |              |             | 14,098.00               | 4,451.00               | 18,549.00              |
| <b>Total Funds Requested for all Senior Key Persons in the attached file</b> |              |             |             |        |                 |                  |                                |              |             |                         |                        |                        |
| <b>Additional Senior Key Persons:</b>                                        |              |             | File Name:  |        | Mime Type:      |                  | <b>Total Senior/Key Person</b> |              |             |                         | <b>61,319.00</b>       |                        |

| <b>B. Other Personnel</b> |                                     |  |  |  |                |             |              |             |                              |                   |                                                      |                   |
|---------------------------|-------------------------------------|--|--|--|----------------|-------------|--------------|-------------|------------------------------|-------------------|------------------------------------------------------|-------------------|
| * Number of Personnel     |                                     |  |  |  | * Project Role | Cal. Months | Acad. Months | Sum. Months | * Requested Salary (\$)      | * Fringe Benefits | * Funds Requested (\$)                               |                   |
| 1                         | Post Doctoral Associates            |  |  |  |                | 6           |              |             | 26,502.00                    | 4,683.00          | 31,185.00                                            |                   |
|                           | Graduate Students                   |  |  |  |                |             |              |             |                              |                   |                                                      |                   |
|                           | Undergraduate Students              |  |  |  |                |             |              |             |                              |                   |                                                      |                   |
|                           | Secretarial/Clerical                |  |  |  |                |             |              |             |                              |                   |                                                      |                   |
| 1                         | Research Specialist                 |  |  |  |                | 3           |              |             | 21,503.00                    | 6,923.00          | 28,426.00                                            |                   |
| 1                         | Research Technician                 |  |  |  |                | 6           |              |             | 23,320.00                    | 8,951.00          | 32,271.00                                            |                   |
| <b>3</b>                  | <b>Total Number Other Personnel</b> |  |  |  |                |             |              |             | <b>Total Other Personnel</b> |                   | <b>91,882.00</b>                                     |                   |
|                           |                                     |  |  |  |                |             |              |             |                              |                   | <b>Total Salary, Wages and Fringe Benefits (A+B)</b> | <b>153,201.00</b> |

RESEARCH & RELATED Budget (A-B) (Funds Requested)

**RESEARCH & RELATED BUDGET - SECTION C, D, & E, BUDGET PERIOD 2**

\* ORGANIZATIONAL DUNS: 608195277

\* Budget Type:     Project     Subaward/Consortium

Enter name of Organization: The University of North Carolina at Chapel Hill

\* Start Date: 12-01-2021

\* End Date: 11-30-2022

Budget Period: 2

|                                                                     |                 |                        |
|---------------------------------------------------------------------|-----------------|------------------------|
| <b>C. Equipment Description</b>                                     |                 |                        |
| List items and dollar amount for each item exceeding \$5,000        |                 |                        |
| Equipment Item                                                      |                 | * Funds Requested (\$) |
| Total funds requested for all equipment listed in the attached file |                 |                        |
|                                                                     | Total Equipment |                        |
| Additional Equipment:                                               | File Name:      | Mime Type:             |

|                                                                        |                             |
|------------------------------------------------------------------------|-----------------------------|
| <b>D. Travel</b>                                                       | <b>Funds Requested (\$)</b> |
| 1. Domestic Travel Costs ( Incl. Canada, Mexico, and U.S. Possessions) | 4,500.00                    |
| 2. Foreign Travel Costs                                                |                             |
| <b>Total Travel Cost</b>                                               | <b>4,500.00</b>             |

|                                             |                                                |
|---------------------------------------------|------------------------------------------------|
| <b>E. Participant/Trainee Support Costs</b> | <b>Funds Requested (\$)</b>                    |
| 1. Tuition/Fees/Health Insurance            |                                                |
| 2. Stipends                                 |                                                |
| 3. Travel                                   |                                                |
| 4. Subsistence                              |                                                |
| 5. Other:                                   |                                                |
| <b>Number of Participants/Trainees</b>      | <b>Total Participant/Trainee Support Costs</b> |
|                                             | <b>0.00</b>                                    |

RESEARCH & RELATED Budget {C-E} (Funds Requested)

**RESEARCH & RELATED BUDGET - SECTIONS F-L, BUDGET PERIOD 2**

\* ORGANIZATIONAL DUNS: 608195277

\* Budget Type:  Project  Subaward/Consortium

Enter name of Organization: The University of North Carolina at Chapel Hill

\* Start Date: 12-01-2021

\* End Date: 11-30-2022

Budget Period: 2

| F. Other Direct Costs                     | Funds Requested (\$) |
|-------------------------------------------|----------------------|
| 1. Materials and Supplies                 | 79,168.00            |
| 2. Publication Costs                      |                      |
| 3. Consultant Services                    |                      |
| 4. ADP/Computer Services                  |                      |
| 5. Subawards/Consortium/Contractual Costs | 379,750.00           |
| 6. Equipment or Facility Rental/User Fees |                      |
| 7. Alterations and Renovations            |                      |
| <b>Total Other Direct Costs</b>           | <b>458,918.00</b>    |

| G. Direct Costs                      | Funds Requested (\$) |
|--------------------------------------|----------------------|
| <b>Total Direct Costs (A thru F)</b> | <b>616,619.00</b>    |

| H. Indirect Costs                             |                              |                                  |                         | * Funds Requested (\$) |
|-----------------------------------------------|------------------------------|----------------------------------|-------------------------|------------------------|
|                                               | Indirect Cost Type           | Indirect Cost Rate (%)           | Indirect Cost Base (\$) |                        |
| 1.                                            | Organized Research_On Campus | 55.5                             | 236,869.00              | 131,462.00             |
| <b>Total Indirect Costs</b>                   |                              |                                  |                         | <b>131,462.00</b>      |
| <b>Cognizant Federal Agency</b>               |                              | DHHS, Darryl Mayes, 202-401-2808 |                         |                        |
| (Agency Name, POC Name, and POC Phone Number) |                              |                                  |                         |                        |

| I. Total Direct and Indirect Costs                           | Funds Requested (\$) |
|--------------------------------------------------------------|----------------------|
| <b>Total Direct and Indirect Institutional Costs (G + H)</b> | <b>748,081.00</b>    |

| J. Fee | Funds Requested (\$) |
|--------|----------------------|
|--------|----------------------|

| K. Total Costs and Fee             | Funds Requested (\$) |
|------------------------------------|----------------------|
| <b>Total Costs and Fee (I + J)</b> | <b>748,081.00</b>    |

| L. * Budget Justification | File Name:                                | Mime Type: application/pdf |
|---------------------------|-------------------------------------------|----------------------------|
|                           | UNC_Budget_Justification_RV1043823702.pdf |                            |
| (Only attach one file.)   |                                           |                            |

RESEARCH & RELATED Budget {F-L} (Funds Requested)



**RESEARCH & RELATED BUDGET - SECTION A & B, BUDGET PERIOD 3**

\* ORGANIZATIONAL DUNS: 608195277

\* Budget Type:  Project  Subaward/Consortium

Enter name of Organization: The University of North Carolina at Chapel Hill

\* Start Date: 12-01-2022

\* End Date: 11-30-2023

Budget Period: 3

| <b>A. Senior/Key Person</b>                                                  |              |             |             |        |                 |                  |                                |              |             |                         |                        |                        |
|------------------------------------------------------------------------------|--------------|-------------|-------------|--------|-----------------|------------------|--------------------------------|--------------|-------------|-------------------------|------------------------|------------------------|
| Prefix                                                                       | * First Name | Middle Name | * Last Name | Suffix | * Project Role  | Base Salary (\$) | Cal. Months                    | Acad. Months | Sum. Months | * Requested Salary (\$) | * Fringe Benefits (\$) | * Funds Requested (\$) |
| 1.                                                                           | Ralph        | S           | Baric       |        | PD/PI           | 197,300.00       | 1.2                            |              |             | 19,730.00               | 5,536.00               | 25,266.00              |
| 2.                                                                           | Lisa         | E           | Gralinski   |        | Co-Investigator | 88,404.00        | 1.8                            |              |             | 13,261.00               | 4,243.00               | 17,504.00              |
| 3.                                                                           | Timothy      | Patrick     | Sheahan     |        | Co-Investigator | 93,989.00        | 1.8                            |              |             | 14,098.00               | 4,451.00               | 18,549.00              |
| <b>Total Funds Requested for all Senior Key Persons in the attached file</b> |              |             |             |        |                 |                  |                                |              |             |                         |                        |                        |
| <b>Additional Senior Key Persons:</b>                                        |              |             | File Name:  |        | Mime Type:      |                  | <b>Total Senior/Key Person</b> |              |             |                         | <b>61,319.00</b>       |                        |

| <b>B. Other Personnel</b> |                                     |  |  |  |                |             |              |             |                              |                   |                                                      |                   |
|---------------------------|-------------------------------------|--|--|--|----------------|-------------|--------------|-------------|------------------------------|-------------------|------------------------------------------------------|-------------------|
| * Number of Personnel     |                                     |  |  |  | * Project Role | Cal. Months | Acad. Months | Sum. Months | * Requested Salary (\$)      | * Fringe Benefits | * Funds Requested (\$)                               |                   |
| 1                         | Post Doctoral Associates            |  |  |  |                | 6           |              |             | 26,502.00                    | 4,683.00          | 31,185.00                                            |                   |
|                           | Graduate Students                   |  |  |  |                |             |              |             |                              |                   |                                                      |                   |
|                           | Undergraduate Students              |  |  |  |                |             |              |             |                              |                   |                                                      |                   |
|                           | Secretarial/Clerical                |  |  |  |                |             |              |             |                              |                   |                                                      |                   |
| 1                         | Research Specialist                 |  |  |  |                | 3           |              |             | 21,503.00                    | 6,923.00          | 28,426.00                                            |                   |
| 1                         | Research Technician                 |  |  |  |                | 6           |              |             | 23,320.00                    | 8,951.00          | 32,271.00                                            |                   |
| <b>3</b>                  | <b>Total Number Other Personnel</b> |  |  |  |                |             |              |             | <b>Total Other Personnel</b> |                   | <b>91,882.00</b>                                     |                   |
|                           |                                     |  |  |  |                |             |              |             |                              |                   | <b>Total Salary, Wages and Fringe Benefits (A+B)</b> | <b>153,201.00</b> |

RESEARCH & RELATED Budget (A-B) (Funds Requested)

**RESEARCH & RELATED BUDGET - SECTION C, D, & E, BUDGET PERIOD 3**

\* ORGANIZATIONAL DUNS: 608195277

\* Budget Type:  Project  Subaward/Consortium

Enter name of Organization: The University of North Carolina at Chapel Hill

\* Start Date: 12-01-2022

\* End Date: 11-30-2023

Budget Period: 3

| <b>C. Equipment Description</b>                                     |                |                        |
|---------------------------------------------------------------------|----------------|------------------------|
| List items and dollar amount for each item exceeding \$5,000        |                |                        |
|                                                                     | Equipment Item | * Funds Requested (\$) |
| Total funds requested for all equipment listed in the attached file |                |                        |
|                                                                     |                | <b>Total Equipment</b> |
| Additional Equipment:                                               | File Name:     | Mime Type:             |

| <b>D. Travel</b>                                                       | Funds Requested (\$) |
|------------------------------------------------------------------------|----------------------|
| 1. Domestic Travel Costs ( Incl. Canada, Mexico, and U.S. Possessions) | 4,500.00             |
| 2. Foreign Travel Costs                                                |                      |
| <b>Total Travel Cost</b>                                               |                      |
|                                                                        | <b>4,500.00</b>      |

| <b>E. Participant/Trainee Support Costs</b>    | Funds Requested (\$) |
|------------------------------------------------|----------------------|
| 1. Tuition/Fees/Health Insurance               |                      |
| 2. Stipends                                    |                      |
| 3. Travel                                      |                      |
| 4. Subsistence                                 |                      |
| 5. Other:                                      |                      |
| <b>Number of Participants/Trainees</b>         |                      |
| <b>Total Participant/Trainee Support Costs</b> |                      |
|                                                | <b>0.00</b>          |

RESEARCH & RELATED Budget {C-E} (Funds Requested)

**RESEARCH & RELATED BUDGET - SECTIONS F-L, BUDGET PERIOD 3**

\* ORGANIZATIONAL DUNS: 608195277

\* Budget Type:  Project  Subaward/Consortium

Enter name of Organization: The University of North Carolina at Chapel Hill

\* Start Date: 12-01-2022

\* End Date: 11-30-2023

Budget Period: 3

| F. Other Direct Costs                     | Funds Requested (\$) |
|-------------------------------------------|----------------------|
| 1. Materials and Supplies                 | 79,168.00            |
| 2. Publication Costs                      |                      |
| 3. Consultant Services                    |                      |
| 4. ADP/Computer Services                  |                      |
| 5. Subawards/Consortium/Contractual Costs | 379,750.00           |
| 6. Equipment or Facility Rental/User Fees |                      |
| 7. Alterations and Renovations            |                      |
| <b>Total Other Direct Costs</b>           | <b>458,918.00</b>    |

| G. Direct Costs                      | Funds Requested (\$) |
|--------------------------------------|----------------------|
| <b>Total Direct Costs (A thru F)</b> | <b>616,619.00</b>    |

| H. Indirect Costs                             |                              |                                  |                         | * Funds Requested (\$) |
|-----------------------------------------------|------------------------------|----------------------------------|-------------------------|------------------------|
|                                               | Indirect Cost Type           | Indirect Cost Rate (%)           | Indirect Cost Base (\$) |                        |
| 1.                                            | Organized Research_On Campus | 55.5                             | 236,869.00              | 131,462.00             |
| <b>Total Indirect Costs</b>                   |                              |                                  |                         | <b>131,462.00</b>      |
| <b>Cognizant Federal Agency</b>               |                              | DHHS, Darryl Mayes, 202-401-2808 |                         |                        |
| (Agency Name, POC Name, and POC Phone Number) |                              |                                  |                         |                        |

| I. Total Direct and Indirect Costs                           | Funds Requested (\$) |
|--------------------------------------------------------------|----------------------|
| <b>Total Direct and Indirect Institutional Costs (G + H)</b> | <b>748,081.00</b>    |

| J. Fee | Funds Requested (\$) |
|--------|----------------------|
|--------|----------------------|

| K. Total Costs and Fee             | Funds Requested (\$) |
|------------------------------------|----------------------|
| <b>Total Costs and Fee (I + J)</b> | <b>748,081.00</b>    |

| L. * Budget Justification | File Name:                                | Mime Type: application/pdf |
|---------------------------|-------------------------------------------|----------------------------|
|                           | UNC_Budget_Justification_RV1043823702.pdf |                            |
| (Only attach one file.)   |                                           |                            |

RESEARCH & RELATED Budget {F-L} (Funds Requested)

**RESEARCH & RELATED BUDGET - SECTION A & B, BUDGET PERIOD 4**

\* ORGANIZATIONAL DUNS: 608195277

\* Budget Type:  Project  Subaward/Consortium

Enter name of Organization: The University of North Carolina at Chapel Hill

\* Start Date: 12-01-2023

\* End Date: 11-30-2024

Budget Period: 4

| <b>A. Senior/Key Person</b>                                                  |              |             |             |        |                 |                  |                                |              |             |                         |                        |                        |
|------------------------------------------------------------------------------|--------------|-------------|-------------|--------|-----------------|------------------|--------------------------------|--------------|-------------|-------------------------|------------------------|------------------------|
| Prefix                                                                       | * First Name | Middle Name | * Last Name | Suffix | * Project Role  | Base Salary (\$) | Cal. Months                    | Acad. Months | Sum. Months | * Requested Salary (\$) | * Fringe Benefits (\$) | * Funds Requested (\$) |
| 1.                                                                           | Ralph        | S           | Baric       |        | PD/PI           | 197,300.00       | 1.2                            |              |             | 19,730.00               | 5,536.00               | 25,266.00              |
| 2.                                                                           | Lisa         | E           | Gralinski   |        | Co-Investigator | 88,404.00        | 1.8                            |              |             | 13,261.00               | 4,243.00               | 17,504.00              |
| 3.                                                                           | Timothy      | Patrick     | Sheahan     |        | Co-Investigator | 93,989.00        | 1.8                            |              |             | 14,098.00               | 4,451.00               | 18,549.00              |
| <b>Total Funds Requested for all Senior Key Persons in the attached file</b> |              |             |             |        |                 |                  |                                |              |             |                         |                        |                        |
| <b>Additional Senior Key Persons:</b>                                        |              |             | File Name:  |        | Mime Type:      |                  | <b>Total Senior/Key Person</b> |              |             |                         | <b>61,319.00</b>       |                        |

| <b>B. Other Personnel</b>                            |                                     |  |  |  |                |             |              |             |                              |                   |                        |  |
|------------------------------------------------------|-------------------------------------|--|--|--|----------------|-------------|--------------|-------------|------------------------------|-------------------|------------------------|--|
| * Number of Personnel                                |                                     |  |  |  | * Project Role | Cal. Months | Acad. Months | Sum. Months | * Requested Salary (\$)      | * Fringe Benefits | * Funds Requested (\$) |  |
| 1                                                    | Post Doctoral Associates            |  |  |  |                | 6           |              |             | 26,502.00                    | 4,683.00          | 31,185.00              |  |
|                                                      | Graduate Students                   |  |  |  |                |             |              |             |                              |                   |                        |  |
|                                                      | Undergraduate Students              |  |  |  |                |             |              |             |                              |                   |                        |  |
|                                                      | Secretarial/Clerical                |  |  |  |                |             |              |             |                              |                   |                        |  |
| 1                                                    | Research Specialist                 |  |  |  |                | 3           |              |             | 21,503.00                    | 6,923.00          | 28,426.00              |  |
| 1                                                    | Research Technician                 |  |  |  |                | 6           |              |             | 23,320.00                    | 8,951.00          | 32,271.00              |  |
| <b>3</b>                                             | <b>Total Number Other Personnel</b> |  |  |  |                |             |              |             | <b>Total Other Personnel</b> |                   | <b>91,882.00</b>       |  |
| <b>Total Salary, Wages and Fringe Benefits (A+B)</b> |                                     |  |  |  |                |             |              |             |                              |                   | <b>153,201.00</b>      |  |

RESEARCH & RELATED Budget (A-B) (Funds Requested)

**RESEARCH & RELATED BUDGET - SECTION C, D, & E, BUDGET PERIOD 4**

\* ORGANIZATIONAL DUNS: 608195277

\* Budget Type:     Project     Subaward/Consortium

Enter name of Organization: The University of North Carolina at Chapel Hill

\* Start Date: 12-01-2023

\* End Date: 11-30-2024

Budget Period: 4

|                                                                     |                 |                        |
|---------------------------------------------------------------------|-----------------|------------------------|
| <b>C. Equipment Description</b>                                     |                 |                        |
| List items and dollar amount for each item exceeding \$5,000        |                 |                        |
| Equipment Item                                                      |                 | * Funds Requested (\$) |
| Total funds requested for all equipment listed in the attached file |                 |                        |
|                                                                     | Total Equipment |                        |
| Additional Equipment:                                               | File Name:      | Mime Type:             |

|                                                                        |                             |
|------------------------------------------------------------------------|-----------------------------|
| <b>D. Travel</b>                                                       | <b>Funds Requested (\$)</b> |
| 1. Domestic Travel Costs ( Incl. Canada, Mexico, and U.S. Possessions) | 4,500.00                    |
| 2. Foreign Travel Costs                                                |                             |
| <b>Total Travel Cost</b>                                               | <b>4,500.00</b>             |

|                                             |                                                |
|---------------------------------------------|------------------------------------------------|
| <b>E. Participant/Trainee Support Costs</b> | <b>Funds Requested (\$)</b>                    |
| 1. Tuition/Fees/Health Insurance            |                                                |
| 2. Stipends                                 |                                                |
| 3. Travel                                   |                                                |
| 4. Subsistence                              |                                                |
| 5. Other:                                   |                                                |
| <b>Number of Participants/Trainees</b>      | <b>Total Participant/Trainee Support Costs</b> |
|                                             | <b>0.00</b>                                    |

RESEARCH & RELATED Budget {C-E} (Funds Requested)

**RESEARCH & RELATED BUDGET - SECTIONS F-L, BUDGET PERIOD 4**

\* ORGANIZATIONAL DUNS: 608195277

\* Budget Type:  Project  Subaward/Consortium

Enter name of Organization: The University of North Carolina at Chapel Hill

\* Start Date: 12-01-2023

\* End Date: 11-30-2024

Budget Period: 4

| F. Other Direct Costs                     | Funds Requested (\$) |
|-------------------------------------------|----------------------|
| 1. Materials and Supplies                 | 79,168.00            |
| 2. Publication Costs                      |                      |
| 3. Consultant Services                    |                      |
| 4. ADP/Computer Services                  |                      |
| 5. Subawards/Consortium/Contractual Costs | 379,750.00           |
| 6. Equipment or Facility Rental/User Fees |                      |
| 7. Alterations and Renovations            |                      |
| <b>Total Other Direct Costs</b>           | <b>458,918.00</b>    |

| G. Direct Costs                      | Funds Requested (\$) |
|--------------------------------------|----------------------|
| <b>Total Direct Costs (A thru F)</b> | <b>616,619.00</b>    |

| H. Indirect Costs                             |                              |                                  |                         | * Funds Requested (\$) |
|-----------------------------------------------|------------------------------|----------------------------------|-------------------------|------------------------|
|                                               | Indirect Cost Type           | Indirect Cost Rate (%)           | Indirect Cost Base (\$) |                        |
| 1.                                            | Organized Research_On Campus | 55.5                             | 236,869.00              | 131,462.00             |
| <b>Total Indirect Costs</b>                   |                              |                                  |                         | <b>131,462.00</b>      |
| <b>Cognizant Federal Agency</b>               |                              | DHHS, Darryl Mayes, 202-401-2808 |                         |                        |
| (Agency Name, POC Name, and POC Phone Number) |                              |                                  |                         |                        |

| I. Total Direct and Indirect Costs                           | Funds Requested (\$) |
|--------------------------------------------------------------|----------------------|
| <b>Total Direct and Indirect Institutional Costs (G + H)</b> | <b>748,081.00</b>    |

| J. Fee | Funds Requested (\$) |
|--------|----------------------|
|--------|----------------------|

| K. Total Costs and Fee             | Funds Requested (\$) |
|------------------------------------|----------------------|
| <b>Total Costs and Fee (I + J)</b> | <b>748,081.00</b>    |

| L. * Budget Justification | File Name:                                | Mime Type: application/pdf |
|---------------------------|-------------------------------------------|----------------------------|
|                           | UNC_Budget_Justification_RV1043823702.pdf |                            |
| (Only attach one file.)   |                                           |                            |

RESEARCH & RELATED Budget {F-L} (Funds Requested)

**RESEARCH & RELATED BUDGET - SECTION A & B, BUDGET PERIOD 5**

\* ORGANIZATIONAL DUNS: 608195277

\* Budget Type:  Project  Subaward/Consortium

Enter name of Organization: The University of North Carolina at Chapel Hill

\* Start Date: 12-01-2024

\* End Date: 11-30-2025

Budget Period: 5

| <b>A. Senior/Key Person</b>                                                  |              |             |             |        |                 |                  |                                |              |             |                         |                        |                        |
|------------------------------------------------------------------------------|--------------|-------------|-------------|--------|-----------------|------------------|--------------------------------|--------------|-------------|-------------------------|------------------------|------------------------|
| Prefix                                                                       | * First Name | Middle Name | * Last Name | Suffix | * Project Role  | Base Salary (\$) | Cal. Months                    | Acad. Months | Sum. Months | * Requested Salary (\$) | * Fringe Benefits (\$) | * Funds Requested (\$) |
| 1.                                                                           | Ralph        | S           | Baric       |        | PD/PI           | 197,300.00       | 1.2                            |              |             | 19,730.00               | 5,536.00               | 25,266.00              |
| 2.                                                                           | Lisa         | E           | Gralinski   |        | Co-Investigator | 88,404.00        | 1.8                            |              |             | 13,261.00               | 4,243.00               | 17,504.00              |
| 3.                                                                           | Timothy      | Patrick     | Sheahan     |        | Co-Investigator | 93,989.00        | 1.8                            |              |             | 14,098.00               | 4,451.00               | 18,549.00              |
| <b>Total Funds Requested for all Senior Key Persons in the attached file</b> |              |             |             |        |                 |                  |                                |              |             |                         |                        | <b>61,319.00</b>       |
| <b>Additional Senior Key Persons:</b>                                        |              |             | File Name:  |        | Mime Type:      |                  | <b>Total Senior/Key Person</b> |              |             |                         | <b>61,319.00</b>       |                        |

| <b>B. Other Personnel</b> |                                     |  |  |  |                |             |              |             |                              |                   |                                                      |                   |
|---------------------------|-------------------------------------|--|--|--|----------------|-------------|--------------|-------------|------------------------------|-------------------|------------------------------------------------------|-------------------|
| * Number of Personnel     |                                     |  |  |  | * Project Role | Cal. Months | Acad. Months | Sum. Months | * Requested Salary (\$)      | * Fringe Benefits | * Funds Requested (\$)                               |                   |
| 1                         | Post Doctoral Associates            |  |  |  |                | 6           |              |             | 26,502.00                    | 4,683.00          | 31,185.00                                            |                   |
|                           | Graduate Students                   |  |  |  |                |             |              |             |                              |                   |                                                      |                   |
|                           | Undergraduate Students              |  |  |  |                |             |              |             |                              |                   |                                                      |                   |
|                           | Secretarial/Clerical                |  |  |  |                |             |              |             |                              |                   |                                                      |                   |
| 1                         | Research Specialist                 |  |  |  |                | 3           |              |             | 21,503.00                    | 6,923.00          | 28,426.00                                            |                   |
| 1                         | Research Technician                 |  |  |  |                | 6           |              |             | 23,320.00                    | 8,951.00          | 32,271.00                                            |                   |
| <b>3</b>                  | <b>Total Number Other Personnel</b> |  |  |  |                |             |              |             | <b>Total Other Personnel</b> |                   | <b>91,882.00</b>                                     |                   |
|                           |                                     |  |  |  |                |             |              |             |                              |                   | <b>Total Salary, Wages and Fringe Benefits (A+B)</b> | <b>153,201.00</b> |

RESEARCH & RELATED Budget (A-B) (Funds Requested)

**RESEARCH & RELATED BUDGET - SECTION C, D, & E, BUDGET PERIOD 5**

\* ORGANIZATIONAL DUNS: 608195277

\* Budget Type:  Project  Subaward/Consortium

Enter name of Organization: The University of North Carolina at Chapel Hill

\* Start Date: 12-01-2024

\* End Date: 11-30-2025

Budget Period: 5

| C. Equipment Description                                            |                                                          |
|---------------------------------------------------------------------|----------------------------------------------------------|
| List items and dollar amount for each item exceeding \$5,000        |                                                          |
| Equipment Item                                                      | * Funds Requested (\$)                                   |
| Total funds requested for all equipment listed in the attached file |                                                          |
| Total Equipment                                                     |                                                          |
| Additional Equipment:                                               | File Name: <span style="float: right;">Mime Type:</span> |

| D. Travel                                                              | Funds Requested (\$) |
|------------------------------------------------------------------------|----------------------|
| 1. Domestic Travel Costs ( Incl. Canada, Mexico, and U.S. Possessions) | 4,500.00             |
| 2. Foreign Travel Costs                                                |                      |
| <b>Total Travel Cost</b>                                               | <b>4,500.00</b>      |

| E. Participant/Trainee Support Costs   | Funds Requested (\$)                           |
|----------------------------------------|------------------------------------------------|
| 1. Tuition/Fees/Health Insurance       |                                                |
| 2. Stipends                            |                                                |
| 3. Travel                              |                                                |
| 4. Subsistence                         |                                                |
| 5. Other:                              |                                                |
| <b>Number of Participants/Trainees</b> | <b>Total Participant/Trainee Support Costs</b> |
|                                        | <b>0.00</b>                                    |

RESEARCH & RELATED Budget {C-E} (Funds Requested)



**RESEARCH & RELATED BUDGET - SECTIONS F-L, BUDGET PERIOD 5**

\* ORGANIZATIONAL DUNS: 608195277

\* Budget Type:  Project  Subaward/Consortium

Enter name of Organization: The University of North Carolina at Chapel Hill

\* Start Date: 12-01-2024

\* End Date: 11-30-2025

Budget Period: 5

| F. Other Direct Costs                     | Funds Requested (\$) |
|-------------------------------------------|----------------------|
| 1. Materials and Supplies                 | 79,168.00            |
| 2. Publication Costs                      |                      |
| 3. Consultant Services                    |                      |
| 4. ADP/Computer Services                  |                      |
| 5. Subawards/Consortium/Contractual Costs | 379,750.00           |
| 6. Equipment or Facility Rental/User Fees |                      |
| 7. Alterations and Renovations            |                      |
| <b>Total Other Direct Costs</b>           | <b>458,918.00</b>    |

| G. Direct Costs                      | Funds Requested (\$) |
|--------------------------------------|----------------------|
| <b>Total Direct Costs (A thru F)</b> | <b>616,619.00</b>    |

| H. Indirect Costs                             |                              |                                  |                         | * Funds Requested (\$) |
|-----------------------------------------------|------------------------------|----------------------------------|-------------------------|------------------------|
|                                               | Indirect Cost Type           | Indirect Cost Rate (%)           | Indirect Cost Base (\$) |                        |
| 1.                                            | Organized Research_On Campus | 55.5                             | 236,869.00              | 131,462.00             |
| <b>Total Indirect Costs</b>                   |                              |                                  |                         | <b>131,462.00</b>      |
| <b>Cognizant Federal Agency</b>               |                              | DHHS, Darryl Mayes, 202-401-2808 |                         |                        |
| (Agency Name, POC Name, and POC Phone Number) |                              |                                  |                         |                        |

| I. Total Direct and Indirect Costs                           | Funds Requested (\$) |
|--------------------------------------------------------------|----------------------|
| <b>Total Direct and Indirect Institutional Costs (G + H)</b> | <b>748,081.00</b>    |

| J. Fee | Funds Requested (\$) |
|--------|----------------------|
|--------|----------------------|

| K. Total Costs and Fee             | Funds Requested (\$) |
|------------------------------------|----------------------|
| <b>Total Costs and Fee (I + J)</b> | <b>748,081.00</b>    |

| L. * Budget Justification | File Name:                                | Mime Type: application/pdf |
|---------------------------|-------------------------------------------|----------------------------|
|                           | UNC_Budget_Justification_RV1043823702.pdf |                            |
| (Only attach one file.)   |                                           |                            |

RESEARCH & RELATED Budget {F-L} (Funds Requested)

## RESEARCH & RELATED BUDGET - Cumulative Budget

|                                                           | Totals (\$)  |                     |
|-----------------------------------------------------------|--------------|---------------------|
| <b>Section A, Senior/Key Person</b>                       |              | <b>306,595.00</b>   |
| <b>Section B, Other Personnel</b>                         |              | <b>459,410.00</b>   |
| Total Number Other Personnel                              | 15           |                     |
| <b>Total Salary, Wages and Fringe Benefits (A+B)</b>      |              | <b>766,005.00</b>   |
| <b>Section C, Equipment</b>                               |              | <b>6,500.00</b>     |
| <b>Section D, Travel</b>                                  |              | <b>22,500.00</b>    |
| 1. Domestic                                               | 22,500.00    |                     |
| 2. Foreign                                                |              |                     |
| <b>Section E, Participant/Trainee Support Costs</b>       |              |                     |
| 1. Tuition/Fees/Health Insurance                          |              |                     |
| 2. Stipends                                               |              |                     |
| 3. Travel                                                 |              |                     |
| 4. Subsistence                                            |              |                     |
| 5. Other                                                  |              |                     |
| 6. Number of Participants/Trainees                        |              |                     |
| <b>Section F, Other Direct Costs</b>                      |              | <b>2,293,167.00</b> |
| 1. Materials and Supplies                                 | 395,840.00   |                     |
| 2. Publication Costs                                      |              |                     |
| 3. Consultant Services                                    |              |                     |
| 4. ADP/Computer Services                                  |              |                     |
| 5. Subawards/Consortium/Contractual Costs                 | 1,897,327.00 |                     |
| 6. Equipment or Facility Rental/User Fees                 |              |                     |
| 7. Alterations and Renovations                            |              |                     |
| 8. Other 1                                                |              |                     |
| 9. Other 2                                                |              |                     |
| 10. Other 3                                               |              |                     |
| <b>Section G, Direct Costs (A thru F)</b>                 |              | <b>3,088,172.00</b> |
| <b>Section H, Indirect Costs</b>                          |              | <b>671,185.00</b>   |
| <b>Section I, Total Direct and Indirect Costs (G + H)</b> |              | <b>3,759,357.00</b> |
| <b>Section J, Fee</b>                                     |              |                     |
| <b>Section K, Total Costs and Fee (I + J)</b>             |              | <b>3,759,357.00</b> |

## **Budget Justification**

### **Title**

Cell entry, cross-species transmission and pathogenesis of novel coronavirus from Wuhan

### **Personnel**

**Ralph S. Baric, PhD, Principal Investigator** (1.2 calendar months, 10% effort). Dr. Baric will supervise the overall direction of the animal, reverse genetic and experimental evolution research agendas of this highly interactive RO1 proposal. His group is well positioned to conduct these studies, having developed several important animal models for SARS-CoV pathogenesis and tested immunologic reagents for the prevention of serious clinical disease and death in young and aged animals. Importantly, his group has developed all of the acute and chronic infection models studied in the context of this grant, including hACE2 transgenic mice, which are susceptible to multiple group 2b SARS-like coronaviruses. He will interact closely with Drs. Sims and Gralinski and Mrs. Edwards to ensure steady progress during the course of the proposal, evaluate results and propose alternative experiments. Dr. Baric will be also be responsible for interacting closely with all research staff, holding regular laboratory meetings, communicating research findings with the Li laboratory, writing progress reports and managing fiscal matters associated with the proposal. Dr. Baric will communicate his findings with Dr. Li and on a regular basis via both conference calls and meetings between the two laboratories.

**Dr. Timothy Sheahan, Research Associate** (1.8 calendar months, 15% effort) Dr. Sheahan has published several papers demonstrating his ability to use mouse models to study emerging coronavirus pathogenesis, including the evaluation of live virus vaccines in vivo. A tremendous amount of animal studies will be conducted in the proposal and Dr. Sheahan will assist with studies examining virus pathogenesis outcomes and studies evaluating vaccine performance, including virus titrating, clinical disease measures, and evaluating tissue for evidence of immune pathology. Dr. Sheahan has over 12 years of experience in the BSL3 environment, working with select agents and has published over 20 manuscripts on emerging coronavirus pathogenesis. He has worked extensively with the mouse models of human disease, and is expert at viral pathogenesis and viral immune studies

**Dr. Lisa Gralinski, Research Associate** (1.8 calendar months, 15% effort). Dr. Gralinski has worked extensively with coronavirus animal models of human diseases and has over 15 years of experience in a BSL3 setting. She has evaluated SARS-CoV and MERS-CoV replication and pathogenesis in a variety of mouse species. She has extensive expertise in measuring innate and inflammatory cell changes following infection of wildtype, knockout or CC RIX mice, and studies the role of entry factors in in vivo pathogenesis. She pioneered the use of the Buxco Plethysmography in assessing the impact of high and low path respiratory virus infection on lung function and the role of various innate immune and entry genes on viral pathogenesis. She will generate and evaluate data, write reports and papers, and work closely the Li laboratory to understand the pathogenesis of SARS-CoV2. Dr. Gralinski will conduct many of the in vivo animal experiments proposed in the application. She is well versed in all BSL3 experimental protocols, is certified to work with select agents and is an expert at conducting SARS-CoV2 pathogenesis experiments. She will oversee Mrs. Edwards in conducting in vivo pathogenesis experiments during the duration of the grant. She will report her results to Drs. Baric and Li at regular intervals, prepare reports and present the research at national and international meetings.

**Mr. Boyd Yount, Research Specialist** (3 calendar months, 25% effort). Mr Yount will recover recombinant viruses, as he has extensive experience at recovering genetically modified coronaviruses from molecular clones. He will obtain and maintain stocks of various viruses, assist in infecting animals, assist in the analysis and preparation of biological samples for determining virus titers, and assist with the safety testing of materials for inactivation. He is expert at using proteases to culture "unculturable" zoonotic coronaviruses. Mr Yount has published >72 papers on SARS-CoV, MERS-CoV and other emerging viruses and is well versed in working with safety tested SARS-CoV and SARS-CoV2 samples in a BSL3 setting. He developed the first reverse genetic systems for SARS-CoV, the mouse adapted MA15 variant and several other highly pathogenic strains that will be used during the course of these studies. He participated in the development of the SARS-CoV2 molecular clones. He has worked with SARS-CoV under BSL3 conditions since 2004 and he is approved to work with select agents.

**Dr. Jacob Hou, Postdoctoral Fellow** (6 calendar months, 50% effort). Dr. Hou has significant experience working with coronaviruses, coronavirus reverse genetics, animal model development and biochemistry and will collaborate with Dr. Gralinski to perform experiments. He will work closely with Drs. Baric, Sheahan and Gralinski to plan, execute, and troubleshoot the proposed studies. He developed the molecular clones for SARS-CoV2 that are used in the proposal as well as engineered mouse adaptive changes into the SARS-CoV2 receptor-binding domain. He also produced recombinant SARS-CoV2 viruses encoding GFP and nLUC, which will be valuable reagents that are used during the course of these studies. He is trained for independent work in the select agent BSL3 facility as well.

**Mrs. Caitlyn Edwards, Research Technician** (6 calendar months, 50% effort). Mrs. Edwards has extensive BSL3 experience and is well trained to conduct detailed virologic, immunologic and physiologic testing of SARS infected mice. She is well versed in performing routine plaque assays, inflammatory cell measurements by flow cytometry, and physiologic measures by plethysmography and is experienced at virus reverse genetics and neutralization assays. She is expert at a variety of molecular virology approaches and developed the MERS-CoV and SARS-CoV2 molecular clones. She has worked extensively with primary cells and will also be responsible for purchasing supplies, maintaining stocks in the BSL3, and supporting Drs. Gralinski's research efforts. She will report her results to Drs. Baric and Li at regular intervals, prepare reports and present the research at national and international meetings. She has independent access to the BSL3 facility and is certified to work with select agents.

**Fringe Benefits:** Faculty/Staff: 24.863% Social Security and Retirement; \$6,306/FTE Health Insurance. Postdoctoral fellow benefits are calculated at 8.99% of salary and \$4600/FTE for postdoctoral health insurance.

**Equipment (\$6500 in year 1):**

We will use these funds to purchase a thermocycler and -20oC freezer for work associated with the research proposal.

**Supplies:**

**Personnel Protective Gear (PPE), BSL3 disinfectants, Decontamination Procedures. (\$11,000/year).** Personnel wear powered air purifying HEPA filtered breathing apparatuses, wear tyvek suits, tyvek aprons, hoods, booties and are double gloved when entering the BSL3 facility. These materials are expensive as the HEPA, organic chemical filters and even batteries must be replaced every ~6-12 months, and the tyvek suits are disposable. Moreover, the PAPR (powered air breathing apparatus) are expensive and must be replaced every ~2 years from normal wear and tear, and daily contact with EPA disinfectants. Personnel use high quantities of disinfectants like ethanol alcohol, Clorox and other EPA approved disinfectants in maintaining a safe working environment in the BSL3. Personnel spray down tyvek suits, etc. with alcohol or related disinfectants in the process of decontamination and leaving the BSL3 facility. All materials that leave the BSL3 must be disinfected, packaged in disinfected, sealed containers, which are disinfected prior to removal from the BSL3 facility. In addition, these costs will help defray costs associated with the decontamination of the BSL3 laboratory each year.

**Enzymes, Extraction Kits and Reagents (\$7,000/year).** Assembling recombinant virus requires large amounts of highly expensive restriction enzymes and large amounts of DNA ligase. DNA markers are needed for identifying appropriately sized bands and assembly intermediates and full length DNA products in gels; a critical step during the assembly of full length cDNA clones. In addition, high quality T7 RNA polymerase is needed for driving full length RNA transcripts for electroporation into susceptible cells and for the subsequent recovery of recombinant viruses. Protein markers will be used for preliminary analysis of viral protein samples to demonstrate sample quality (e.g., presence of uniform levels of viral proteins, host house keeping proteins) before shipment to the proteomic cores

**Serum and Media (\$6,500/year).** A large amount of cell culture work is associated with the project, requiring media, serum and culturing flasks. Consequently, funds are requested for media, serum and related cell culture supplies to maintain Vero cells in culture, measuring virus growth kinetics, virus titers in the lungs, serum, titer virus stocks, and to isolate recombinant viruses for in vitro and in vivo characterization, etc. These monies support cell culture in BSL2 and BSL3 facilities.

**Cell Culture Supplies and Plasticware (\$6,500/year).** Monies are requested to purchase tissue culture flasks, dishes, pipettes, etc. used in day to day virologic and cell culture procedures as well as in growing, titrating and characterizing virus growth in vitro.

**Animals (\$10,200/year).** We anticipate purchasing ~300 young BALB/C mice (\$28 each) and 100 aged mice from NIA (\$18 each) per year. Transgenic hACE2 expressing mouse lines (~25 breeders) will be maintained in house. We will purchase young animals from commercial vendors and aged animals from the Institute of Aging, NIH, a cost for service facility that provides high quality aged animals or from retired breeders from Harlan.

**Reagents (\$6000).** Monies are requested for chemicals, reagents, buffers, and disinfectants used during the course of this proposal.

**Animals per diem for housing costs (\$3,780/yr).** We anticipate housing the ~450 mice with 5 mice per cage for an estimated 60 days. 90 cages x 60 days x \$0.70 charge per day=\$3,780

**Establish a transgenic mouse line (\$15,000/year).** We will use the UNC Transgenic Mouse Facility to maintain inbred transgenic mouse lines for us as well as to distribute these animals to the community.

**DNA Sequencing (\$9,000/year).** Funds are requested to sequence modified genomic fragments. Sequence confirmation is critical prior to assembly of full length genomic cDNA.

**Miscellaneous (\$4,188/year).** Funds are requested to purchase chemicals, reagents, paper products, gloves, micropipetors, autoclave supplies, plastic tips, waterbaths, and other small equipment items that typically have short half lives in laboratory settings. These dollars will also be used to purchase synthetic DNAs for various MERS-CoV S glycoprotein genes.

#### **Travel**

**Travel to Scientific Meetings (\$4,500).** Funds are requested for the PI and two staff members to attend the ASV meeting each year during the course of the proposal. This allows program faculty and lab members to communicate results, develop collaborations and share research interests.

#### **Consortium Arrangement: University of Minnesota**

Dr. Fang Li, Subcontract PI and Associate Professor at the University of Minnesota, is a structural and molecular biologist. He studies how coronaviruses infect host cells and transmit among host species. His research has been one of the major driving forces in shaping up what we now know about receptor recognition and cell entry of coronaviruses. He has also developed structure-based strategies for viral vaccine designs and antibody developments. His research provides foundational knowledge for the field of coronaviruses and will be utilized in the proposed aims of this grant. (See University of Minnesota's administrative documents attached)

**Indirect Costs (Facilities and Administration):** In accordance with the University's F&A Cost Rate Agreement dated November 23, 2016, the University's predetermined F&A rate is 55.50%. This rate remains in effect through June 30, 2020. The base for calculating Facilities and Administrative cost (indirect cost) is modified total direct costs (MTDC), consisting of all salaries and wages, fringe benefits, materials and supplies, and services.

## R&R SUBAWARD BUDGET ATTACHMENT(S) FORM

| Period                            | Subaward Direct Costs | Subaward Indirect Costs | Subaward Costs | Subaward IDC Ceiling: 25,000<br>Allocated To IDC Base |
|-----------------------------------|-----------------------|-------------------------|----------------|-------------------------------------------------------|
| <b>1. University of Minnesota</b> |                       |                         |                |                                                       |
| 1                                 | 245,000               | 133,329                 | 378,329        | 25,000                                                |
| 2                                 | 245,000               | 134,750                 | 379,750        |                                                       |
| 3                                 | 245,000               | 132,300                 | 377,300        |                                                       |
| 4                                 | 245,000               | 134,750                 | 379,750        |                                                       |
| 5                                 | 245,000               | 134,750                 | 379,750        |                                                       |
| All                               | 1,225,000             | 669,879                 | 1,894,879      | 25,000                                                |
| <b>All Subawards</b>              |                       |                         |                |                                                       |
| 1                                 | 245,000               | 133,329                 | 378,329        | 25,000                                                |
| 2                                 | 245,000               | 134,750                 | 379,750        | 0                                                     |
| 3                                 | 245,000               | 132,300                 | 377,300        | 0                                                     |
| 4                                 | 245,000               | 134,750                 | 379,750        | 0                                                     |
| 5                                 | 245,000               | 134,750                 | 379,750        | 0                                                     |
| All                               | 1,225,000             | 669,879                 | 1,894,879      | 25,000                                                |

**RESEARCH & RELATED BUDGET - SECTION A & B, BUDGET PERIOD 1**

\* ORGANIZATIONAL DUNS: 5559179960000

\* Budget Type:  Project  Subaward/Consortium

Enter name of Organization: Regents of the University of Minnesota

\* Start Date: 12-01-2020

\* End Date: 11-30-2021

Budget Period: 1

| A. Senior/Key Person                                                         |              |             |             |        |                |                  |             |              |             |                                |                        |                        |
|------------------------------------------------------------------------------|--------------|-------------|-------------|--------|----------------|------------------|-------------|--------------|-------------|--------------------------------|------------------------|------------------------|
| Prefix                                                                       | * First Name | Middle Name | * Last Name | Suffix | * Project Role | Base Salary (\$) | Cal. Months | Acad. Months | Sum. Months | * Requested Salary (\$)        | * Fringe Benefits (\$) | * Funds Requested (\$) |
| 1.                                                                           | Fang         |             | Li          |        | PD/PI          | 139,846.00       | 2.4         |              |             | 27,969.00                      | 10,069.00              | 38,038.00              |
| <b>Total Funds Requested for all Senior Key Persons in the attached file</b> |              |             |             |        |                |                  |             |              |             |                                |                        |                        |
| <b>Additional Senior Key Persons:</b>                                        |              |             | File Name:  |        | Mime Type:     |                  |             |              |             | <b>Total Senior/Key Person</b> |                        | <b>38,038.00</b>       |

| B. Other Personnel    |                                     |  |  |  |  |                |             |              |             |                         |                                                      |                        |
|-----------------------|-------------------------------------|--|--|--|--|----------------|-------------|--------------|-------------|-------------------------|------------------------------------------------------|------------------------|
| * Number of Personnel |                                     |  |  |  |  | * Project Role | Cal. Months | Acad. Months | Sum. Months | * Requested Salary (\$) | * Fringe Benefits                                    | * Funds Requested (\$) |
| 2                     | Post Doctoral Associates            |  |  |  |  |                | 24          |              |             | 100,000.00              | 24,300.00                                            | 124,300.00             |
|                       | Graduate Students                   |  |  |  |  |                |             |              |             |                         |                                                      |                        |
|                       | Undergraduate Students              |  |  |  |  |                |             |              |             |                         |                                                      |                        |
|                       | Secretarial/Clerical                |  |  |  |  |                |             |              |             |                         |                                                      |                        |
| 2                     | <b>Total Number Other Personnel</b> |  |  |  |  |                |             |              |             |                         | <b>Total Other Personnel</b>                         | <b>124,300.00</b>      |
|                       |                                     |  |  |  |  |                |             |              |             |                         | <b>Total Salary, Wages and Fringe Benefits (A+B)</b> | <b>162,338.00</b>      |

RESEARCH & RELATED Budget (A-B) (Funds Requested)

**RESEARCH & RELATED BUDGET - SECTION C, D, & E, BUDGET PERIOD 1**

\* ORGANIZATIONAL DUNS: 5559179960000

\* Budget Type:     Project     Subaward/Consortium

Enter name of Organization: Regents of the University of Minnesota

\* Start Date: 12-01-2020

\* End Date: 11-30-2021

Budget Period: 1

|                                                                     |                 |                        |
|---------------------------------------------------------------------|-----------------|------------------------|
| <b>C. Equipment Description</b>                                     |                 |                        |
| List items and dollar amount for each item exceeding \$5,000        |                 |                        |
| Equipment Item                                                      |                 | * Funds Requested (\$) |
| Total funds requested for all equipment listed in the attached file |                 |                        |
|                                                                     | Total Equipment |                        |
| Additional Equipment:                                               | File Name:      | Mime Type:             |

|                                                                        |                             |
|------------------------------------------------------------------------|-----------------------------|
| <b>D. Travel</b>                                                       | <b>Funds Requested (\$)</b> |
| 1. Domestic Travel Costs ( Incl. Canada, Mexico, and U.S. Possessions) | 3,000.00                    |
| 2. Foreign Travel Costs                                                |                             |
| <b>Total Travel Cost</b>                                               | <b>3,000.00</b>             |

|                                             |                                                |
|---------------------------------------------|------------------------------------------------|
| <b>E. Participant/Trainee Support Costs</b> | <b>Funds Requested (\$)</b>                    |
| 1. Tuition/Fees/Health Insurance            |                                                |
| 2. Stipends                                 |                                                |
| 3. Travel                                   |                                                |
| 4. Subsistence                              |                                                |
| 5. Other:                                   |                                                |
| <b>Number of Participants/Trainees</b>      | <b>Total Participant/Trainee Support Costs</b> |

RESEARCH & RELATED Budget {C-E} (Funds Requested)



**RESEARCH & RELATED BUDGET - SECTIONS F-L, BUDGET PERIOD 1**

\* ORGANIZATIONAL DUNS: 5559179960000

\* Budget Type:  Project  Subaward/Consortium

Enter name of Organization: Regents of the University of Minnesota

\* Start Date: 12-01-2020

\* End Date: 11-30-2021

Budget Period: 1

| F. Other Direct Costs                     | Funds Requested (\$) |
|-------------------------------------------|----------------------|
| 1. Materials and Supplies                 | 58,662.00            |
| 2. Publication Costs                      | 3,000.00             |
| 3. Consultant Services                    |                      |
| 4. ADP/Computer Services                  |                      |
| 5. Subawards/Consortium/Contractual Costs |                      |
| 6. Equipment or Facility Rental/User Fees | 14,000.00            |
| 7. Alterations and Renovations            |                      |
| 8. Equipment Maintenance                  | 4,000.00             |
| <b>Total Other Direct Costs</b>           | <b>79,662.00</b>     |

| G. Direct Costs                      | Funds Requested (\$) |
|--------------------------------------|----------------------|
| <b>Total Direct Costs (A thru F)</b> | <b>245,000.00</b>    |

| H. Indirect Costs                             | Funds Requested (\$)   |                         |                        |
|-----------------------------------------------|------------------------|-------------------------|------------------------|
| Indirect Cost Type                            | Indirect Cost Rate (%) | Indirect Cost Base (\$) | * Funds Requested (\$) |
| 1. MTDC                                       | 54                     | 142,100.00              | 76,734.00              |
| 2. MTDC                                       | 55                     | 102,900.00              | 56,595.00              |
| <b>Total Indirect Costs</b>                   |                        |                         | <b>133,329.00</b>      |
| <b>Cognizant Federal Agency</b>               |                        |                         |                        |
| (Agency Name, POC Name, and POC Phone Number) |                        |                         |                        |

| I. Total Direct and Indirect Costs                           | Funds Requested (\$) |
|--------------------------------------------------------------|----------------------|
| <b>Total Direct and Indirect Institutional Costs (G + H)</b> | <b>378,329.00</b>    |

| J. Fee | Funds Requested (\$) |
|--------|----------------------|
|        |                      |

| K. Total Costs and Fee             | Funds Requested (\$) |
|------------------------------------|----------------------|
| <b>Total Costs and Fee (I + J)</b> | <b>378,329.00</b>    |

| L. * Budget Justification | File Name: Budget_Justification1043823523.pdf | Mime Type: application/pdf |
|---------------------------|-----------------------------------------------|----------------------------|
|                           | (Only attach one file.)                       |                            |

RESEARCH & RELATED Budget {F-L} (Funds Requested)

**RESEARCH & RELATED BUDGET - SECTION A & B, BUDGET PERIOD 2**

\* ORGANIZATIONAL DUNS: 5559179960000

\* Budget Type:  Project  Subaward/Consortium

Enter name of Organization: Regents of the University of Minnesota

\* Start Date: 12-01-2021

\* End Date: 11-30-2022

Budget Period: 2

| <b>A. Senior/Key Person</b>                                                  |              |             |             |        |                |                  |             |              |             |                                |                        |                        |
|------------------------------------------------------------------------------|--------------|-------------|-------------|--------|----------------|------------------|-------------|--------------|-------------|--------------------------------|------------------------|------------------------|
| Prefix                                                                       | * First Name | Middle Name | * Last Name | Suffix | * Project Role | Base Salary (\$) | Cal. Months | Acad. Months | Sum. Months | * Requested Salary (\$)        | * Fringe Benefits (\$) | * Funds Requested (\$) |
| 1.                                                                           | Fang         |             | Li          |        | PD/PI          | 139,846.00       | 2.4         |              |             | 27,969.00                      | 10,069.00              | 38,038.00              |
| <b>Total Funds Requested for all Senior Key Persons in the attached file</b> |              |             |             |        |                |                  |             |              |             |                                |                        |                        |
| <b>Additional Senior Key Persons:</b>                                        |              |             | File Name:  |        | Mime Type:     |                  |             |              |             | <b>Total Senior/Key Person</b> |                        | <b>38,038.00</b>       |

| <b>B. Other Personnel</b> |                                     |  |  |  |                |             |              |             |                         |                              |                                                      |                   |
|---------------------------|-------------------------------------|--|--|--|----------------|-------------|--------------|-------------|-------------------------|------------------------------|------------------------------------------------------|-------------------|
| * Number of Personnel     |                                     |  |  |  | * Project Role | Cal. Months | Acad. Months | Sum. Months | * Requested Salary (\$) | * Fringe Benefits            | * Funds Requested (\$)                               |                   |
| 2                         | Post Doctoral Associates            |  |  |  |                | 24          |              |             | 100,000.00              | 24,300.00                    | 124,300.00                                           |                   |
|                           | Graduate Students                   |  |  |  |                |             |              |             |                         |                              |                                                      |                   |
|                           | Undergraduate Students              |  |  |  |                |             |              |             |                         |                              |                                                      |                   |
|                           | Secretarial/Clerical                |  |  |  |                |             |              |             |                         |                              |                                                      |                   |
| 2                         | <b>Total Number Other Personnel</b> |  |  |  |                |             |              |             |                         | <b>Total Other Personnel</b> |                                                      | <b>124,300.00</b> |
|                           |                                     |  |  |  |                |             |              |             |                         |                              | <b>Total Salary, Wages and Fringe Benefits (A+B)</b> | <b>162,338.00</b> |

RESEARCH & RELATED Budget (A-B) (Funds Requested)

**RESEARCH & RELATED BUDGET - SECTION C, D, & E, BUDGET PERIOD 2**

\* ORGANIZATIONAL DUNS: 5559179960000

\* Budget Type:     Project     Subaward/Consortium

Enter name of Organization: Regents of the University of Minnesota

\* Start Date: 12-01-2021

\* End Date: 11-30-2022

Budget Period: 2

|                                                                     |                 |                        |
|---------------------------------------------------------------------|-----------------|------------------------|
| <b>C. Equipment Description</b>                                     |                 |                        |
| List items and dollar amount for each item exceeding \$5,000        |                 |                        |
| Equipment Item                                                      |                 | * Funds Requested (\$) |
| Total funds requested for all equipment listed in the attached file |                 |                        |
|                                                                     | Total Equipment |                        |
| Additional Equipment:                                               | File Name:      | Mime Type:             |

|                                                                        |                             |
|------------------------------------------------------------------------|-----------------------------|
| <b>D. Travel</b>                                                       | <b>Funds Requested (\$)</b> |
| 1. Domestic Travel Costs ( Incl. Canada, Mexico, and U.S. Possessions) | 3,000.00                    |
| 2. Foreign Travel Costs                                                |                             |
| <b>Total Travel Cost</b>                                               | <b>3,000.00</b>             |

|                                             |                                                |
|---------------------------------------------|------------------------------------------------|
| <b>E. Participant/Trainee Support Costs</b> | <b>Funds Requested (\$)</b>                    |
| 1. Tuition/Fees/Health Insurance            |                                                |
| 2. Stipends                                 |                                                |
| 3. Travel                                   |                                                |
| 4. Subsistence                              |                                                |
| 5. Other:                                   |                                                |
| <b>Number of Participants/Trainees</b>      | <b>Total Participant/Trainee Support Costs</b> |

RESEARCH & RELATED Budget {C-E} (Funds Requested)

**RESEARCH & RELATED BUDGET - SECTIONS F-L, BUDGET PERIOD 2**

\* ORGANIZATIONAL DUNS: 5559179960000

\* Budget Type:  Project  Subaward/Consortium

Enter name of Organization: Regents of the University of Minnesota

\* Start Date: 12-01-2021

\* End Date: 11-30-2022

Budget Period: 2

| F. Other Direct Costs                     | Funds Requested (\$) |
|-------------------------------------------|----------------------|
| 1. Materials and Supplies                 | 58,662.00            |
| 2. Publication Costs                      | 3,000.00             |
| 3. Consultant Services                    |                      |
| 4. ADP/Computer Services                  |                      |
| 5. Subawards/Consortium/Contractual Costs |                      |
| 6. Equipment or Facility Rental/User Fees | 14,000.00            |
| 7. Alterations and Renovations            |                      |
| 8. Equipment Maintenance                  | 4,000.00             |
| <b>Total Other Direct Costs</b>           | <b>79,662.00</b>     |

| G. Direct Costs                      | Funds Requested (\$) |
|--------------------------------------|----------------------|
| <b>Total Direct Costs (A thru F)</b> | <b>245,000.00</b>    |

| H. Indirect Costs                             |                    |                        |                             | * Funds Requested (\$) |
|-----------------------------------------------|--------------------|------------------------|-----------------------------|------------------------|
|                                               | Indirect Cost Type | Indirect Cost Rate (%) | Indirect Cost Base (\$)     |                        |
| 1.                                            | MTDC               | 55                     | 245,000.00                  | 134,750.00             |
|                                               |                    |                        | <b>Total Indirect Costs</b> | <b>134,750.00</b>      |
| <b>Cognizant Federal Agency</b>               |                    |                        |                             |                        |
| (Agency Name, POC Name, and POC Phone Number) |                    |                        |                             |                        |

| I. Total Direct and Indirect Costs                           | Funds Requested (\$) |
|--------------------------------------------------------------|----------------------|
| <b>Total Direct and Indirect Institutional Costs (G + H)</b> | <b>379,750.00</b>    |

| J. Fee | Funds Requested (\$) |
|--------|----------------------|
|        |                      |

| K. Total Costs and Fee             | Funds Requested (\$) |
|------------------------------------|----------------------|
| <b>Total Costs and Fee (I + J)</b> | <b>379,750.00</b>    |

| L. * Budget Justification | File Name: Budget_Justification1043823523.pdf | Mime Type: application/pdf |
|---------------------------|-----------------------------------------------|----------------------------|
| (Only attach one file.)   |                                               |                            |

RESEARCH & RELATED Budget {F-L} (Funds Requested)

**RESEARCH & RELATED BUDGET - SECTION A & B, BUDGET PERIOD 3**

\* ORGANIZATIONAL DUNS: 5559179960000

\* Budget Type:  Project  Subaward/Consortium

Enter name of Organization: Regents of the University of Minnesota

\* Start Date: 12-01-2022

\* End Date: 11-30-2023

Budget Period: 3

| A. Senior/Key Person                                                         |              |             |             |        |                |                  |             |              |             |                                |                        |                        |
|------------------------------------------------------------------------------|--------------|-------------|-------------|--------|----------------|------------------|-------------|--------------|-------------|--------------------------------|------------------------|------------------------|
| Prefix                                                                       | * First Name | Middle Name | * Last Name | Suffix | * Project Role | Base Salary (\$) | Cal. Months | Acad. Months | Sum. Months | * Requested Salary (\$)        | * Fringe Benefits (\$) | * Funds Requested (\$) |
| 1.                                                                           | Fang         |             | Li          |        | PD/PI          | 139,846.00       | 2.4         |              |             | 27,969.00                      | 10,069.00              | 38,038.00              |
| <b>Total Funds Requested for all Senior Key Persons in the attached file</b> |              |             |             |        |                |                  |             |              |             |                                |                        |                        |
| <b>Additional Senior Key Persons:</b>                                        |              |             | File Name:  |        | Mime Type:     |                  |             |              |             | <b>Total Senior/Key Person</b> |                        | <b>38,038.00</b>       |

| B. Other Personnel    |                                     |  |  |  |                |             |              |             |                         |                              |                                                      |                   |
|-----------------------|-------------------------------------|--|--|--|----------------|-------------|--------------|-------------|-------------------------|------------------------------|------------------------------------------------------|-------------------|
| * Number of Personnel |                                     |  |  |  | * Project Role | Cal. Months | Acad. Months | Sum. Months | * Requested Salary (\$) | * Fringe Benefits            | * Funds Requested (\$)                               |                   |
| 2                     | Post Doctoral Associates            |  |  |  |                | 24          |              |             | 100,000.00              | 24,300.00                    | 124,300.00                                           |                   |
|                       | Graduate Students                   |  |  |  |                |             |              |             |                         |                              |                                                      |                   |
|                       | Undergraduate Students              |  |  |  |                |             |              |             |                         |                              |                                                      |                   |
|                       | Secretarial/Clerical                |  |  |  |                |             |              |             |                         |                              |                                                      |                   |
| 2                     | <b>Total Number Other Personnel</b> |  |  |  |                |             |              |             |                         | <b>Total Other Personnel</b> |                                                      | <b>124,300.00</b> |
|                       |                                     |  |  |  |                |             |              |             |                         |                              | <b>Total Salary, Wages and Fringe Benefits (A+B)</b> | <b>162,338.00</b> |

RESEARCH & RELATED Budget {A-B} (Funds Requested)

**RESEARCH & RELATED BUDGET - SECTION C, D, & E, BUDGET PERIOD 3**

\* ORGANIZATIONAL DUNS: 5559179960000

\* Budget Type:     Project     Subaward/Consortium

Enter name of Organization: Regents of the University of Minnesota

\* Start Date: 12-01-2022

\* End Date: 11-30-2023

Budget Period: 3

|                                                                     |                       |                               |
|---------------------------------------------------------------------|-----------------------|-------------------------------|
| <b>C. Equipment Description</b>                                     |                       |                               |
| List items and dollar amount for each item exceeding \$5,000        |                       |                               |
|                                                                     | <b>Equipment Item</b> | <b>* Funds Requested (\$)</b> |
| Total funds requested for all equipment listed in the attached file |                       |                               |
|                                                                     |                       | <b>Total Equipment</b>        |
| <b>Additional Equipment:</b>                                        | File Name:            | Mime Type:                    |

|                                                                        |                             |
|------------------------------------------------------------------------|-----------------------------|
| <b>D. Travel</b>                                                       | <b>Funds Requested (\$)</b> |
| 1. Domestic Travel Costs ( Incl. Canada, Mexico, and U.S. Possessions) | 3,000.00                    |
| 2. Foreign Travel Costs                                                |                             |
| <b>Total Travel Cost</b>                                               | <b>3,000.00</b>             |

|                                             |                                                |
|---------------------------------------------|------------------------------------------------|
| <b>E. Participant/Trainee Support Costs</b> | <b>Funds Requested (\$)</b>                    |
| 1. Tuition/Fees/Health Insurance            |                                                |
| 2. Stipends                                 |                                                |
| 3. Travel                                   |                                                |
| 4. Subsistence                              |                                                |
| 5. Other:                                   |                                                |
| <b>Number of Participants/Trainees</b>      | <b>Total Participant/Trainee Support Costs</b> |

RESEARCH & RELATED Budget {C-E} (Funds Requested)

**RESEARCH & RELATED BUDGET - SECTIONS F-L, BUDGET PERIOD 3**

\* ORGANIZATIONAL DUNS: 5559179960000

\* Budget Type:  Project  Subaward/Consortium

Enter name of Organization: Regents of the University of Minnesota

\* Start Date: 12-01-2022

\* End Date: 11-30-2023

Budget Period: 3

| F. Other Direct Costs                     | Funds Requested (\$) |
|-------------------------------------------|----------------------|
| 1. Materials and Supplies                 | 58,662.00            |
| 2. Publication Costs                      | 3,000.00             |
| 3. Consultant Services                    |                      |
| 4. ADP/Computer Services                  |                      |
| 5. Subawards/Consortium/Contractual Costs |                      |
| 6. Equipment or Facility Rental/User Fees | 14,000.00            |
| 7. Alterations and Renovations            |                      |
| 8. Equipment Maintenance                  | 4,000.00             |
| <b>Total Other Direct Costs</b>           | <b>79,662.00</b>     |

| G. Direct Costs                      | Funds Requested (\$) |
|--------------------------------------|----------------------|
| <b>Total Direct Costs (A thru F)</b> | <b>245,000.00</b>    |

| H. Indirect Costs                             |                    |                        |                         | * Funds Requested (\$) |
|-----------------------------------------------|--------------------|------------------------|-------------------------|------------------------|
|                                               | Indirect Cost Type | Indirect Cost Rate (%) | Indirect Cost Base (\$) |                        |
| 1.                                            | MTDC               | 54                     | 245,000.00              | 132,300.00             |
| <b>Total Indirect Costs</b>                   |                    |                        |                         | <b>132,300.00</b>      |
| <b>Cognizant Federal Agency</b>               |                    |                        |                         |                        |
| (Agency Name, POC Name, and POC Phone Number) |                    |                        |                         |                        |

| I. Total Direct and Indirect Costs                           | Funds Requested (\$) |
|--------------------------------------------------------------|----------------------|
| <b>Total Direct and Indirect Institutional Costs (G + H)</b> | <b>377,300.00</b>    |

| J. Fee | Funds Requested (\$) |
|--------|----------------------|
|        |                      |

| K. Total Costs and Fee             | Funds Requested (\$) |
|------------------------------------|----------------------|
| <b>Total Costs and Fee (I + J)</b> | <b>377,300.00</b>    |

| L. * Budget Justification | File Name: Budget_Justification1043823523.pdf | Mime Type: application/pdf |
|---------------------------|-----------------------------------------------|----------------------------|
| (Only attach one file.)   |                                               |                            |

RESEARCH & RELATED Budget {F-L} (Funds Requested)

**RESEARCH & RELATED BUDGET - SECTION A & B, BUDGET PERIOD 4**

\* ORGANIZATIONAL DUNS: 5559179960000

\* Budget Type:  Project  Subaward/Consortium

Enter name of Organization: Regents of the University of Minnesota

\* Start Date: 12-01-2023

\* End Date: 11-30-2024

Budget Period: 4

| <b>A. Senior/Key Person</b>                                                  |              |             |             |        |                |                  |             |              |             |                                |                        |                        |
|------------------------------------------------------------------------------|--------------|-------------|-------------|--------|----------------|------------------|-------------|--------------|-------------|--------------------------------|------------------------|------------------------|
| Prefix                                                                       | * First Name | Middle Name | * Last Name | Suffix | * Project Role | Base Salary (\$) | Cal. Months | Acad. Months | Sum. Months | * Requested Salary (\$)        | * Fringe Benefits (\$) | * Funds Requested (\$) |
| 1.                                                                           | Fang         |             | Li          |        | PD/PI          | 139,846.00       | 2.4         |              |             | 27,969.00                      | 10,069.00              | 38,038.00              |
| <b>Total Funds Requested for all Senior Key Persons in the attached file</b> |              |             |             |        |                |                  |             |              |             |                                |                        |                        |
| <b>Additional Senior Key Persons:</b>                                        |              |             | File Name:  |        | Mime Type:     |                  |             |              |             | <b>Total Senior/Key Person</b> |                        | <b>38,038.00</b>       |

| <b>B. Other Personnel</b> |                                     |  |  |  |                |             |              |             |                         |                              |                                                      |                   |
|---------------------------|-------------------------------------|--|--|--|----------------|-------------|--------------|-------------|-------------------------|------------------------------|------------------------------------------------------|-------------------|
| * Number of Personnel     |                                     |  |  |  | * Project Role | Cal. Months | Acad. Months | Sum. Months | * Requested Salary (\$) | * Fringe Benefits            | * Funds Requested (\$)                               |                   |
| 2                         | Post Doctoral Associates            |  |  |  |                | 24          |              |             | 100,000.00              | 24,300.00                    | 124,300.00                                           |                   |
|                           | Graduate Students                   |  |  |  |                |             |              |             |                         |                              |                                                      |                   |
|                           | Undergraduate Students              |  |  |  |                |             |              |             |                         |                              |                                                      |                   |
|                           | Secretarial/Clerical                |  |  |  |                |             |              |             |                         |                              |                                                      |                   |
| 2                         | <b>Total Number Other Personnel</b> |  |  |  |                |             |              |             |                         | <b>Total Other Personnel</b> |                                                      | <b>124,300.00</b> |
|                           |                                     |  |  |  |                |             |              |             |                         |                              | <b>Total Salary, Wages and Fringe Benefits (A+B)</b> | <b>162,338.00</b> |

RESEARCH & RELATED Budget (A-B) (Funds Requested)



**RESEARCH & RELATED BUDGET - SECTION C, D, & E, BUDGET PERIOD 4**

\* ORGANIZATIONAL DUNS: 5559179960000

\* Budget Type:     Project     Subaward/Consortium

Enter name of Organization: Regents of the University of Minnesota

\* Start Date: 12-01-2023

\* End Date: 11-30-2024

Budget Period: 4

|                                                                     |                 |                        |
|---------------------------------------------------------------------|-----------------|------------------------|
| <b>C. Equipment Description</b>                                     |                 |                        |
| List items and dollar amount for each item exceeding \$5,000        |                 |                        |
| Equipment Item                                                      |                 | * Funds Requested (\$) |
| Total funds requested for all equipment listed in the attached file |                 |                        |
|                                                                     | Total Equipment |                        |
| Additional Equipment:                                               | File Name:      | Mime Type:             |

|                                                                        |                             |
|------------------------------------------------------------------------|-----------------------------|
| <b>D. Travel</b>                                                       | <b>Funds Requested (\$)</b> |
| 1. Domestic Travel Costs ( Incl. Canada, Mexico, and U.S. Possessions) | 3,000.00                    |
| 2. Foreign Travel Costs                                                |                             |
| Total Travel Cost                                                      | 3,000.00                    |

|                                             |                                         |
|---------------------------------------------|-----------------------------------------|
| <b>E. Participant/Trainee Support Costs</b> | <b>Funds Requested (\$)</b>             |
| 1. Tuition/Fees/Health Insurance            |                                         |
| 2. Stipends                                 |                                         |
| 3. Travel                                   |                                         |
| 4. Subsistence                              |                                         |
| 5. Other:                                   |                                         |
| Number of Participants/Trainees             | Total Participant/Trainee Support Costs |

RESEARCH & RELATED Budget {C-E} (Funds Requested)

**RESEARCH & RELATED BUDGET - SECTIONS F-L, BUDGET PERIOD 4**

\* ORGANIZATIONAL DUNS: 5559179960000

\* Budget Type:  Project  Subaward/Consortium

Enter name of Organization: Regents of the University of Minnesota

\* Start Date: 12-01-2023

\* End Date: 11-30-2024

Budget Period: 4

| F. Other Direct Costs                     | Funds Requested (\$) |
|-------------------------------------------|----------------------|
| 1. Materials and Supplies                 | 58,662.00            |
| 2. Publication Costs                      | 3,000.00             |
| 3. Consultant Services                    |                      |
| 4. ADP/Computer Services                  |                      |
| 5. Subawards/Consortium/Contractual Costs |                      |
| 6. Equipment or Facility Rental/User Fees | 14,000.00            |
| 7. Alterations and Renovations            |                      |
| 8. Equipment Maintenance                  | 4,000.00             |
| <b>Total Other Direct Costs</b>           | <b>79,662.00</b>     |

| G. Direct Costs                      | Funds Requested (\$) |
|--------------------------------------|----------------------|
| <b>Total Direct Costs (A thru F)</b> | <b>245,000.00</b>    |

| H. Indirect Costs                             |                    |                        |                         | * Funds Requested (\$) |
|-----------------------------------------------|--------------------|------------------------|-------------------------|------------------------|
|                                               | Indirect Cost Type | Indirect Cost Rate (%) | Indirect Cost Base (\$) |                        |
| 1.                                            | MTDC               | 55                     | 245,000.00              | 134,750.00             |
| <b>Total Indirect Costs</b>                   |                    |                        |                         | <b>134,750.00</b>      |
| <b>Cognizant Federal Agency</b>               |                    |                        |                         |                        |
| (Agency Name, POC Name, and POC Phone Number) |                    |                        |                         |                        |

| I. Total Direct and Indirect Costs                           | Funds Requested (\$) |
|--------------------------------------------------------------|----------------------|
| <b>Total Direct and Indirect Institutional Costs (G + H)</b> | <b>379,750.00</b>    |

| J. Fee | Funds Requested (\$) |
|--------|----------------------|
|        |                      |

| K. Total Costs and Fee             | Funds Requested (\$) |
|------------------------------------|----------------------|
| <b>Total Costs and Fee (I + J)</b> | <b>379,750.00</b>    |

| L. * Budget Justification | File Name: Budget_Justification1043823523.pdf | Mime Type: application/pdf |
|---------------------------|-----------------------------------------------|----------------------------|
| (Only attach one file.)   |                                               |                            |

RESEARCH & RELATED Budget {F-L} (Funds Requested)

**RESEARCH & RELATED BUDGET - SECTION A & B, BUDGET PERIOD 5**

\* ORGANIZATIONAL DUNS: 5559179960000

\* Budget Type:  Project  Subaward/Consortium

Enter name of Organization: Regents of the University of Minnesota

\* Start Date: 12-01-2024

\* End Date: 11-30-2025

Budget Period: 5

| <b>A. Senior/Key Person</b>                                                  |              |             |             |        |                |                  |             |              |             |                                |                        |                        |
|------------------------------------------------------------------------------|--------------|-------------|-------------|--------|----------------|------------------|-------------|--------------|-------------|--------------------------------|------------------------|------------------------|
| Prefix                                                                       | * First Name | Middle Name | * Last Name | Suffix | * Project Role | Base Salary (\$) | Cal. Months | Acad. Months | Sum. Months | * Requested Salary (\$)        | * Fringe Benefits (\$) | * Funds Requested (\$) |
| 1.                                                                           | Fang         |             | Li          |        | PD/PI          | 139,846.00       | 2.4         |              |             | 27,969.00                      | 10,069.00              | 38,038.00              |
| <b>Total Funds Requested for all Senior Key Persons in the attached file</b> |              |             |             |        |                |                  |             |              |             |                                |                        |                        |
| <b>Additional Senior Key Persons:</b>                                        |              |             | File Name:  |        | Mime Type:     |                  |             |              |             | <b>Total Senior/Key Person</b> |                        | <b>38,038.00</b>       |

| <b>B. Other Personnel</b> |                                     |  |  |  |                |             |              |             |                         |                              |                                                      |                   |
|---------------------------|-------------------------------------|--|--|--|----------------|-------------|--------------|-------------|-------------------------|------------------------------|------------------------------------------------------|-------------------|
| * Number of Personnel     |                                     |  |  |  | * Project Role | Cal. Months | Acad. Months | Sum. Months | * Requested Salary (\$) | * Fringe Benefits            | * Funds Requested (\$)                               |                   |
| 2                         | Post Doctoral Associates            |  |  |  |                | 24          |              |             | 100,000.00              | 24,300.00                    | 124,300.00                                           |                   |
|                           | Graduate Students                   |  |  |  |                |             |              |             |                         |                              |                                                      |                   |
|                           | Undergraduate Students              |  |  |  |                |             |              |             |                         |                              |                                                      |                   |
|                           | Secretarial/Clerical                |  |  |  |                |             |              |             |                         |                              |                                                      |                   |
| 2                         | <b>Total Number Other Personnel</b> |  |  |  |                |             |              |             |                         | <b>Total Other Personnel</b> |                                                      | <b>124,300.00</b> |
|                           |                                     |  |  |  |                |             |              |             |                         |                              | <b>Total Salary, Wages and Fringe Benefits (A+B)</b> | <b>162,338.00</b> |

RESEARCH & RELATED Budget {A-B} (Funds Requested)

**RESEARCH & RELATED BUDGET - SECTION C, D, & E, BUDGET PERIOD 5**

\* ORGANIZATIONAL DUNS: 5559179960000

\* Budget Type:     Project     Subaward/Consortium

Enter name of Organization: Regents of the University of Minnesota

\* Start Date: 12-01-2024

\* End Date: 11-30-2025

Budget Period: 5

|                                                                     |                 |                        |
|---------------------------------------------------------------------|-----------------|------------------------|
| <b>C. Equipment Description</b>                                     |                 |                        |
| List items and dollar amount for each item exceeding \$5,000        |                 |                        |
| Equipment Item                                                      |                 | * Funds Requested (\$) |
| Total funds requested for all equipment listed in the attached file |                 |                        |
|                                                                     | Total Equipment |                        |
| Additional Equipment:                                               | File Name:      | Mime Type:             |

|                                                                        |                             |
|------------------------------------------------------------------------|-----------------------------|
| <b>D. Travel</b>                                                       | <b>Funds Requested (\$)</b> |
| 1. Domestic Travel Costs ( Incl. Canada, Mexico, and U.S. Possessions) | 3,000.00                    |
| 2. Foreign Travel Costs                                                |                             |
| <b>Total Travel Cost</b>                                               | <b>3,000.00</b>             |

|                                             |                                                |
|---------------------------------------------|------------------------------------------------|
| <b>E. Participant/Trainee Support Costs</b> | <b>Funds Requested (\$)</b>                    |
| 1. Tuition/Fees/Health Insurance            |                                                |
| 2. Stipends                                 |                                                |
| 3. Travel                                   |                                                |
| 4. Subsistence                              |                                                |
| 5. Other:                                   |                                                |
| <b>Number of Participants/Trainees</b>      | <b>Total Participant/Trainee Support Costs</b> |

RESEARCH & RELATED Budget {C-E} (Funds Requested)

**RESEARCH & RELATED BUDGET - SECTIONS F-L, BUDGET PERIOD 5**

\* ORGANIZATIONAL DUNS: 5559179960000

\* Budget Type:  Project  Subaward/Consortium

Enter name of Organization: Regents of the University of Minnesota

\* Start Date: 12-01-2024

\* End Date: 11-30-2025

Budget Period: 5

| F. Other Direct Costs                     | Funds Requested (\$) |
|-------------------------------------------|----------------------|
| 1. Materials and Supplies                 | 58,662.00            |
| 2. Publication Costs                      | 3,000.00             |
| 3. Consultant Services                    |                      |
| 4. ADP/Computer Services                  |                      |
| 5. Subawards/Consortium/Contractual Costs |                      |
| 6. Equipment or Facility Rental/User Fees | 14,000.00            |
| 7. Alterations and Renovations            |                      |
| 8. Equipment Maintenance                  | 4,000.00             |
| <b>Total Other Direct Costs</b>           | <b>79,662.00</b>     |

| G. Direct Costs                      | Funds Requested (\$) |
|--------------------------------------|----------------------|
| <b>Total Direct Costs (A thru F)</b> | <b>245,000.00</b>    |

| H. Indirect Costs                             |                    |                        |                         | * Funds Requested (\$) |
|-----------------------------------------------|--------------------|------------------------|-------------------------|------------------------|
|                                               | Indirect Cost Type | Indirect Cost Rate (%) | Indirect Cost Base (\$) |                        |
| 1.                                            | MTDC               | 55                     | 245,000.00              | 134,750.00             |
| <b>Total Indirect Costs</b>                   |                    |                        |                         | <b>134,750.00</b>      |
| <b>Cognizant Federal Agency</b>               |                    |                        |                         |                        |
| (Agency Name, POC Name, and POC Phone Number) |                    |                        |                         |                        |

| I. Total Direct and Indirect Costs                           | Funds Requested (\$) |
|--------------------------------------------------------------|----------------------|
| <b>Total Direct and Indirect Institutional Costs (G + H)</b> | <b>379,750.00</b>    |

| J. Fee | Funds Requested (\$) |
|--------|----------------------|
|        |                      |

| K. Total Costs and Fee             | Funds Requested (\$) |
|------------------------------------|----------------------|
| <b>Total Costs and Fee (I + J)</b> | <b>379,750.00</b>    |

| L. * Budget Justification | File Name: Budget_Justification1043823523.pdf | Mime Type: application/pdf |
|---------------------------|-----------------------------------------------|----------------------------|
| (Only attach one file.)   |                                               |                            |

RESEARCH & RELATED Budget {F-L} (Funds Requested)

## RESEARCH & RELATED BUDGET - Cumulative Budget

|                                                           | Totals (\$) |                     |
|-----------------------------------------------------------|-------------|---------------------|
| <b>Section A, Senior/Key Person</b>                       |             | <b>190,190.00</b>   |
| <b>Section B, Other Personnel</b>                         |             | <b>621,500.00</b>   |
| Total Number Other Personnel                              | 10          |                     |
| <b>Total Salary, Wages and Fringe Benefits (A+B)</b>      |             | <b>811,690.00</b>   |
| <b>Section C, Equipment</b>                               |             |                     |
| <b>Section D, Travel</b>                                  |             | <b>15,000.00</b>    |
| 1. Domestic                                               | 15,000.00   |                     |
| 2. Foreign                                                |             |                     |
| <b>Section E, Participant/Trainee Support Costs</b>       |             |                     |
| 1. Tuition/Fees/Health Insurance                          |             |                     |
| 2. Stipends                                               |             |                     |
| 3. Travel                                                 |             |                     |
| 4. Subsistence                                            |             |                     |
| 5. Other                                                  |             |                     |
| 6. Number of Participants/Trainees                        |             |                     |
| <b>Section F, Other Direct Costs</b>                      |             | <b>398,310.00</b>   |
| 1. Materials and Supplies                                 | 293,310.00  |                     |
| 2. Publication Costs                                      | 15,000.00   |                     |
| 3. Consultant Services                                    |             |                     |
| 4. ADP/Computer Services                                  |             |                     |
| 5. Subawards/Consortium/Contractual Costs                 |             |                     |
| 6. Equipment or Facility Rental/User Fees                 | 70,000.00   |                     |
| 7. Alterations and Renovations                            |             |                     |
| 8. Other 1                                                | 20,000.00   |                     |
| 9. Other 2                                                |             |                     |
| 10. Other 3                                               |             |                     |
| <b>Section G, Direct Costs (A thru F)</b>                 |             | <b>1,225,000.00</b> |
| <b>Section H, Indirect Costs</b>                          |             | <b>669,879.00</b>   |
| <b>Section I, Total Direct and Indirect Costs (G + H)</b> |             | <b>1,894,879.00</b> |
| <b>Section J, Fee</b>                                     |             |                     |
| <b>Section K, Total Costs and Fee (I + J)</b>             |             | <b>1,894,879.00</b> |

## **Budget Justification**

### **Personnel Justification**

Fang Li, PhD, Principal Investigator (2.4 calendar months), 20% effort, will be responsible for laboratory management and supervision of the projects, including experimental design, execution, data analysis, and write-up.

One Postdoctoral Scientist (To be named) (12.00 calendar months), 100% effort, will be responsible for conducting experiments on (i) biochemical analysis of the interactions between 2019-nCoV RBD and human ACE2 (aim 1); (ii) biochemical analysis of the interactions between 2019-nCoV RBD and ACE2 from other species (aim 1); (iii) biochemical analysis of the roles of proteases in 2019-nCoV entry (aim 1); (iv) 2019-nCoV evolution through phage or mammalian cell display of its RBD targeting ACE2 from different host species (aim 2).

One Postdoctoral Scientist (To be named) (12.00 calendar months), 100% effort, will be responsible for conducting experiments on (i) crystal structure of 2019-nCoV RBD complexed with human ACE2 (aim 1); (ii) crystal structures of 2019-nCoV RBD complexed with ACE2 from different animal species (aim 1); (iii) cryo-EM structures of 2019-nCoV spike trimer in the pre-fusion and post-fusion states (aim 1); (iv) 2019-nCoV evolution through structure-based design 2019-nCoV spike RBD mutations (aim 2).

### **Research Supplies Justification**

Research supplies will include reagents for molecular biology, cell culture, protein purification, protein biochemistry, protein crystallization, and electron microscopy. More specifically, research supplies will include cloning enzymes, restriction enzymes, plasmid purification kits, DNA retraction kits, insect cells, insect cell culture media, mammalian cells, mammalian cell culture media, protein purification columns, crystallization kits and plates, crystal freezing tools, electron microscopic grids and tools, Biacore chips, AlphaScreen beads and plates, and pseudovirus assay reagents.

Year 1 = \$58,662

Year 2 = \$58,662

Year 3 = \$58,662

Year 4 = \$58,662

Year 5 = \$58,662

### **Equipment of Facility Rental/User Fees**

Cryo-electron microscopy data collections: Three data collections are expected each year on the cryo-electron microscopy structures of 2019-nCoV spike trimer (alone or in complex with receptor; pre-fusion conformation or post-fusion conformation). Data collections will be done at Arizona State University where we have collected data previously. The data collection costs ~\$2000 per day, and each data collection takes ~2 days.  
\$12,000/year

Use of services from several on-campus labs, such as robot crystallization lab, mass spectrometry lab, and protein sequencing lab. \$2,000/year

### **Travel**

For the PI and the postdoctoral researchers, on average two trips to National synchrotron laboratories for X-ray data collection, and one trip to a national conference. \$3,000/year

### **Publication**

On average three publications will be expected per year. \$3,000/year

### **Equipment Maintenance**

Purchase of service contracts for equipments such as AKTA purification system, centrifuges, ultracentrifuges, and insect cell shaker/incubators. \$4,000/year

**Indirect Costs**

The University of Minnesota has a negotiated rate of 54% MTDC through 7/2021 and 55% MTDC effective thereafter. Indirect costs requested equal \$672,327.



# PHS 398 Cover Page Supplement

## 1. Vertebrate Animals Section

Are vertebrate animals euthanized?  Yes  No

If "Yes" to euthanasia

Is method consistent with American Veterinary Medical Association (AVMA) guidelines?  Yes  No

If "No" to AVMA guidelines, describe method and provide scientific justification

## 2. \*Program Income Section

\*Is program income anticipated during the periods for which the grant support is requested?

Yes  No

If you checked "yes" above (indicating that program income is anticipated), then use the format below to reflect the amount and source(s). Otherwise, leave this section blank.

| *Budget Period | *Anticipated Amount (\$) | *Source(s) |
|----------------|--------------------------|------------|
|----------------|--------------------------|------------|

## 3. Human Embryonic Stem Cells Section

\*Does the proposed project involve human embryonic stem cells?  Yes  No

If the proposed project involves human embryonic stem cells, list below the registration number of the specific cell line(s) from the following list: <http://stemcells.nih.gov/research/registry/>. Or, if a specific stem cell line cannot be referenced at this time, please check the box indicating that one from the registry will be used:

**Cell Line(s):**  Specific stem cell line cannot be referenced at this time. One from the registry will be used.

## PHS 398 Cover Page Supplement

### 4. Inventions and Patents Section (RENEWAL)

\*Inventions and Patents:  Yes  No

If the answer is "Yes" then please answer the following:

\*Previously reported:  Yes  No

### 5. Change of Investigator / Change of Institution Section

Change of Project Director / Principal Investigator

Name of former Project Director/Principal Investigator

Prefix:

\*First Name:

Middle Name:

\*Last Name:

Suffix:

Change of Grantee Institution

\*Name of former institution:

## PHS 398 Research Plan

### Introduction

1. Introduction to Application  
(or Resubmission and Revision applications)

### Research Plan Section

- |                                     |                                         |
|-------------------------------------|-----------------------------------------|
| 2. Specific Aims                    | Baric_Specific_Aims_Final1043902868.pdf |
| 3. Research Strategy*               | Baric_Research_Plan_Final1043902867.pdf |
| 4. Progress Report Publication List | Publication_List1043823701.pdf          |

### Other Research Plan Section

- |                                                                |                                              |
|----------------------------------------------------------------|----------------------------------------------|
| 5. Vertebrate Animals                                          | Vertebrate_Animals1043823673.pdf             |
| 6. Select Agent Research                                       | Biohazard_Documents1043823674.pdf            |
| 7. Multiple PD/PI Leadership Plan                              | Multiple_PD_Plan_Final1043902872.pdf         |
| 8. Consortium/Contractual Arrangements                         | UMN_Letter_of_Intent_Updated1043823675.pdf   |
| 9. Letters of Support                                          |                                              |
| 10. Resource Sharing Plan(s)                                   | Reagent_and_Data_Sharing_final1043902870.pdf |
| 11. Authentication of Key Biological and/or Chemical Resources | authenticationkeybio1043902871.pdf           |

### Appendix

12. Appendix

**A. Specific Aims.** The 21<sup>st</sup> century has recorded the emergence of three highly pathogenic respiratory coronaviruses, including Severe Acute Respiratory Coronavirus (SARS-CoV) in 2003, the ongoing Middle East Respiratory Coronavirus (MERS-CoV) in 2012 and a recent SARS-like coronaviruses (SARS2) in Wuhan, China in Dec 2019. The scope of the current SARS2 pandemic is enormous, resulting in >200,000 cases in >100 countries and a ~3.4% mortality rate. Our renewal focus exclusively on [REDACTED]

[REDACTED] We will reveal the evolutionary pathways that regulate clade1 SARS2 virus emergence and growth in human primary cells and in mice, which is critical for countermeasure development.

To accomplish these goals, two highly experienced senior researchers apply an array of state of the art techniques which include a [REDACTED]

[REDACTED]

**Specific Aim 1: Receptor Recognition and cross-species transmission of SARS2** How does receptor usage contribute to cell infection and cross-species transmission of the clade 1 SARS2 like CoV? We hypothesize that receptor usage [REDACTED]. Our pioneering structural and molecular studies on the receptor recognition and cross-species transmission of SARS-CoV laid the foundation for novel research on SARS2. Recently we also determined [REDACTED]

[REDACTED]

**Specific Aim 2: Cell entry and cross-species transmission of SARS2.** SARS2 has a unique collection of predicted protease cleave sites in the S glycoprotein, [REDACTED]

[REDACTED] Our previous research in SARS-CoV and MERS-CoV, which proved that host specific protease activities regulate cross species transmission, uniquely position us [REDACTED]

**Specific Aim 3: Pathogenesis of SARS2 in Mouse Models of Human Disease.** SARS2 can use the human (hACE2), but not mouse (mACE2) receptor for entry. The overall goal is to [REDACTED]

[REDACTED] Our underlying hypothesis is that [REDACTED]

[REDACTED] In part 1, we will identify the [REDACTED] In part 2, we evaluate [REDACTED]

[REDACTED]. In part 3, we evaluate the outcomes [REDACTED]

**Implication beyond SARS-CoV-2.** How should we prevent a disaster like the current SARS2 outbreak from occurring again? The implication of this proposed research goes beyond SARS2 because it aims to understand the [REDACTED]

[REDACTED]

**Baric R: Cell entry, cross-species transmission and pathogenesis of novel CoV, SARS2 from Wuhan**

**B. Introduction.** The underlying hypothesis posits that the [REDACTED]

[REDACTED]

[REDACTED]

**B.1. Overview of SARS2, SARS-CoV and related bat CoVs:** Coronaviruses (CoV) have a long history of host shifting and most human CoVs likely originated from bats over the past ~600 years. Emerging respiratory viruses represent a huge threat to global health and the stability of global economies. SARS-CoV emerged in 2003 to cause ~8,000 infections and ~800 deaths (10-13). A number of closely related SARS-like bat viruses, identified between 2013-2016, were shown to use human ACE2 (hACE2) receptors in vitro and in vivo, predicting future emergence events in human populations (Fig 1)(14, 15). In 2019, a novel clade I SARS-like group 2b CoV, designated SARS-CoV2 (SARS2) emerged in Wuhan, China in Dec 2019, resulting in >205,000 infections and >8,000 deaths in >100 countries; a global pandemic. The SARS2 mortality rate is ~3.5%, and the elderly experience mortality rates of ~14% (16-20). Over 7,000 cases have been reported in all US states. Many of the symptoms caused by SARS2, such as acute respiratory syndrome (ARDS), are similar to those caused by the 2003 SARS-CoV. SARS2 and SARS-CoV are also genetically related, but differ by ~22% (Fig 1). Alarmingly, SARS2-related CoVs also exist in bats and pangolins (21). Bat virus RaTG13, shares 96% genomic identity with SARS2, implicating RaTG13 as a potential threat (31). Although pangolins do not appear to be a reservoir to SARS2, pangolin virus is ~10% different and encode an S glycoprotein-receptor binding domain (RBD)

**Table 1. SARS and SARS2 CoV RBD-ACE2 Binding Residues**

|                 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| SARS aa#        | 402 | 404 | 426 | 436 | 440 | 442 | 443 | 460 | 472 | 473 | 475 | 479 | 484 | 486 | 487 | 488 | 491 |
| SARS-CoV        | T   | V   | R   | Y   | Y   | Y   | L   |     | L   | N   | Y   | N   | Y   | T   | T   | G   | Y   |
| 2019-nCoV aa#   | 415 | 417 | 439 | 449 | 453 | 455 | 456 | 473 | 486 | 487 | 489 | 493 | 498 | 500 | 501 | 502 | 505 |
| 2019-nCoV       | T   | K   | N   | Y   | Y   | L   | F   | Y   | F   | N   | Y   | Q   | Q   | T   | N   | G   | Y   |
| Pangolin CoV-GD | T   | R   | N   | Y   | Y   | L   | F   | Y   | F   | N   | Y   | Q   | H   | T   | N   | G   | Y   |
| RaTG13          | T   | K   | K   | F   | Y   | L   | F   | Y   | L   | N   | Y   | Y   | Y   | T   | D   | G   | H   |

Blue # in SARS-RBD are the identified residues contacting ACE2 in Li et al., Science, 2005  
 Red # in 2019-nCoV-RBD are the identified residues contacting ACE2 in Yan et al., Science, 2020

SARS2, implicating RaTG13 as a potential threat (31). Although pangolins do not appear to be a reservoir to SARS2, pangolin virus is ~10% different and encode an S glycoprotein-receptor binding domain (RBD)

that is primed to infect primate cells as well (Table 1). Consequently, the animal reservoirs, evolution and long-term threat potential of the epidemic and SARS2-like CoV remains unclear. We investigate the [REDACTED]

[REDACTED] This research is critical for understanding the bio-threat level of these viruses, for developing robust mouse models of human disease, and for preventing and controlling future spread of SARS2 and SARS2-like CoVs in humans.

**B.2. CoV-receptor interactions:** [REDACTED]

[REDACTED] based on our previous structural studies of SARS-CoV RBD/ACE2 interactions, we have predicted that

## Baric R: Cell entry, cross-species transmission and pathogenesis of novel CoV, SARS2 from Wuhan

[REDACTED] Our previous research had identified critical residue changes in the SARS-CoV RBD that allowed SARS-CoV to transmit from animals to humans and from humans to humans (53-56). A 3.5 Å-resolution cryo-EM structure of the SARS-CoV-2 S trimer in the prefusion conformation has also been solved (34). However, receptor usage by [REDACTED]

**B.3. CoV entry into host cells:** Coronavirus entry into host cells is limited not only by receptor recognition, but also by membrane fusion. To fuse host and viral membranes, coronavirus spikes need to be cleaved at two sites (one at the S1/S2 boundary and the other within S2) by host proteases (35-39). The availability of these host proteases to coronaviruses and the specificities of these host proteases on CoV spikes can contribute to the host range and tropism of coronaviruses. [REDACTED]

[REDACTED]

**B.4. SARS2 Reverse Genetics and Pathogenesis.** The Baric laboratory is a global leader in the development of reverse genetic platforms for emerging CoV including human and animal strains, like SARS-CoV, MERS-CoV, WIV-1, WIV-16, SHC014, PEDV, SADS-CoV, HCoV NL63 and others (14, 15, 43-45).

**B.5. Program Significance:** The proposed research will elucidate the [REDACTED]

[REDACTED] It will also provide valuable insights on the emerging

**Baric R: Cell entry, cross-species transmission and pathogenesis of novel CoV, SARS2 from Wuhan**

disease potentials of new SARS2-like CoVs. For example, the SARS2-like CoV animal reservoirs remain unknown and may change, as the virus samples new wildlife species regionally as it spreads across the globe.

**C. Innovation**

The primary innovation of the program stems from the proposed [REDACTED]

[REDACTED] Although bats are the likely natural reservoir of all or most of human CoVs, the cell entry mechanisms and pathogenesis of bat CoVs are poorly understood. Thus, we propose to [REDACTED]

[REDACTED] Therefore, the proposed research will go beyond the direct implications for preventing and controlling the spread of SARS2 infections in humans, and will establish the fundamental virologic principles that govern cell entry, pathogenesis, and cross-species transmission potential of the 3 group 2b SARS like CoV.

The second program innovation is reflected in the combination of [REDACTED]

We hypothesize that these [REDACTED]

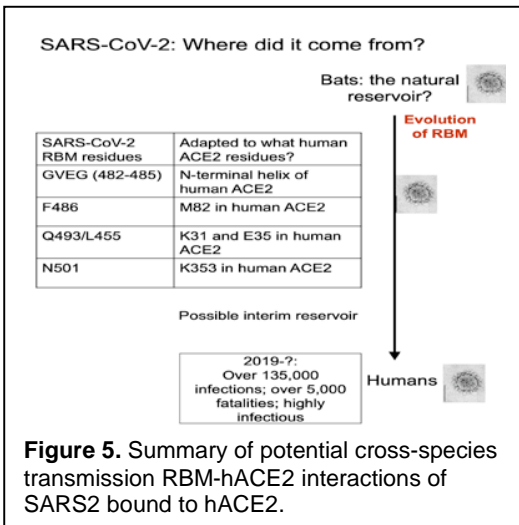
[REDACTED] They will be critical reagents for determining the breadth of SARS2 vaccines and therapeutic antibodies. Moreover, they will encode unique adaptive mutations following recombinant virus experimental evolution in vitro, either using cells that ectopically over-express different mammalian ACE2 receptors or in mice in vivo, revealing new molecular interaction networks that can govern cross species movement between mammals.

Dr. Li (see CV) has been working on the structural and molecular basis for the receptor recognition and cell entry mechanisms of SARS-CoV and MERS-CoV. He is recognized for pioneering discoveries on the animal origins and cross-species transmissions of SARS and MERS coronaviruses. He has determined many other structures of coronavirus spike proteins using either X-ray crystallography or cryo-EM (Fig. 4), and discovered many molecular mechanisms of coronavirus entry using protein biochemistry and molecular biology tools. His research has been one of the major driving forces in solving the atomic-level interactions that regulate receptor recognition and cell entry of coronaviruses. Previous research on CoVs has firmly demonstrated that it is critical to understand CoV entry and pathogenesis using both in vitro and in vivo approaches. Therefore, the close collaboration between the Baric and Li groups will be key to the success of the proposed research.

The third innovation of the program is the iterative framework of virus-host interaction research that has characterized our collaborations, which aim to identify high threat viruses, facilitate epidemic surveillance and

## Baric R: Cell entry, cross-species transmission and pathogenesis of novel CoV, SARS2 from Wuhan

preparedness, predict species-specific receptor usage, and identify potential animal reservoir hosts and animal models of viruses. More specifically, our decade-long structural studies on the receptor recognition by SARS-CoV have identified key interactions between SARS-CoV spike protein and its host receptor angiotensin-



**Figure 5.** Summary of potential cross-species transmission RBM-hACE2 interactions of SARS2 bound to hACE2.

converting enzyme 2 (ACE2), which were used to successfully predict the mammalian ACE2 receptor usage of the SARS2 2019 epidemic strain very early in the outbreak (Fig 5)(29). Another long-term goal is to establish a structure-function predictive framework for improved epidemic surveillance. As the group 2b SARS2-like CoV have novel RBD mutation sets and variation in the S glycoprotein, these viruses will reveal new atomic level interaction networks for receptor binding, predict receptor usage and host cell susceptibility and identify potential reservoir strains.

, these studies will allow us to incorporate the role of

An framework that reveals possible animal origins and animal models, based on predictive modeling of S gene sequence functions, provides a rapid approach to identify and cull animal reservoirs early in an epidemic and reveal mammalian species for animal models of human disease, a key bottleneck for countermeasure development. Additionally, structural studies on CoV

spikes may reveal important neutralizing epitopes in the RBD, which guide the design of CoV type specific and broad based vaccines.

### E. Experimental Approach.

#### E.1. Aim 1: Receptor recognition and cross-species transmission of SARS2.

**Overview:** We will investigate how SARS2 and RaTG13 interact with ACE2 from different host species, and how they have evolved to engage human ACE2. Although SARS2 was isolated from humans and RaTG13 from bats, the close sequence similarity between them suggests that SARS-CoV-2 likely originated from RaTG13 or a more closely related bat coronavirus. In this aim, we will identify the structural and molecular basis for ACE2 recognition by SARS2 and RaTG13, aiming to understand the critical structural determinants for SARS-2 to bind human ACE2 and for bat CoVs to transmit from bats to humans. We will also analyze how SARS2 adapts to ACE2 from other species, revealing potential host range and intermediate hosts. Overall, these studies were crafted to provide key data for understanding the emergence potential of the SARS2-like CoVs and for facilitating epidemic monitoring and the development of broadly cross-protective intervention control strategies. We will use a combination of molecular, biochemical and structural methods. Our previous research has demonstrated the importance of these approaches in understanding disease severity, animal origins and cross-species transmissions of viruses. Our expertise places us in a unique position to carry out these studies. Overall hypothesis of Aim 1: Receptor recognition by SARS2 is an important determinant of the cell infectivity and cross-species transmission (e.g., bat-to-human transmission, either directly or through intermediate hosts) of SARS2.

#### Preliminary data supporting Aim 1

Complementary approaches have shown that SARS-CoV species specificity is primarily determined by the affinity between the viral RBD and host ACE2 in the initial viral attachment step (48-52). In a span of about 10 years, we determined a series of crystal structures of SARS-CoV RBD complexed with ACE2. These studies included S glycoprotein RBDs derived from different species specific SARS-CoV-related strains bound to the ACE2 receptor orthologues from different animal species (53-56). These structures showed that SARS-CoV RBD contains a core structure and a receptor-binding motif (RBM), and that the RBM binds to the outer surface of the claw-like structure of ACE2 (54). Importantly, we identified two virus-binding hotspots on human ACE2 (53, 55). A number of naturally selected RBM mutations occurred near these two virus-binding hotspot and these residues largely determined the host range of SARS-CoV. Because of the sequence similarity between 2003 SARS-CoV and 2019 SARS2 spikes, we recently predicted that SARS2 also uses human ACE2 as its receptor (29), which has been validated by us 9 (see below) and in other studies (30-33).

In a preliminary study, we determined the



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### E.1.1 Subaim 1 - Molecular and structural basis for bat ACE2 recognition by SARS2

Hypothesis: SARS2 RBD can recognize bat ACE2; differences between human ACE2 (hACE2) and bat ACE2 (bACE2) in their SARS2-interacting residues form a critical cross-species barrier for bat to human or human to bat transmission events, which may seed new reservoir species as this virus circumvents the globe.

Rationale: Because SARS2 likely originated from bats, we test the hypothesis that it still uses bat ACE2 as its receptor. Our structural analysis also suggests that the [REDACTED]. Here we will investigate whether [REDACTED] is the host receptor for SARS2, and characterize the binding affinity between [REDACTED]

Experimental designs and expected results: (i) We will investigate whether [REDACTED]

Potential pitfalls and alternative approaches: We have extensive experience with all of these experimental approaches and hence we do not expect any major technical obstacles. For the alternative hypothesis (i.e., [REDACTED] we will analyze the sequences [REDACTED]

### E.1.2 Subaim 2 - Molecular and structural basis for human and bat ACE2 recognition by RaTG13

Hypotheses: [REDACTED]

Rationale: In preliminary studies, we already showed that [REDACTED]

Experimental designs and expected results:

[REDACTED]

Potential pitfalls and alternative approaches:

[REDACTED]

**E.1.3 Subaim 3 – Recognition of ACE2 from different host species (other than bats) by SARS-CoV-2.**

Hypothesis: SARS2 RBD can recognize ACE2 from a diversity of animal species, except mice and rats; the binding affinities between SARS2 RBD and ACE2 from different animal species can shed light on the animal origins and potential reservoir species of SARS2.

Rationale: Based on the sequence alignment of ACE2 from different species at critical virus-binding residues, we predicted that SARS2 RBD can recognize ACE2 from a diversity of animal species, except mice and rats (29). Consequently, we will experimentally test these predictions using biochemical and structural approaches.

[REDACTED]

Potential pitfalls and alternative approaches:

## E.2 Specific Aim 2: Cell Entry and Cross-species Transmission of SARS2

Overview: We will investigate

Importantly, the role of bat cellular proteases in the cell entry of SARS2 and RaTG13 is unknown. Our previous research on the cross-species transmissions of MERS-CoV and the closely related bat coronavirus HKU4 showed that there exist intrinsic differences between human and bat cellular proteases that contribute to the differential processing of the HKU4 spike in human and bat cells. We will investigate whether the intrinsic difference in human and bat proteases are a key factor in bat-to-human transmission of SARS2 and RaTG13.

Overall hypothesis of Aim 2: (i)

ii) intrinsic differences between human and bat cellular proteases represent another critical cross-species for the potential bat-to-human transmission of SARS2 and RaTG13.

### Preliminary data supporting Aim 2

Through examining the sequence of SARS2 spike protein, we identified a putative cleavage site for PPCs (e.g., furin) at the S1/S2 boundary (**Fig. 6A**). Curiously, this putative PPC site is absent in the spikes of 2013 SARS-CoV spike and other SARS-like bat CoV. We investigated the role of PPCs in SARS2 entry.

**E.2.1 Subaim 1 – Physiological Triggers that Reprogram SARS2 and RaTG13 Spike Conformations required for Entry into Human Cells.** Hypothesis: Both host protease activators and receptor binding play critical roles in the structural changes of SARS2 and RaTG13 spikes and in cell entry of SARS2 and RaTG13.

Rationale:

[REDACTED]

Experimental designs and expected results: (i) [REDACTED]

Potential pitfalls and alternative approaches: We have had extensive experience with all of the above assays on coronavirus spike proteins, including in-depth protease sensitivity assay and negative-stain EM assay (60). Therefore, we do not expect any major technical problems. As an alternative, [REDACTED]

**E.2.2 Subaim 2 – EM studies of the Conformational Changes of SARS2 and RaTG13 spikes**

Hypothesis: (i) In the presence of the triggers identified in subaim 1, SARS2, RaTG13 and 2003 SARS-CoV spikes transition from pre-fusion to post-fusion structures; (ii) comparison of the tertiary structures of these prefusion and postfusion structures will inform cell entry mechanisms and identify potential targets for antivirals.

Rationale: [REDACTED]

Experimental designs and expected results:  
(i) We aim to [REDACTED]

Potential pitfalls and alternative approaches: As we have determined the cryo-EM structures of several CoV spike proteins either alone or in complex with receptor (7, 60, 66), we do not expect any major technical problems.

**E.2.3 Subaim 3 – Differential processing of SARS2 and RaTG13 spikes by human and bat proteases.**

Hypothesis: In addition to receptor binding, intrinsic differences between human and bat cellular proteases function as a critical cross-species barrier for the potential bat-to-human transmission of SARS2.

Rationale: In previous studies (6, 42), we showed that MERS-CoV spike, but not HKU4 spike, can be processed by human PPCs and human lysosomal proteases. However, HKU4 spike can be processed by the corresponding bat cellular proteases and proteases are key for virus recovery (5). Thus, intrinsic differences between human and bat cellular proteases form a critical cross-species barrier for group 2C MERS-like CoV transmission from bats to humans. We further showed that different lysosomal proteases are a critical determinant of coronavirus tropism (4). In this subaim, we will examine the functional differences between the bat and human cellular proteases that lead to potential differential processing of SARS2 and RaTG13 spikes.

Experimental designs and expected results:

Expected results, potential pitfalls and alternative approaches: Our focus is the cellular proteases that are main players in processing CoV spikes and enhance CoV entry (e.g. furin, cathepsin L, cathepsin B). However, if they do not process the SARS2 spike, we will focus on other PPCs and lysosomal proteases (4).

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**E3. Aim 3. Pathogenesis of SARS2 and SARS2-like CoV in Mouse Models of Human Disease.**

*Rationale:* The overall goal is to identify key interaction networks that regulate [REDACTED]

**E3a. Identifying Mutation Sets that Promote Clade I Group 2b SARS2 Entry in vitro and in vivo. i) Introduction of Human Residues in mACE2 Receptors.**

Our modeling has predicted key interaction residues in the mACE2 that impede SARS2 binding (29). Using our previously described approach to map key species specific interaction residues that govern mouse and human MERS dipeptidyl peptidase receptor usage (67, 68), we will systematically [REDACTED]

**E3b. Developing CRISPR-Gene Edited Chimeric mACE2 Transgenic Mice. i) CRISPR Gene Edited Transgenic Mice.**

We have previously used CRISPR-CAS9 gene editing to produce a robust mouse model for MERS-CoV pathogenesis in vivo (1). Using established approaches, we will initially use the CRISPR-CAS9 system to program [REDACTED]

[REDACTED]

[REDACTED]

*ii) In vivo Pathogenesis Studies.* Wildtype SARS-CoV replicates but does not produce clinical disease in standard laboratory mice (69). In contrast, SARS2 does not replicate in standard laboratory mice. Given its similar S-RBD, it seems likely that [REDACTED]

[REDACTED]

[REDACTED] We will collect lungs, brain and liver and RNA at each designated time point, and evaluate virus titers by plaque assay. Tissues will be scored for pathologic changes and viral antigen in the lung using immunohistochemistry and an American Thoracic Society Lung Injury Scoring

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system, as described by our group (70). Virus tropism will be determined by immunohistochemistry using antisera targeting the SARS2 nucleocapsid protein as previously described by our group (71). If serious disease is noted in transgenic animals (e.g., acute lung injury, significant weight loss (>20%) or death), flow cytometry will evaluate changes in leukocyte populations on days 4 and 7 post-infection as described previously (72). ■

**E3c. Impact of in vitro evolved and structure-guided mutations on viral pathogenesis. Rational:** A goal is to make a mouse adapted version of SARS2. We recognize the possibility of two distinct animal models being available for our downstream studies, allowing us to evaluate targeted mutations in the background either of a mouse-adapted strain or in humanized knockin mice. If mouse adapted viruses are available, we will prioritize GOF experiments in these genetic backbones, as these viruses will likely poorly recognize hACE2 receptors and hence minimize P3C0 concerns. In contrast, LOF mutants will be constructed in wildtype SARS2 and RaTG13 genetic backgrounds, as these will also minimize P3C0 concerns and be tested in chimeric h/mACE2 mice.

*i) SARS2 Mouse adapted Mutations.* Guided by studies by the Li laboratory in Aim 1, we will introduce mutations that are predicted to

[REDACTED]

[REDACTED]

[REDACTED]

*ii) In vitro Studies.* We will work closely with Dr. Fangs laboratory to introduce

[REDACTED]

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*ii) In vivo Mouse Studies.*

**E3d. Expected Outcomes/Alternative Approaches.** Given our previous success (1), we do not anticipate problems with isolating gene edited chimeric h/mACE2 receptors that program efficient replication and pathogenesis of SARS2 and RaTG13 infection in vivo. However, [REDACTED] If necessary, virus will be serially passaged at [REDACTED]

| Figure 8. Timeline of Program Research Aims and Subaims |            | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 |
|---------------------------------------------------------|------------|--------|--------|--------|--------|--------|
| Aim 1a.                                                 | [REDACTED] |        |        |        |        |        |
| Aim 1b.                                                 |            |        |        |        |        |        |
| Aim 1c.                                                 |            |        |        |        |        |        |
| Aim 1d.                                                 |            |        |        |        |        |        |
| Aim 2a.                                                 |            |        |        |        |        |        |
| Aim 2b.                                                 |            |        |        |        |        |        |
| Aim 2c.                                                 |            |        |        |        |        |        |
| Aim 2d.                                                 |            |        |        |        |        |        |
| Aim 3a.                                                 |            |        |        |        |        |        |
| Aim 3b.                                                 |            |        |        |        |        |        |
| Aim 3c.                                                 |            |        |        |        |        |        |
| Aim 3d.                                                 |            |        |        |        |        |        |

**E4. Summary and Timeline.** We will initiate all aims simultaneously (Fig 8). However, biochemical and atomic structures will influence the start periods for downstream subaims in Aims 1-3. We note that the research program will provide an array of animal models of human disease, molecular clones, and recombinant viruses encoding indicator genes, atomic level structures and detailed insights into the molecular and structural basis for SARS2-like bat coronavirus receptor usage and cross species transmission mechanisms. Consequently, the program bridges basic science investigations and translates these discoveries into key resource opportunities that support countermeasure development, which is critical for global health preparedness and response to the COVID-19 pandemic.



## Publications Reported for this Reporting Period

| NIH Public Access Compliance | Citation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
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| Complete                     | Wan Y, Shang J, Sun S, Tai W, Chen J, Geng Q, He L, Chen Y, Wu J, Shi Z, Zhou Y, Du L, Li F. <a href="#">Molecular Mechanism for Antibody-Dependent Enhancement of Coronavirus Entry</a> . J Virol. 2020 Feb 14;94(5). doi: 10.1128/JVI.02015-19. Print 2020 Feb 14. PubMed PMID: 31826992; PubMed Central PMCID: PMC7022351.                                                                                                                                                                                                     |
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| Complete                     | Li F, Du L. <a href="#">MERS Coronavirus: An Emerging Zoonotic Virus</a> . Viruses. 2019 Jul 19;11(7). doi: 10.3390/v11070663. PubMed PMID: 31331035; PubMed Central PMCID: PMC6669680.                                                                                                                                                                                                                                                                                                                                           |
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## **E. Vertebrate Animals.**

**Description.** The goal of these studies is to identify an improved animal model for SARS 2 pathogenesis and to identify genetic determinants associated with adverse outcomes in vivo. Animal research plays a key role in the development of vaccines and therapeutics by providing performance metrics and insight into the mechanism of action, safety and potential adverse events. Animals models that capture the disease severity and pathogenic outcomes of human infections provide the most robust models for evaluating countermeasure performance in vivo and this proposal seeks to develop CRISPR gene edited knockin transgenic mouse models of human disease, as well as using structure-guided design to build improved mouse adapted strains. This information is essential for the progression of drugs and vaccines to human clinical trial. Animal experiments with mice will be performed at the University of North Carolina (UNC) in dedicated BSL3 facilities under the direction of the research PI. Prior to infection studies, the animals will be maintained in Sealsafe™ HEPA-filtered air in/out unit or compatible system for at least one week prior to virus challenge. In addition, our laboratory personnel inspect animals daily and any animal in distress is immediately euthanized (moribund, unresponsive, loss of more than approved percentage of starting weight). Animal care and housing at UNC follows IACUC recommendations and all personnel have attended mandatory IACUC training courses. A trained veterinarian is on call to assist in animal care and husbandry. Below we summarize the description of procedures for each specific Aim, justifications, minimization and pain and distress and methods for euthanasia.

- **Species:** *Mus musculus*; BALB/c, C57BL/6 mouse lines and transgenic hACE2 mice;
- **Ages:** Adults 8-10 weeks of age, as noted Sex: Females and an assortment of males used in validation studies.

### **2. Justifications**

This proposal aims to develop an improved mouse model for SARS-CoV 2 replication and pathogenesis in mice. The work described above will provide key proof of principle data. These studies cannot be done without vertebrate animals. There is no *in vitro* system that accurately mimics virulence of either SARS2 or its closely related SARS2-like strains like RaTG13 or pandolin virus infection in animals or humans or that would accurately predict the outcome of infection. At this time, there is no substitute for in vivo efficacy studies. Our studies are designed with the fewest number of animals while retaining statistical significance. The numbers of animals proposed in this study will provide robust statistical confidence of our results. Importantly, the goal is to identify models is that not only drive high titer replication limited to the lung, severe end stage lung disease consistent with acute respiratory disease syndrome (ARDS), and measurable decreases in pulmonary function, but to also develop less serious disease models that capture the range of phenotypes seen in human populations. Thus, these models are designed to accurately recapitulate many aspects of the human disease phenotypes and will provide essential information for the development of vaccines that are efficacious for both epidemic and emerging CoV strains.

### **3. Minimization of Pain and Distress.**

Gene edited mice that encode functional mACE2 receptors for SARS2 infection will likely develop serious lung disease, which may or may not progress to death. Mouse adapted strains of SARS2 are anticipated to replicate efficiently in the lungs of mice and should produce significant disease in young and aged animals, including acute onset respiratory distress syndrome, a clinically devastating end stage lung disease with 50% mortality rates. Mice will be closely monitored daily for signs of clinical disease. Since analgesics may affect the outcome of infections, analgesics will not be used and we will rely on close monitoring and euthanasia of sick animals to prevent undue pain and suffering. In general, animals will be euthanized if they approach losing 30% of their starting weight; we recognize that this is a significant weight loss, but it is acceptable in these studies as some animals can recover from >25% weight loss after highly pathogenic coronavirus infection. Moreover, we are establishing a critical disease model, requiring significant morbidity and mortality outcomes. After establishing the model, we likely can alter our weight loss euthanasia requirements to 20% reductions in overall weight loss endpoints, as outcomes are known. We will euthanize moribund animals, regardless of weight loss criteria. For rodents, euthanasia will be performed by overdose with isoflurane. This will immediately be followed by organ harvest/exsanguinations, as prior treatment with these agents ensure that the animals will not suffer during this procedure due to operator error. This approach was chosen because unconsciousness and death occur quickly and the method is consistent with the recommendations of the Panel on Euthanasia of the American Veterinary Medical Association.

Animals will be monitored twice a day during the course of the infection between 20-30% weight loss. With each health check, room conditions (temperature and humidity) will be recorded and specific illness symptoms will be

noted (e.g., rapid body weight loss, lethargy, hunched posture, ruffled fur). Monitoring will also be performed by staff and/or veterinarians or researchers. Researchers will communicate with veterinarians and staff if any question or need arises. The illness experienced by the animals exposed to SAR2 infections cannot be treated because any treatment would interfere with the outcome of the study, thus making the data uninterpretable. That is, treatment will interfere with the course of disease and the identification of potential correlates of immunity. Nonsteroidal anti-inflammatory drugs cannot be used because these drugs produce profound effects on the immune system, such as inhibition of prostaglandin and leukotriene synthesis, stabilization of lysosomal membranes that may reduce the release of cytokines. Opiates are not indicated since the pain resulting from influenza virus infection is a non-specific malaise which would likely not be affected by opioids. Many opioids could also increase mortality due to effects on the cardiovascular or respiratory systems.

#### **4. Method of Euthanasia**

Criteria for euthanasia: Animals will be euthanized (isoflurane overdose followed by organ harvest) at the point at which they become moribund, lose over 20 percent of their starting weight (or up to 30 percent of their starting weight if the animals are being maintained under the weight loss exception), reach a clinical score of 4 or higher or reach pre-determined endpoints (ranging from 1 to 7 days post infection), whichever comes first.

0. No clinical signs

1. Ruffled fur.

2. Ruffled fur with hunched posture (only slight or no signs of dehydration)

3. As above with more severe signs of dehydration and some loss of body strength, some loss of spontaneous morbidity

4. Marked loss of spontaneous morbidity and pronounced dehydration

5. Moribund: unresponsive to stimuli and pronounced eye squint

-All scores except 5 can be qualified with a 0.5 for severity

-Any animal that reaches a clinical score of 4 or more will be euthanized immediately

## **Biohazards.**

The proposal will use SARS-CoV, SARS2, RaTG13 and PaDCoV in the BSL3 facilities at UNC. Although SARS-CoV and SARS2 are highly pathogenic in humans, causing mortality rates of 10% and 3.4% respectively, RaTG13 and PaDCoV are zoonotic viruses which have not been shown to infect humans, while noting that their receptor binding domains appear compatible with using the human ACE2 receptor for docking and entry into cells. It is not clear whether these zoonotic strains encode protease sites that are permissive for human cell proteases.

## **Select Agent Research.**

**Select Agent(s) to be used in the proposed research.** We propose using severe acute respiratory syndrome coronavirus (SARS-CoV) and SARS-CoV genome RNA (isolated using TRIzol) in this proposal. We note that the wildtype SARS-CoV strain will be fleetingly used within this new protocol, mostly focused on evaluating pathogenesis in chimeric h/mACE2 transgenic mice. *While it is not a select agent*, we will also study the SARS-CoV2 (SARS2), which is responsible for COVID-19 as well as derivatives of this virus using reverse genetics. The majority of the research program (>95%) focuses on the non-select agent SARS2. We will also study two non-select zoonotic group 2b SARS2-like CoV, RaTG13 (a bat SARS2-like CoV) and Pandolin coronavirus (PaDCoV), which will be resurrected using synthetic genomics based approaches during the course of the program. All virus stocks and live virus experiments will be conducted in the BSL3.

**Registration status of all entities where select agent(s) will be used.** UNC-Chapel Hill is currently registered with the CDC for select agent use, including SARS-CoV, as required by select agent regulations (42 CFR 73).

**Facilities where the select agent(s) will be used.** SARS-CoV will be manipulated in research activities including establishment of viral replication curves, infection of rodent animal models and performance of plaque assays in laboratory spaces that meet operational and procedural criteria for BSL-3 activities as outlined in the CDC/NIH "Biosafety in Microbiological and Biomedical Laboratories", 5<sup>th</sup> edition, as well as BSL-3 criteria outlined in the NIH Guidelines for Research Involving Recombinant or Synthetic Nucleic Acid Molecules (April 2016). In addition, all mouse studies at UNC-Chapel Hill will be performed in an approved and registered BSL-3/ABSL-3 laboratory equipped with Techniplast Sealsafe™ HEPA-filtered animal housing for rodents. All animal protocols will be approved by the UNC-Chapel Hill IACUC.

UNC BSL-3/ABSL-3/select agent laboratories are equipped with biosafety cabinets, incubators, centrifuges with containment features, cold storage units, an autoclave, sink, eyewash and life safety equipment, and mechanical system monitors and alarms to support effective isolation and containment of operations involving SARS-CoV. The anterooms to the BSL-3 laboratories house PAPR charging stations, laboratory and safety supplies, and a changing area. For both the BSL-2 and BSL-3 select agent spaces, access to select agents is restricted by the door between the hallway and anteroom and the door between the anteroom and BSL-3 space, requiring a combination of swipe card and punch code for entry. All select agent materials are stored in locked freezers and incubators. SARS2 and derivative viruses will also be studied in these facilities.

**Procedures for monitoring possession, use and transfer of select agents.** All personnel who will have access to select agent-regulated materials have been added to the Select Agent registration following security risk assessments prescribed by the CDC Select Agent Program. Personnel have completed training in all aspects of select agent compliance requirements and have adopted changes to standard operating procedures as applicable to assure that these requirements are met. Personnel will follow all procedures prescribed for accessing and securing the laboratory, documenting laboratory activities and materials used, and responding to incidents that could result in theft, loss, or release of select agent-regulated materials. Transfers of select agent-regulated materials will be coordinated by the laboratory managers and Responsible Official in accordance with standard operating procedures, including obtaining appropriate permits for shipping select agent materials and observing all regulations for shipping, both under dangerous goods and select agent regulations. Transfer of select agent RNA in TRIzol from registered BSL-3 to registered BSL-2 space and cDNA from registered BSL-2 space to non-registered BSL-2 space is conducted according to current select agent rules, regulations, and guidelines, including the new inactivation policies released in 2017.

**Biosafety, biocontainment, and security of the select agent(s).** The Baric laboratories have been operational with BSL-3 core policies and procedures for more than a decade. Standard operating procedures at BSL-3 have

been reviewed and approved by the UNC Chapel Hill Institutional Biosafety Committee and undergo both annual review and approval as well as updates as laboratory processes change or biosafety procedures evolve. The content of these documents has been formatted to conform to select agent regulations for the biosafety, security, and incident response plans. Additionally, lab-specific security risk assessments have been completed and recommendations implemented to ensure that security measures and procedures are sufficient to effectively minimize the possibility of unauthorized access to select agent-regulated materials. The UNC Chapel Hill facilities have undergone multiple CDC inspections and are currently in compliance with CDC requirements relating to SARS-CoV and select agent status. Our three-year renewal inspection is scheduled for June 2018 and we anticipate remaining compliant for another three years. All procedures involving SARS-CoV, SARS2, and SARS2-like CoV use safety tested protocols and samples to demonstrate virus inactivation prior to removal from our BSL3 facilities.

**Biocontainment resources.** All BSL-3 laboratories are under negative pressure, with redundant systems to ensure that negative pressure is maintained. All BSL-3 facilities have autoclaves to decontaminate waste materials as well as approved protocols for treatment or inactivation of any materials leaving the laboratory. All personnel are extensively trained in basic virology and safety protocols before being approved for select agent work and undergo additional extensive training to work with SARS-CoV as a BSL-3 pathogen. In both laboratories, annual testing is performed to verify that biosafety cabinets, laboratory supply/exhaust systems (including alarms), and other laboratory equipment are functioning as designed. The laboratories are secured at all times, and only personnel who have successfully completed Select Agent clearance and laboratory specific training requirements are permitted to enter without an escort. Procedures for SARS2 research are virtually identical to that of SARS-CoV.

**P3CO Research.** Recognizing the implementation of new gain of function research guidelines under P3CO, SARS-CoV and MERS-CoV are subject to these guidelines, and as such, reverse genetic studies are subject to review. Our group has considerable expertise in interfacing with the appropriate NIH P3CO institutional review boards to review, revise and finalize research designs that have the potential to modify pathogenesis or transmissibility in mammals. We are not proposing to genetically manipulate SARS-CoV or MERS-CoV over the course of this proposal.

The classification of the SARS2 virus for P3CO research is uncertain as the WHO nor the NIH has not declared SARS2 as a pandemic pathogen. We will introduce targeted changes that could change virus pathogenic outcomes in mice and/or remove protease cleavage sites, which could alter tissue tropism, pathogenesis or transmission. However, in both cases we are introducing changes that: 1) remove protease cleavage sites (Loss of function), or 2) alter mouse ACE2 receptor usage, which is predicted to attenuate SARS2 usage of human ACE2 receptors; thereby, both approaches will likely attenuate virus replication and/or pathogenesis in human cells or hACE2 transgenic mouse models of human disease. We will test these hypotheses using reagents and tools available in the laboratory.

***Naturally, we will also follow NIH and our local IBC recommendations including the submission of appropriate paperwork requests, regarding whether the experiments included in the proposal represent P3CO research.***



**Multiple PD/PI Leadership Plan.** We are proposing a Multiple Principle Director/PI leadership plan to lead this multi-investigator RO1 renewal application. Drs. Baric and Li have overlapping and complementary skill sets providing the depth and breadth of knowledge that is necessary to administrate efficiently this multi-investigator RO1 proposal. They have worked closely to develop the preliminary data for this application jointly leading the first 5 year cycle of this application. Both groups have independent budgets and direct overlapping circles of research. Dr. Li will oversee biochemistry and structural biology studies, set priorities in this area and work closely with Dr. Baric to maximize productivity and collaboration. Dr. Baric will oversee the reverse genetics, BSL3 virologic studies in cell culture and in animals, setting priorities in this area and working closely with the Li laboratory to maximize productivity and collaboration. Drs. Baric and Li will jointly set priorities for collaborative interaction, assigning members from each laboratory to work together to promote research productivity. One driving justification for use of co-directors for this project is the shared development of key preliminary findings and reagents that support the development of this proposal. A second driving justification is that overlapping skill sets provide greater coverage and understanding of the complex, interdisciplinary research that is being proposed in this application. Co-directors also allow us to leverage resources from both home universities. Dr. Li is the leading expert in understanding the structure-function relationships associated with coronavirus-receptor interactions, cross species transmission mechanisms and the biochemistry of entry. Dr. Baric is a leading expert in coronavirus reverse genetics, coronavirus pathogenesis, experimental evolution and the regulation of cross species transmission. Dr. Baric has directed large PO1 and multi-investigator R01's. The two investigators secure and regulate usage of over 1200 sq ft. of BSL3 space as well as associated BSL2 facilities (e.g., ~3,500 sq ft.) that are critical for ensuring program progress, continuity and productivity. Most importantly, the two investigators respect each other's knowledge and managerial space, are amenable to compromise, enjoy working together and have an amiable relationship for several years. We are in 100% agreement that this organizational strategy is appropriate for maximal productivity and scientific vigor.

The proposed Research Program involves two laboratories housed at two different locations in the US. Should one Co-director be traveling, quarantined (SARS2 safety protocols include the possibility of quarantine) or ill, the other co-director will assume full management responsibilities until the situation returns to normal. The Co-directors will discuss progress (alternating group discussions/month), discuss results at a year-end meeting, assist in problem solving and prioritizing future studies, and promote interaction to achieve timely results. Dr. Baric and Li will manage the financial operations of the RO1, although Dr. Baric will serve as contact PI who is responsible for submitting final reports and progress to the NIH. Should the two co-directors disagree on a fiscal or scientific policy with respect to solving a particular problem, they will first work to achieve an amiable solution. In the absence of consensus, we will discuss the situation with an agreed upon outside expert in coronavirus structure or molecular biology and resolve the situation by democratic purposes (1 vote/director and 1 vote/outside consultant=3 total votes). In the past 5 years of research, Dr. Baric and Dr. Li have always reached an amiable compromise on difficult scientific or fiscal topics.

# UNIVERSITY OF MINNESOTA

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Twin Cities Campus

Office of Sponsored Projects Administration 450 McNamara Alumni Center 200 Oak Street S.E. Minneapolis, MN 55455

Office: 612-624-5599  
Fax: 612-624-4843

February 6, 2020

Terry Magnuson  
Vice Chancellor for Research  
UNC Office of Sponsored Research (OSR)  
104 Airport Drive, Suite 2200, CB 1350  
Chapel Hill, NC 27599-1350

Reference: Response to NIH PA-19-056, entitled "Cell entry, cross-species transmission and pathogenesis of novel coronavirus from Wuhan", dated February 6<sup>th</sup>, 2020.

Dear Sir or Madam:

This letter confirms that the appropriate program and administrative personnel at the University of Minnesota have reviewed the above referenced Solicitation/RFP/RFA and are committed to enter into a subcontract with The University of North Carolina at Chapel Hill (UNC-CH) for the performance period of 12/1/2020 to 11/30/2025. The work to be performed by the University of Minnesota does not include animal or human research subjects. The UNC-CH Principal Investigator on this proposal is Dr. Fang Li. The University of Minnesota does maintain an active and enforced conflict of interest policy meeting the requirements of 42 CFR Part 50, Subpart F and 45 CFR Part 94. The organization's DUNS number is 555917996.

The Organization's budget, budget justification and scope of work are provided as separate enclosures to this letter. The estimated cost of the proposed subcontract will not exceed \$1,897,327 and includes appropriate direct and indirect costs.

Furthermore, by submission of this commitment letter Organization and its Principal Investigator (PI) certify (1) that the information submitted within the application is true, complete and accurate to the best of the Organization's and PI's knowledge; (2) that any false, fictitious, or fraudulent statements or claims may subject the Organization and PI to criminal, civil, or administrative penalties; and (3) that the PI agrees to accept responsibility for the scientific conduct of the project and to provide the required progress reports if an award is made as a result of UNC-CH's application.

Questions involving programmatic concerns should be directed to the Principal Investigator. If you have fiscal or contractual questions, please contact me at 612/626-7441.

Sincerely,



Brett Carlson  
Sr. Grant & Contract Administrator

Enclosure: Budget, Justification, Scope of Work

**Driven to Discover**

**Reagent and Data Sharing.** To share resources with the academic research community, we will use the uniform Material Transfer Agreement (MTA), which acknowledges that the materials are proprietary to Institutions of the Cooperative Agreement and permitting their use in a manner that is consistent with the Bayh-Dole Act and NIH funding requirements. We will establish an MTA agreement between UNC and University of Minn, for sample sharing, although samples have already been shared between laboratories. Our individual NIH research grants require that research be made available to the scientific community and public. The primary method of data sharing is through peer-reviewed publications in scientific journals and by presentation at scientific meetings. In addition, data and results created from NIH supported research will be submitted to NIH in annual progress reports per the terms and conditions of this award.

We note that a SARS2, RaTG13 and PaDCoV molecular clones and a large panel of recombinant viruses, reagents and mouse models of human disease will be developed during the course of this Agreement, many of which will be requested by other research laboratories around the world. We will provide some of these strains through BEI. A portion of our monthly conference call between the Li and Baric laboratories will involve a discussion of requests for reagents/collaborations. Program members have established a consistent process for evaluating requests for samples and reagents from outside scientists. In order of priority, these include: 1) requests for reagents that have been published in peer-reviewed journals; 2) requests which enhance/promote a specific agenda of the program projects and faculty; 3) requests that promote scientifically valid collaborations between project faculty and outside scientists; and 4) overall emerging virus research and public health needs. The general format involves: a) establishing a working knowledge of the research agenda and credentials of the requestor; b) group discussion and agreement, 3) MTA agreement with the appropriate institution, or license agreement with a commercial entity, and 4) inventory checking and sending out of reagents. We will work with the appropriate institutional Technology Transfer Office and individuals involved in these transactions. The goal will be to provide reagents within a few months of receiving a request. Staff will also acquire appropriate letters from the recipient institutions environmental health and safety officers and help coordinate CDC and/or USDA and Department of Commerce permits, prior to shipping of live SARS2, RaTG13, PaDCoV and derivative viruses as appropriate. We have a trained and certified shipper for the Baric laboratory who has shipped and received samples from other groups. The program faculty will not send reagents to individuals or institutions that do not have appropriate documentation of appropriate BSL3 facilities (SARS2), or select agent permits (if appropriate) or that we believe might harbor ill-intentions or are conducting irresponsible research.

**Intellectual Property.** Intellectual property agreements, identified during the course of this project are accomplished by negotiation in good faith among the institutions and inventors.

## AUTHENTICATION OF KEY BIOLOGICAL RESOURCES

We will ensure that the highest quality of science, public accountability, and social responsibility in the conduct of science is rigorously maintained throughout this proposal. The overall goal is to ensure that the underlying scientific foundation of the project from conception to completion is scientifically sound.

**Cell lines.** We will purchase cell lines from commercial vendors (e.g., ATCC), which confirm the authentication of the cells they supply. We will authenticate continuous and human cell lines by short tandem repeat (STR) profiling (ATCC). For all cell lines, we will create a low-passage (<5 passages) working stock for use across all experiments, and while in use, we will monitor morphology and growth kinetics continuously and perform mycoplasma tests monthly. If cultures exhibit unexpected changes in growth or morphology or test positive for mycoplasma, we will discard them immediately. CRISPR gene knockout cell lines and mice will be validated by PCR and direct sequencing of DNA and by expression analysis to verify that the targeted gene is not expressed. All genetically modified cell lines and mice embryos will be frozen at low passage and maintained in culture only for 10 passage cycles. Once thawed and placed in culture, each CRISPR cell line will be re-evaluated for maintenance of gene targeting. Mice will be deposited in the UNC MMRCC Mouse Resource <https://www.med.unc.edu/mmrrc/> (see below).

**Plasmids.** We will sequence all cloned genes after their generation, after each PCR amplification, and after other modifications (such as site-directed mutagenesis).

**Structures:** All crystal structures can be authenticated in multiple ways. (i) X-ray data statistics, including  $I/\sigma$  ratio,  $R_{\text{sym}}$ , resolution range, completeness and redundancy, will be used to authenticate X-ray data. (ii) Electron density maps, particularly unbiased composite omit maps and difference fourier maps, can help authenticate structural models. (iii) Structure refinement statistics, including  $R_{\text{work}}$ ,  $R_{\text{free}}$ , B factors, deviations from database structures, will be used to further authenticate structural models.

Coordinates and structure factors will be deposited to the Protein Data Bank (PDB) for public sharing.

**Viruses.** We will sequence recombinant SARS2, RaTG13 and PaDCov wildtype and derivative mutant virus stocks to confirm the absence of unwanted mutations. If we re-amplify a virus stock, we will re-sequence it. Viruses will be grown in cells, tested for the absence of mycoplasma.

**Mice.** We will breed wild-type (WT) C57BL/6J and transgenic h/mACE2 knockin (KO) mice will be maintained at the University of North Carolina at Chapel Hill and will be cryopreserved in the UNC MMRRC. We obtained founder mice for the WT C57BL/6J colony from Jackson Laboratories, which confirms the authenticity of the animals they supply. Transgenic h/mACE2 mice will be backcrossed 2X to wildtype mice to remove spurious mutations introduced by CRISPR/Cas9 gene editing, backcrossed, recovered and the targeted mutations validated in founder lines, which will be genotyped as described below. .

**Rodent Genotyping.** Mouse strain genetic validation. Inbred mouse strains are an invaluable tool for biomedical research, and represent a key aspect of this entire program. To ensure that the genetic background of all mice used within this program is known and when applicable they are part of a known inbred strains, we will genotype each mouse strain used within this program on the appropriate MUGA platform (Morgan, AP et.al., G3 2016, Dec 18). The most recent iteration of this state of the art genotyping array contains over 140,000 markers and can be used to precisely determine the genetic background at the substrain level and the precise location (at <1 megabase resolution) of genomic regions derived from different mouse inbred strains. In this way, the identity and genomic integrity of all mice used within these studies will be ensured. As new diagnostic assays become available, we will assess their utility and cost effectiveness the different MUGA arrays and implement them as appropriate.

- Furthermore, for each mutant mouse strain used within the project, positive diagnoses of the mutation will be assessed for each cohort of experimental animals with a diagnostic validated PCR assay or Sanger sequencing diagnostic to ensure proper results.
- Knockin mice will be deposited at the MMRRC housed at the University of North Carolina. The MMRRC is the nation's premier national public repository system for mutant mice. Funded by the NIH continuously since 1999, the MMRRC archives and distributes scientifically valuable spontaneous and induced mutant mouse strains and ES cell lines for use by the biomedical research community. The University of North Carolina is one of the 4 major academic MMRRC centers across the nation.

## PHS Assignment Request Form

**Funding Opportunity Number:** PA-19-056

**Funding Opportunity Title:** Research Project Grant (Parent R01 Clinical Trial Not Allowed)

### **Awarding Component Assignment Request (*optional*)**

If you have a preference for an awarding component (e.g., NIH Institute/Center) assignment, use the link below to identify the appropriate short abbreviation and enter it below. All requests will be considered; however, assignment requests cannot always be honored.

*Awarding Components:* [https://grants.nih.gov/grants/phs\\_assignment\\_information.htm#AwardingComponents](https://grants.nih.gov/grants/phs_assignment_information.htm#AwardingComponents)

|                                      | <u>First Choice</u> | <u>Second Choice</u> | <u>Third Choice</u> |
|--------------------------------------|---------------------|----------------------|---------------------|
| Assign to Awarding Component:        | NIAID               |                      |                     |
| Do Not Assign to Awarding Component: |                     |                      |                     |

### **Study Section Assignment Request (*optional*)**

If you have a preference for study section assignment, use the link below to identify the appropriate study section (e.g., NIH Scientific Review Group or Special Emphasis Panel) and enter it below. Remove all hyphens, parentheses, and spaces. All requests will be considered; however, assignment requests cannot always be honored.

*Study Sections:* [https://grants.nih.gov/grants/phs\\_assignment\\_information.htm#StudySection](https://grants.nih.gov/grants/phs_assignment_information.htm#StudySection)

|                                                                        | <u>First Choice</u> | <u>Second Choice</u> | <u>Third Choice</u> |
|------------------------------------------------------------------------|---------------------|----------------------|---------------------|
| Assign to Study Section:<br><i>(only 20 characters allowed)</i>        | Virology B (VIRB)   |                      |                     |
| Do Not Assign to Study Section:<br><i>(only 20 characters allowed)</i> |                     |                      |                     |

## PHS Assignment Request Form

List individuals who should not review your application and why *(optional)* Only 1000 characters allowed

Identify scientific areas of expertise needed to review your applications *(optional)*

Note: Please do not provide names of individuals

|                                             | 1           | 2 | 3 | 4 | 5 |
|---------------------------------------------|-------------|---|---|---|---|
| Expertise:<br>Only 40 characters<br>allowed | Coronavirus |   |   |   |   |

## PHS Human Subjects and Clinical Trials Information

Are Human Subjects Involved

Yes

No

Is the Project Exempt from Federal regulations?

Yes

No

Exemption Number

1

2

3

4

5

6

7

8

Does the proposed research involve human specimens and/or data

Yes

No

Other Requested information

### Delayed Onset Studies

| Delayed Onset Study#                             | Study Title | Anticipated Clinical Trial? | Justification |
|--------------------------------------------------|-------------|-----------------------------|---------------|
| The form does not have any delayed onset studies |             |                             |               |

## Re: FW: experimental approach attached

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From: Fang Li <lifang@umn.edu>  
To: Baric, Ralph S <rbaric@email.unc.edu>  
Sent: March 18, 2020 2:29:54 PM CDT

Awesome, thanks! I feel that this grant will have a very good chance to be funded.

Best,  
Fang

On Wed, Mar 18, 2020 at 1:54 PM Baric, Ralph S <[rbaric@email.unc.edu](mailto:rbaric@email.unc.edu)> wrote:

Submitted. And were off and running.

---

**From:** Caldwell, Chandra <[ccaldwel@email.unc.edu](mailto:ccaldwel@email.unc.edu)>  
**Sent:** Wednesday, March 18, 2020 11:57 AM  
**To:** Baric, Ralph S <[rbaric@email.unc.edu](mailto:rbaric@email.unc.edu)>  
**Subject:** RE: experimental approach attached

Hi Ralph,

Attached is the grant for your review.

Thanks,

Chandra

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**From:** Baric, Ralph S <[rbaric@email.unc.edu](mailto:rbaric@email.unc.edu)>  
**Sent:** Wednesday, March 18, 2020 10:14 AM  
**To:** Caldwell, Chandra <[ccaldwel@email.unc.edu](mailto:ccaldwel@email.unc.edu)>; McGlaughon, Ben <[benmcg@email.unc.edu](mailto:benmcg@email.unc.edu)>  
**Subject:** experimental approach attached

Hi Chandra, Am I missing anything? Thanks, ralph

--

\*\*\*\*\*

Fang Li, Ph.D.  
Associate Professor  
Department of Veterinary and Biomedical Sciences  
University of Minnesota Twin Cities  
612-625-6149, [lifang@umn.edu](mailto:lifang@umn.edu)  
<http://www.msi.umn.edu/~lifang>

\*\*\*\*\*



## **RE: FW: experimental approach attached**

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From: Baric, Ralph S <rbaric@email.unc.edu>  
To: Fang Li <lifang@umn.edu>  
Sent: March 18, 2020 2:33:35 PM CDT  
Received: March 18, 2020 2:35:50 PM CDT

Me to, nice mix of science, lots of cool stuff, lots of great productivity. Great work, stay safe. ralph

**From:** Fang Li <lifang@umn.edu>  
**Sent:** Wednesday, March 18, 2020 3:30 PM  
**To:** Baric, Ralph S <rbaric@email.unc.edu>  
**Subject:** Re: FW: experimental approach attached

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**Subject:** experimental approach attached

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--  
\*\*\*\*\*

Fang Li, Ph.D.  
Associate Professor  
Department of Veterinary and Biomedical Sciences  
University of Minnesota Twin Cities  
612-625-6149, [lifang@umn.edu](mailto:lifang@umn.edu)  
<http://www.msi.umn.edu/~lifang>

\*\*\*\*\*

## GRANT13051230/Baric, Ralph: Check Assembled Application in eRA Commons - Warnings Only

---

From: era-notify@mail.nih.gov  
To: rbaric@email.unc.edu, resadminosr@unc.edu, amina93@live.unc.edu, lifang@umn.edu  
Sent: March 18, 2020 3:35:37 PM CDT  
Received: March 18, 2020 3:35:41 PM CDT

NIH has received the grant application titled Cell entry, cross-species transmission and pathogenesis of novel coronavirus from Wuhan for PI Baric, Ralph with Grants.gov Tracking # GRANT13051230 and has placed the assembled application in the eRA Commons for your review.

Our systems identified [warnings](#). Verify your application complies with funding opportunity announcement and [application guide](#) requirements.

### Next steps:

1. View your assembled application image in eRA Commons ([PI instructions](#), [AOR/SO instructions](#)).

You have a two business day [application viewing window](#) to check your application for assembly issues before it automatically moves forward to NIH staff for further processing and consideration. This window does not extend the submission deadline.

**Changed/corrected applications overwrite previous submissions and if submitted AFTER the submission deadline will be subject to the NIH Late Policy and may not be accepted.**

2. Determine if changes are needed.

It is your responsibility to view the entire assembled application in eRA Commons and notify the [eRA Service Desk](#) within this window if the assembled application does not correctly reflect information submitted to Grants.gov (e.g., submitted information is missing in image, graph/chart appears upside-down). The SO and the PD/PI should check that the entries for Departments and Divisions on the SF424 cover page correspond to Departments and Divisions in your organization's hierarchy in eRA Commons.

- Everything looks good: No additional action needed.
- Changes needed/desired: If **before the due date and within the viewing window**, a signing official (SO) can [reject the application](#) and [submit a changed/corrected application](#).

## Re: Missing Effort in Cal Months- Grant Number: 5R01AI139092 - 03 PI Name: Du, Lanying

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From: Du, Lanying <LDu@nybc.org>  
To: Greene, Barry <BGreene@nybc.org>, Han, Jeffrey <KHan@nybc.org>, Fang Li <lifang@umn.edu>  
Sent: March 26, 2020 11:23:14 AM CDT  
Received: March 26, 2020 11:23:18 AM CDT

Hi Fang,

See below message. Can you update your other support and send it to us ASAP?

Best regards,

Lanying

**From:** Greene, Barry <BGreene@nybc.org>

**Sent:** Thursday, March 26, 2020 12:10 PM

**To:** Han, Jeffrey <KHan@nybc.org>

**Cc:** Du, Lanying <LDu@nybc.org>

**Subject:** FW: Missing Effort in Cal Months- Grant Number: 5R01AI139092 - 03 PI Name: Du, Lanying

Hello Jeffery and Lanying,

Please work together so that we can get back to Ashley Ranellone as soon as possible.

Many Thanks

Barry

Barry A. Greene MPA

Vice President, Chief Administrative Officer

Medical and Science

New York Blood Center

310 East 67<sup>th</sup> Street

New York, NY 10065

P (212) 570-3034

---

**From:** Ranellone, Ashley (NIH/NIAID) [E] <ranelloneac@niaid.nih.gov>

**Sent:** Thursday, March 26, 2020 11:59 AM

**To:** Greene, Barry <BGreene@nybc.org>

**Cc:** Du, Lanying <LDu@nybc.org>; Stemmy, Erik (NIH/NIAID) [E] <erik.stemmy@nih.gov>

**Subject:** Missing Effort in Cal Months- Grant Number: 5R01AI139092 - 03 PI Name: Du, Lanying

Hello Barry,

In the RPPR under other support the calendar months for Fang Li is missing. Please provide the effort in calendar months for each project listed for Fang Li. You can submit this via email.

Thanks,

**Ashley Ranellone**

Grants Management Specialist

DHHS, NIH, NIAID, DEA, GMP

5601 Fishers Lane, Rm 4G55

Bethesda, MD 20892

(301) 594-8541



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**Re: FW: Missing Effort in Cal Months- Grant Number: 5R01AI139092 - 03 PI Name: Du, Lanying**

---

From: Anne Mockovak <a-mock@umn.edu>  
To: Fang Li <lifang@umn.edu>  
Cc: Han, Jeffrey <KHan@nybc.org>, Lesley Schmidt Sindberg <schm1421@umn.edu>, Du, Lanying <LDu@nybc.org>  
Sent: March 26, 2020 12:09:21 PM CDT  
Received: March 26, 2020 12:09:38 PM CDT  
Attachments: Fang Li\_Other Support 3-26-20.pdf

Here is the updated OS with calendar months.

-Anne

Anne Mockovak  
Finance Manager  
Department of Veterinary and  
Biomedical Sciences  
612.301.2143

On Thu, Mar 26, 2020 at 11:34 AM Fang Li <[lifang@umn.edu](mailto:lifang@umn.edu)> wrote:  
I am CC'ing my accountant Anne.

Anne, could you update my efforts in calendar months? Thanks.

On Thu, Mar 26, 2020 at 11:23 AM Han, Jeffrey <[KHan@nybc.org](mailto:KHan@nybc.org)> wrote:

Good afternoon Lesley,

NIH had came back with comments regarding our RPPR with Dr. Fang Li's Other Support page for Dr. Du's RPPR titled, "Structure-based design of coronavirus subunit vaccines".

I am attaching your Other Support, please add the calendar months.

Regards,

---

**From:** Ranellone, Ashley (NIH/NIAID) [E] <[ranelloneac@niaid.nih.gov](mailto:ranelloneac@niaid.nih.gov)>  
**Sent:** Thursday, March 26, 2020 11:59 AM  
**To:** Greene, Barry <[BGreene@nybc.org](mailto:BGreene@nybc.org)>  
**Cc:** Du, Lanying <[LDu@nybc.org](mailto:LDu@nybc.org)>; Stemmy, Erik (NIH/NIAID) [E] <[erik.stemmy@nih.gov](mailto:erik.stemmy@nih.gov)>  
**Subject:** Missing Effort in Cal Months- Grant Number: 5R01AI139092 - 03 PI Name: Du, Lanying

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Grants Management Specialist

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\*\*\*\*\*

Fang Li, Ph.D.  
Associate Professor

Department of Veterinary and Biomedical Sciences  
University of Minnesota Twin Cities  
612-625-6149, [lifang@umn.edu](mailto:lifang@umn.edu)  
<http://www.msi.umn.edu/~lifang>

\*\*\*\*\*

**1. Fang Li\_Other Support 3-26-20.pdf**

Type: application/pdf  
Size: 66 KB (68,133 bytes)



## Fang Li Other Support

### Active

**Overlap: There is no scientific overlap among the following grants.**

National Institutes of Health 04/1/2015 – 03/31/2020  
R01AI110700 \$1,862,000  
Role: Co-Principal Investigator (Co-PI: Ralph Baric, Univ of North Carolina) 5.0 calendar months

#### **Mechanisms of MERS-CoV Entry, Cross-species Transmission and Pathogenesis**

Goal: This research investigates genetic pathways regulating MERS coronavirus cross species transmission and receptor homolog usage, establishes robust animal models of human disease, and discovers critical reagents for therapeutic and vaccine testing.

National Institutes of Health 06/7/2016 – 05/31/2021  
2R01AI089728 \$2,285,084  
Role: Principal Investigator 3.0 calendar months

#### **Receptor Recognition and Cell Entry of Coronaviruses**

Goal: This research investigates the molecular and structural mechanisms for the receptor recognition and cell entry of coronaviruses. It explores novel principles governing viral evolution, receptor recognition, cell entry, host ranges, cross-species infections, and tissue tropisms. These studies are critical for evaluating the emerging disease potentials of coronaviruses and for preventing, controlling and treating the spread of coronaviruses in humans or other animals.

National Institutes of Health 05/21/2018 – 04/30/2023  
R01AI139092 \$923,000  
Role: Co-Investigator (PI: Lanying Du, New York Blood Center) 1.2 calendar months

#### **Structure-based design of coronavirus subunit vaccines**

Goal: This research establishes that artificially exposed unfavorable epitopes on viral subunit vaccines pose a severe intrinsic limitation to viral subunit vaccine designs. It further develops novel structure-based approaches to overcome this limitation in vaccine design. It produces highly effective subunit vaccines to combat the infections of highly pathogenic coronaviruses such as MERS and SARS coronaviruses, and also has implications for subunit vaccine design against other life-threatening viruses.  
10% effort for Fang Li

National Institutes of Health 01/01/2020 – 12/31/2024  
R01CA245922 \$110,880 (\$554,400-total)  
Role: Co-Investigator (Aaron LeBeau, University of Minnesota) 0.9 calendar months

#### **Cyclic Peptide Protease Inhibitors for the Treatment of Prostate Cancer**

Goal: This research is to develop clinically relevant therapeutics by targeting a cell surface protease overexpressed in aggressive variant prostate carcinoma. This approach has significant clinical potential to result in an effective treatment modality for a form of prostate cancer that is currently incurable.

University of Minnesota 10/01/2019-9/30/2022  
Academic Investment Research Program \$125,000  
Role: Co-Investigator (PI: Alon Herschhorn, University of Minnesota) 0.2 calendar months

#### **Bioengineering conformation-stabilized HIV-1 Env immunogens**

Goal: This research builds a new collaborative platform for the development of a conformation-defined HIV Envelope protein vaccine.

### Pending

National Institutes of Health

10/01/2020 – 09/30/2025

**Antibody-dependent enhancement of coronavirus entry: molecular mechanism and clinical implications**

Role: Principal Investigator

1.2 calendar months

\$3,996,113

National Institutes of Health

12/01/2020 – 11/30/2025

**Cell entry, cross-species transmission and pathogenesis of novel coronavirus from Wuhan**

Role: Co-Investigator (PI: Ralph Baric, University of North Carolina)

2.4 calendar months

\$1,897,327 (Li subaward)

## Re: hACE2 expression plasmid request

---

From: Fang Li <lifang@umn.edu>  
To: Stanley Qi <stanley.qi@stanford.edu>  
Cc: zlshi@wh.iov.cn, Angelica Castellanos <ancastel@stanford.edu>, Leiping Zeng <lpzeng@stanford.edu>  
Sent: April 3, 2020 9:21:38 AM CDT

**We are sharing the following three genes with the scientific community through <https://www.addgene.org/>:  
human ACE2, SARS-CoV-2 (COVID-19) spike protein, SARS-CoV spike protein**

**Please contact the above website for the genes.**

On Thu, Apr 2, 2020 at 9:38 PM Stanley Qi <[stanley.qi@stanford.edu](mailto:stanley.qi@stanford.edu)> wrote:

Dear Fang,

Thanks so much! Also thanks for the information. It is very competitive to find BSL3 facilities currently. Angelica will send the prepaid Fedex Label tomorrow.

Best Wishes,  
Stanley

---

Stanley Qi, PhD  
Assistant Professor  
Department of Bioengineering  
And of Chemical and Systems Biology  
Stanford University

---

On Apr 2, 2020, at 19:31, Fang Li <[lifang@umn.edu](mailto:lifang@umn.edu)> wrote:

Hi Stanley,

Yes, we can send you the hACE2 plasmid. Please provide your shipping address and FedEx account number.

Ralph Baric at University of North Carolina and Stanley Perlman at University of Iowa can work on live SARS-CoV-2 in BSL3 facility. But my understanding is that they are booked up.

Best regards,  
Fang

On Thu, Apr 2, 2020 at 12:52 PM Stanley Qi <[stanley.qi@stanford.edu](mailto:stanley.qi@stanford.edu)> wrote:

Dear Zhengli,

Thanks so much for your interest and introduction. We look forward to working together.

Dear Fang,

It is great to meet you online. Would it be possible to obtain a hACE2 plasmid so we can test our CRISPR strategy in human cell lines? Also, another question is are you aware of any BSL3 facility available for SARS-CoV-2 collaboration?

For plasmid shipping, Angelica can provide our FedEx # with shipping address. Thanks so much!

Best Wishes,  
Stanley

---

Stanley Qi, PhD

Assistant Professor  
Department of Bioengineering  
And of Chemical and Systems Biology  
Stanford University

---

On Apr 2, 2020, at 08:13, [zlshi@wh.iov.cn](mailto:zlshi@wh.iov.cn) wrote:

Dear Prof. Qi,

Thank you for your email and suggestion. It's nice to read your recent publication. I'm sure we have common interest and happy to collaborate with you.

Regarding the human ACE2 plasmid, I've contacted Prof. Fang Li ([lifang@umn.edu](mailto:lifang@umn.edu)) who is working in USA and willing to send the plasmid to you. Please contact him directly.

Best regards,

Zhengli,

---

[zlshi@wh.iov.cn](mailto:zlshi@wh.iov.cn)

**From:** [Stanley Qi](#)  
**Date:** 2020-04-02 10:29  
**To:** [zlshi@wh.iov.cn](mailto:zlshi@wh.iov.cn)  
**CC:** [Angelica Castellanos](#); [Leiping Zeng](#)  
**Subject:** Re: hACE2 expression plasmid request

Dear Prof. Shi,

It is a great honor to be able to connect with you. Leiping Zeng has been working as a postdoc in my lab and he has done a great job on developing new CRISPR tools to for immunooncology and recently on anti-virus.

Thanks to your heroic efforts in deciphering SARS-CoV-2 and leadership for saving millions of people's lives in the past several months. I've read so much about your work and contributions. We've been trying to follow your work, by developing a type of CRISPR, CRISPR-Cas13, as a preventive way to directly recognize SARS-CoV-2 RNA genomes for cutting. It would be great to get hACE2 plasmid from your lab so we can continue to test live SARS-CoV-2 in human cell lines.

I'd also like to ask if you are open to future collaborations for testing in BSL3 animal models, if the CRISPR anti-SARS-CoV-2 is working. I understand you must be extremely busy. I look forward to hearing back from you.

Best Wishes,  
Stanley

---

Stanley Qi, PhD

Assistant Professor  
Department of Bioengineering  
And of Chemical and Systems Biology  
Stanford University

---

On Apr 1, 2020, at 13:21, Leiping Zeng  
<[lpzeng@stanford.edu](mailto:lpzeng@stanford.edu)> wrote:

Hi Prof. Shi,

How are you? Hope you are healthy and stay in good mood!

We recently published a preprint biorxiv paper (attached) on using CRISPR to inhibit SARS-COV-2 replication. The paper was submitted and all reviewers want us to do some live virus test. Now we are in cooperation with a BSL3 lab in Berkeley and need the hACE2 expression plasmid to make our A549/CasRx cell line sensitive to SARS-COV-2 virus challenge. Could you share with us the plasmid? Angelica can provide a Fedex label using our account.

Prof. Qi also hopes to have some cooperation with you in some other projects on SARS-COV-2 in the future.

Best regards,  
Leiping

<2020.03.13.991307v1.full.pdf>

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\*\*\*\*\*

Fang Li, Ph.D.  
Associate Professor  
Department of Veterinary and Biomedical Sciences  
University of Minnesota Twin Cities  
612-625-6149, [lifang@umn.edu](mailto:lifang@umn.edu)  
<http://www.msi.umn.edu/~lifang>

\*\*\*\*\*

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\*\*\*\*\*

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University of Minnesota Twin Cities  
612-625-6149, [lifang@umn.edu](mailto:lifang@umn.edu)  
<http://www.msi.umn.edu/~lifang>

\*\*\*\*\*

## **Fwd: NIH Automated Email: Progress Report for Grant 5 R01 AI089728-10, Due by 04/15/2020**

---

From: Fang Li <lifang@umn.edu>  
To: Ralph Baric <rbaric@email.unc.edu>, Sims, Amy C <sims0018@email.unc.edu>  
Sent: April 4, 2020 1:32:07 AM CDT

Hi Ralph and Amy,

Please see the attached email. We will need to submit the progress report very soon. Could you email me your progress from last year and your research plan for next year at your earliest convenience?

Thanks and stay safe,  
Fang

----- Forwarded message -----

From: <[era-notify@mail.nih.gov](mailto:era-notify@mail.nih.gov)>  
Date: Sun, Mar 15, 2020 at 5:02 AM  
Subject: NIH Automated Email: Progress Report for Grant 5 R01 AI089728-10, Due by 04/15/2020  
To: <[lifang@umn.edu](mailto:lifang@umn.edu)>

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The progress report for NIH Grant Number is due by 04/15/2020.

The next budget period start date for the above-referenced award is 06/01/ 2020. The due date for Progress Reports for grants excluded from the Streamlined Non-Competing Award Process (SNAP) authorities grants is the 1st of the month preceding the month in which the current budget period ends (e.g., if the budget period ends 11/30, the due date is 10/1). If the 1st falls on a weekend or Federal holiday, the due date is automatically extended to the next business day. If you are unsure whether the award is excluded from SNAP authorities, check the Notice of Award (NoA) under Section III Terms and Conditions.

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Questions regarding the eRA Commons should be addressed to:

eRA Commons Help Desk

**Web:** <http://era.nih.gov/help/> (Preferred method of contact)

**Toll-free:** 1-866-504-9552

**Phone:** 301-402-7469

**Hours:** Mon-Fri, 7 a.m. to 8 p.m. Eastern Time

Please submit the progress report by the due date noted above. If you have already submitted the progress report, disregard this notice.

Thank you.

--

\*\*\*\*\*

Fang Li, Ph.D.  
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Department of Veterinary and Biomedical Sciences  
University of Minnesota Twin Cities  
612-625-6149, [lifang@umn.edu](mailto:lifang@umn.edu)  
<http://www.msi.umn.edu/~lifang>

\*\*\*\*\*

**RE: NIH Automated Email: Progress Report for Grant 5 R01 AI089728-10, Due by 04/15/2020**

---

From: Baric, Toni C <antoinette\_baric@med.unc.edu>  
To: Fang Li <lifang@umn.edu>, Lesley Schmidt Sindberg <schm1421@umn.edu>  
Cc: Baric, Ralph S <rbaric@email.unc.edu>  
Sent: April 5, 2020 1:18:33 PM CDT  
Received: April 5, 2020 1:18:40 PM CDT

Hi Fang,

I will be working with you on the UNC documents. Please note that Amy Sims no longer works at UNC.

Toni

**From:** Fang Li <lifang@umn.edu>  
**Sent:** Saturday, April 4, 2020 12:32 PM  
**To:** Lesley Schmidt Sindberg <schm1421@umn.edu>; Baric, Toni C <antoinette\_baric@med.unc.edu>; Sims, Amy C <sims0018@email.unc.edu>  
**Subject:** Fwd: NIH Automated Email: Progress Report for Grant 5 R01 AI089728-10, Due by 04/15/2020

Hi Lesley,

I am CC'ing the contact people at University of North Carolina who will work with you on the progress report.

Thanks,  
Fang

----- Forwarded message -----

From: <[era-notify@mail.nih.gov](mailto:era-notify@mail.nih.gov)>  
Date: Sun, Mar 15, 2020 at 5:02 AM  
Subject: NIH Automated Email: Progress Report for Grant 5 R01 AI089728-10, Due by 04/15/2020  
To: <[lifang@umn.edu](mailto:lifang@umn.edu)>

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Thank you.

--

\*\*\*\*\*

Fang Li, Ph.D.  
Associate Professor  
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<http://www.msi.umn.edu/~lifang>

\*\*\*\*\*

## **RPPR Materials for Grant 5 R01 AI089728-10 Needed by 4/9 (UNC PI: Baric)**

---

From: Lesley Schmidt Sindberg <schm1421@umn.edu>  
To: Baric, Toni C <antoinette\_baric@med.unc.edu>  
Cc: Fang Li <lifang@umn.edu>, Baric, Ralph S <rbaric@email.unc.edu>  
Sent: April 6, 2020 3:38:08 PM CDT  
Received: April 6, 2020 3:38:29 PM CDT  
Attachments: RR\_Budget\_1\_4-V1.4.pdf

Hi Toni,

Thank you for your help getting the materials together for this RPPR. The Year 5 budget (Direct plus Indirect) for UNC is \$120,384.

Please submit the following materials to me by this Thursday morning, 4/9.

1. Detailed budget using the SF424 R&R budget form
2. Budget justification
3. Statement of work - can be same as years 1-4 if there are no changes
4. All Personnel Report for Year 4
5. Other support for Key Personnel
6. If there are any Year 4 unspent funds, please indicate how much you anticipate being unspent.
7. If applicable, describe opportunities for training and professional development provided to anyone who worked on the project or anyone who was involved in the activities supported by the project.
8. Technical Report Content:

B.2 What was accomplished under these goals? For this reporting period describe: 1) major activities; 2) specific objectives; 3) significant results, including major findings, developments, or conclusions (both positive and negative); and 4) key outcomes or other achievements.

B.5. How have results been disseminated to communities of interest?

B.6. What do you plan to do for the next reporting period to accomplish the goals Describe briefly what you plan to do during the next reporting period to accomplish the goals and objectives.

Please don't hesitate to contact me if you have any questions.

Thanks,  
Lesley

Lesley Schmidt Sindberg, MPH  
Administrative Director | [Department of Veterinary & Biomedical Sciences](#)  
College of Veterinary Medicine | University of Minnesota  
[schm1421@umn.edu](mailto:schm1421@umn.edu) | 612-301-1234 [REDACTED]

Preparing a research proposal? Please submit an [Intent to Submit](#) form.

On Sun, Apr 5, 2020 at 1:18 PM Baric, Toni C <[antoinette\\_baric@med.unc.edu](mailto:antoinette_baric@med.unc.edu)> wrote:

Hi Fang,

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Toni

**From:** Fang Li <[lifang@umn.edu](mailto:lifang@umn.edu)>  
**Sent:** Saturday, April 4, 2020 12:32 PM  
**To:** Lesley Schmidt Sindberg <[schm1421@umn.edu](mailto:schm1421@umn.edu)>; Baric, Toni C <[antoinette\\_baric@med.unc.edu](mailto:antoinette_baric@med.unc.edu)>;  
Sims, Amy C <[sims0018@email.unc.edu](mailto:sims0018@email.unc.edu)>  
**Subject:** Fwd: NIH Automated Email: Progress Report for Grant 5 R01 AI089728-10, Due by 04/15/2020

Hi Lesley,

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Thanks,

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**To:** <[lifang@umn.edu](mailto:lifang@umn.edu)>

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--

\*\*\*\*\*

Fang Li, Ph.D.  
Associate Professor  
Department of Veterinary and Biomedical Sciences  
University of Minnesota Twin Cities  
612-625-6149, [lifang@umn.edu](mailto:lifang@umn.edu)  
<http://www.msi.umn.edu/~lifang>

\*\*\*\*\*

**1. RR\_Budget\_1\_4-V1.4.pdf**

Type: application/pdf  
Size: 463 KB (474,948 bytes)

## other funding opportunities on COVID-19

---

From: Fang Li <lifang@umn.edu>  
To: Ralph Baric <rbaric@email.unc.edu>  
Sent: April 10, 2020 2:58:46 PM CDT

Hi Ralph,

Hope you are well. Have you thought about organizing a program grant on COVID-19 or the related coronaviruses? Would you like to discuss it?

Best wishes,  
Fang

--

\*\*\*\*\*

Fang Li, Ph.D.  
Associate Professor  
Department of Veterinary and Biomedical Sciences  
University of Minnesota Twin Cities  
612-625-6149, [lifang@umn.edu](mailto:lifang@umn.edu)  
<http://www.msi.umn.edu/~lifang>

\*\*\*\*\*

## About your article in Journal of Virology

---

From: Lise Barnéoud <lisebarneoud@gmail.com>  
To: lifang@umn.edu, LDu@nybc.org  
Sent: April 14, 2020 4:04:07 AM CDT  
Received: April 14, 2020 4:04:22 AM CDT

Hi,  
My name is Lise Barneoud. I'm a french freelance science journalist. I'm working for different media: Science et Vie, Le Monde, Heidi.news...

I'm working on the ADE hypothesis of covid-19. I've read with lot of interest your article: Molecular Mechanism for Antibody-Dependent Enhancement of Coronavirus Entry

I read also the article of Jason A.

Tetro: <https://www.sciencedirect.com/science/article/pii/S1286457920300344> and the answer from Anuj Sharma, saying that we can not tell from in vitro study what can be the real clinical answer.

Do you also think this ADE mechanism could explain why severe cases were more frequent in Hubei province, and also in every cluster compare to the mortality of non cluster area (because people get infected several times inside a cluster...)

Are you afraid that this mechanism heralds a second wave more severe?

Or do you agree with Anuj Sharma that this is only in vitro study which can not be translated in vivo yet?

Also, looking at this article: <https://www.ncbi.nlm.nih.gov/pubmed/27390007>, it looks like that ADE in SARS does not sustain productive viral replication in the infected cells. Just like an aborted infection. What about for Covid-19? This could be a good news if it was also the case for Covid-19 isn't it?

Do you think that the different teams who are working on a vaccine against covid-19 are sufficiently aware of the risk of ADE?

I worked on the Dengvaxia a few months ago: do you think it could be the same here: a vaccine safe for naive persons but not for the one already exposed?

Thank you very much for your cooperation,

Sincerely,

Lise Barneoud

## Re: talk on the phone?

---

From: Fang Li <lifang@umn.edu>  
To: Baric, Ralph S <rbaric@email.unc.edu>  
Sent: April 18, 2020 10:24:26 AM CDT

Sure. You can call [REDACTED]

On Sat, Apr 18, 2020 at 8:02 AM Baric, Ralph S <[rbaric@email.unc.edu](mailto:rbaric@email.unc.edu)> wrote:

4PM? Number?

**From:** Fang Li <[lifang@umn.edu](mailto:lifang@umn.edu)>  
**Sent:** Friday, April 17, 2020 4:36 PM  
**To:** Baric, Ralph S <[rbaric@email.unc.edu](mailto:rbaric@email.unc.edu)>  
**Subject:** Re: talk on the phone?

I won't be available in the morning. Any time in the afternoon works for you?

On Fri, Apr 17, 2020 at 12:07 PM Baric, Ralph S <[rbaric@email.unc.edu](mailto:rbaric@email.unc.edu)> wrote:

9:30AM?

**From:** Fang Li <[lifang@umn.edu](mailto:lifang@umn.edu)>  
**Sent:** Friday, April 17, 2020 12:03 PM  
**To:** Baric, Ralph S <[rbaric@email.unc.edu](mailto:rbaric@email.unc.edu)>  
**Subject:** Re: talk on the phone?

Sure. What time on Saturday?

On Thu, Apr 16, 2020 at 6:22 PM Baric, Ralph S <[rbaric@email.unc.edu](mailto:rbaric@email.unc.edu)> wrote:

Hi Fang, next two days are bad as I'm doing a video conference tomorrow. Any way we can talk on Saturday? ralph

**From:** Fang Li <[lifang@umn.edu](mailto:lifang@umn.edu)>  
**Sent:** Thursday, April 16, 2020 9:59 AM  
**To:** Baric, Ralph S <[rbaric@email.unc.edu](mailto:rbaric@email.unc.edu)>  
**Subject:** talk on the phone?

Hi Ralph,



Will you be available to talk on the phone today? I will need to discuss with you a few things related to SARS-CoV-2.

Thanks,

Fang

--

\*\*\*\*\*  
Fang Li, Ph.D.  
Associate Professor  
Department of Veterinary and Biomedical Sciences  
University of Minnesota Twin Cities  
612-625-6149, [lifang@umn.edu](mailto:lifang@umn.edu)  
<http://www.msi.umn.edu/~lifang>  
\*\*\*\*\*

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\*\*\*\*\*  
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Department of Veterinary and Biomedical Sciences  
University of Minnesota Twin Cities  
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\*\*\*\*\*

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\*\*\*\*\*  
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Associate Professor

Department of Veterinary and Biomedical Sciences  
University of Minnesota Twin Cities  
612-625-6149, [lifang@umn.edu](mailto:lifang@umn.edu)  
<http://www.msi.umn.edu/~lifang>

\*\*\*\*\*

## RE: SARS-CoV-2 challenge experiments in mice

---

From: Baric, Ralph S <rbaric@email.unc.edu>  
To: Fang Li <lifang@umn.edu>  
Sent: April 19, 2020 5:34:50 PM CDT  
Received: April 19, 2020 5:34:53 PM CDT

Crazy times, sorry we missed talking yesterday. Good in about 3-4 weeks when we have fully characterized our ma virus. ralph

**From:** Fang Li <lifang@umn.edu>  
**Sent:** Saturday, April 18, 2020 5:14 PM  
**To:** Baric, Ralph S <rbaric@email.unc.edu>  
**Subject:** SARS-CoV-2 challenge experiments in mice

Hi Ralph,

I guess we are both too busy to talk on the phone (understanbly!). Anyway, I have some vaccine and drug candidates now. I am looking for collaborators to test them out in animals. What is your lab's current capacity to do SARS-CoV-2 challenge experiments in mice?

Thanks,

Fang

--

\*\*\*\*\*

Fang Li, Ph.D.  
Associate Professor  
Department of Veterinary and Biomedical Sciences  
University of Minnesota Twin Cities  
612-625-6149, [lifang@umn.edu](mailto:lifang@umn.edu)  
<http://www.msi.umn.edu/~lifang>

\*\*\*\*\*

## GRANT13077980/Du, Lanying: Check Assembled Application in eRA Commons - Warnings Only

---

From: era-notify@mail.nih.gov  
To: ldu@nybc.org, ResearchAdmin@nybc.org, lifang@umn.edu, stanley-perlman@uiowa.edu  
Sent: April 21, 2020 2:59:41 PM CDT  
Received: April 21, 2020 2:59:47 PM CDT

NIH has received the grant application titled Novel nanobodies to prevent and treat SARS-CoV-2 and other pathogenic human coronaviruses for PI Du, Lanying with Grants.gov Tracking # GRANT13077980 and has placed the assembled application in the eRA Commons for your review.

Our systems identified [warnings](#). Verify your application complies with funding opportunity announcement and [application guide](#) requirements.

### Next steps:

1. View your assembled application image in eRA Commons ([PI instructions](#), [AOR/SO instructions](#)).

You have a two business day [application viewing window](#) to check your application for assembly issues before it automatically moves forward to NIH staff for further processing and consideration. This window does not extend the submission deadline.

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2. Determine if changes are needed.

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- Everything looks good: No additional action needed.
- Changes needed/desired: If **before the due date and within the viewing window**, a signing official (SO) can [reject the application](#) and [submit a changed/corrected application](#).

## Re: Regarding to "Molecular Mechanism for Antibody-Dependent Enhancement of Coronavirus Entry"

---

From: jianliang.li@acemab.com  
To: lifang <lifang@umn.edu>, zlshi@wh.iov.cn  
Sent: May 9, 2020 9:56:49 PM CDT  
Received: May 9, 2020 9:58:21 PM CDT

Dear Professor Li and Professor Shi,

I am Jianliang Li who contacted you a while ago about this paper and thank you for your explanation.

From January we have set up a discovery project for finding strong neutralizing antibodies using our immunoglobulin humanized transgenic platform. Now we have identified nearly 1700 strong binders against S1 region and 315 against S2 region of the SARS-Cov-2 spike. We collaborated with GHDDI which is an institute sponsored by Bill & Melinda Gates Foundation for pseudo virus neutralizing assay. 390 antibodies from the 2000 clones showed neutralizing activity on pseudo virus and we selected 79 strong neutralizer for further tests. In these 79 antibodies, 62 are specific to S1 region and 17 are specific to S2. ADE is something we paid a lot attention on as that could significantly impact on the therapeutic potential for any neutralizing antibodies. Therefore we planned to test the antibody-antigen binding at lysosomal pH (4.8) and hope to ensure the antibodies can still strongly bind to viral spike in the lysosome to prevent it from escaping. You both are expert in this field and I am wondering whether you are interested in any potential collaboration or not?

With best regards,

---

Jianliang Li (李建良)

Founder CEO of Acemab Ltd.

Email: [jianliang.li@acemab.com](mailto:jianliang.li@acemab.com)

Tel: 0086-13807323309

Address: High Tech Incubator, No.9 Shuang Yong Road, Xiangtan, Hunan Province,  
P. R. China

\*\*\*\*\*

Fang Li, Ph.D.  
Associate Professor  
Department of Veterinary and Biomedical Sciences  
University of Minnesota Twin Cities  
612-625-6149, [lifang@umn.edu](mailto:lifang@umn.edu)  
<http://www.msi.umn.edu/~lifang>

\*\*\*\*\*

## RE: SARS-CoV-2 challenge experiments in mice

---

From: Baric, Ralph S <rbaric@email.unc.edu>  
To: Fang Li <lifang@umn.edu>  
Sent: May 14, 2020 11:58:02 AM CDT  
Received: May 14, 2020 11:58:05 AM CDT

Hi Fang, ~3 weeks. Does it work in primary human airway epithelial cells? What does it target? ralph

**From:** Fang Li <lifang@umn.edu>  
**Sent:** Thursday, May 14, 2020 12:33 PM  
**To:** Baric, Ralph S <rbaric@email.unc.edu>  
**Subject:** Re: SARS-CoV-2 challenge experiments in mice

Hi Ralph,

Thanks for the information. How soon do you think your model will be ready for testing? We have a nanobody drug that looks promising biochemically. And we are very eager to test it in animal challenge experiments.

Best,  
Fang

On Thu, May 14, 2020 at 11:22 AM Baric, Ralph S <[rbaric@email.unc.edu](mailto:rbaric@email.unc.edu)> wrote:

Hi Fang, Yes, we have a lethal challenge model, but are working out details to get it out fast. In the future, yes. What is the drug? ralph

**From:** Fang Li <[lifang@umn.edu](mailto:lifang@umn.edu)>  
**Sent:** Thursday, May 14, 2020 10:02 AM  
**To:** Baric, Ralph S <[rbaric@email.unc.edu](mailto:rbaric@email.unc.edu)>  
**Subject:** Re: SARS-CoV-2 challenge experiments in mice

Hi Ralph,

Is your lab ready for mice challenge experiments? I have a drug candidate that looks promising. I wonder whether you have the capacity to help us test it in mice.

Thanks,  
Fang

On Sun, Apr 19, 2020 at 5:34 PM Baric, Ralph S <[rbaric@email.unc.edu](mailto:rbaric@email.unc.edu)> wrote:

Crazy times, sorry we missed talking yesterday. Good in about 3-4 weeks when we have fully characterized our ma virus. ralph

**From:** Fang Li <[lifang@umn.edu](mailto:lifang@umn.edu)>  
**Sent:** Saturday, April 18, 2020 5:14 PM  
**To:** Baric, Ralph S <[rbaric@email.unc.edu](mailto:rbaric@email.unc.edu)>  
**Subject:** SARS-CoV-2 challenge experiments in mice

Hi Ralph,

I guess we are both too busy to talk on the phone (understanbly!). Anyway, I have some vaccine and drug candidates now. I am looking for collaborators to test them out in animals. What is your lab's current capacity to do SARS-CoV-2 challenge experiments in mice?

Thanks,

Fang

--

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Fang Li, Ph.D.  
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<http://www.msi.umn.edu/~lifang>  
\*\*\*\*\*



## GRANT13110649/Du, Lanying: Check Assembled Application in eRA Commons - Warnings Only

---

From: era-notify@mail.nih.gov  
To: ldu@nybc.org, ResearchAdmin@nybc.org, lifang@umn.edu, stanley-perlman@uiowa.edu  
Sent: May 19, 2020 2:03:23 PM CDT  
Received: May 19, 2020 2:03:41 PM CDT

NIH has received the grant application titled Novel nanobodies to prevent and treat SARS-CoV-2 and other pathogenic human coronaviruses for PI Du, Lanying with Grants.gov Tracking # GRANT13110649 and has placed the assembled application in the eRA Commons for your review.

Our systems identified [warnings](#). Verify your application complies with funding opportunity announcement and [application guide](#) requirements.

### Next steps:

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- Changes needed/desired: If **before the due date and within the viewing window**, a signing official (SO) can [reject the application](#) and [submit a changed/corrected application](#).

## RE: SARS-CoV-2 challenge experiments in mice

---

From: Baric, Ralph S <rbaric@email.unc.edu>  
To: Fang Li <lifang@umn.edu>  
Cc: Parsons, Kelly Sivertson <kelly.parsons@unc.edu>  
Sent: May 20, 2020 4:28:21 PM CDT  
Received: May 20, 2020 4:28:27 PM CDT

Hi Fang, I have attached Kelly's email address who can help with this discussion. Hope your doing well. Thanks, ralph

---

**From:** Fang Li <lifang@umn.edu>  
**Sent:** Wednesday, May 20, 2020 5:11 PM  
**To:** Baric, Ralph S <rbaric@email.unc.edu>  
**Subject:** Re: SARS-CoV-2 challenge experiments in mice

Hi Ralph,

Thanks for the information. My University's patent office would like to get in touch with your University's patent office. Do you know the contact information of your University's patent office?

Best,  
Fang

On Sun, May 17, 2020 at 12:21 PM Baric, Ralph S <[rbaric@email.unc.edu](mailto:rbaric@email.unc.edu)> wrote:

Hi Fang, [REDACTED] my impression is that your drug targets ACE2 so this shouldn't be a concern? YES?NO If so, likely need to use ACE2 transgenic mouse model. You could send us the drug and we can test using live recombinant [REDACTED] viruses in vitro, give you an idea of breadth and potency against future high risk strains.

Patent office: I assume IP sharing. I leave it to you as the innovation and design are most of it and completely yours. I'd estimate 20% or less, but be glad to hear your thoughts on this. Hope you are doing well.  
Ralph

**From:** Fang Li <[lifang@umn.edu](mailto:lifang@umn.edu)>  
**Sent:** Saturday, May 16, 2020 10:41 PM  
**To:** Baric, Ralph S <[rbaric@email.unc.edu](mailto:rbaric@email.unc.edu)>  
**Subject:** Re: SARS-CoV-2 challenge experiments in mice

Hi Ralph,

Thanks for your response. Do you work on human ACE2 transgenic mice right now? Is it a lethal model for SARS-CoV-2?

My University's patent office is filing a patent on the drug candidate. Before I commit to animal testing with you (or with others), the patent office would like to know whether the animal testing will be fee-for-service, or whether it involves IP sharing. If it is the latter, they'd like to know the estimated percentage of the contribution from animal testing in the drug development process (prior to clinical trials). Please let me know.

Thanks,  
Fang

On Thu, May 14, 2020 at 1:15 PM Baric, Ralph S <[rbaric@email.unc.edu](mailto:rbaric@email.unc.edu)> wrote:

Fang, 3 weeks from today—plus or minus a few days while I try to find someone to run the experiment. Ralph

**From:** Fang Li <[lifang@umn.edu](mailto:lifang@umn.edu)>  
**Sent:** Thursday, May 14, 2020 2:10 PM  
**To:** Baric, Ralph S <[rbaric@email.unc.edu](mailto:rbaric@email.unc.edu)>  
**Subject:** Re: SARS-CoV-2 challenge experiments in mice

Is it another 2-3 weeks on top of the 3 weeks?

I am contacting multiple places for the testing, and so a good estimate of timeline would be very helpful.

Thanks,  
Fang

On Thu, May 14, 2020 at 1:06 PM Baric, Ralph S <[rbaric@email.unc.edu](mailto:rbaric@email.unc.edu)> wrote:

2-3 weeks.

**From:** Fang Li <[lifang@umn.edu](mailto:lifang@umn.edu)>  
**Sent:** Thursday, May 14, 2020 1:51 PM  
**To:** Baric, Ralph S <[rbaric@email.unc.edu](mailto:rbaric@email.unc.edu)>  
**Subject:** Re: SARS-CoV-2 challenge experiments in mice

There must be a long waiting list of things for you to test after your mouse model is ready? What is your estimated timeline for testing our drug?

Thanks,  
Fang

On Thu, May 14, 2020 at 12:49 PM Baric, Ralph S <[rbaric@email.unc.edu](mailto:rbaric@email.unc.edu)> wrote:

Mouse model is ready, we are doing experiments to finish the description, then we are better positioned to test in vivo. ralph

**From:** Fang Li <[lifang@umn.edu](mailto:lifang@umn.edu)>  
**Sent:** Thursday, May 14, 2020 1:42 PM  
**To:** Baric, Ralph S <[rbaric@email.unc.edu](mailto:rbaric@email.unc.edu)>  
**Subject:** Re: SARS-CoV-2 challenge experiments in mice

Hi Ralph,

[REDACTED]

So your mouse model will be ready in 3 weeks, or your staff will be available to test our drug in 3 weeks?

Thanks,  
Fang

On Thu, May 14, 2020 at 11:58 AM Baric, Ralph S <[rbaric@email.unc.edu](mailto:rbaric@email.unc.edu)> wrote:

Hi Fang, ~3 weeks. Does it work in primary human airway epithelial cells? What does it target? ralph

**From:** Fang Li <[lifang@umn.edu](mailto:lifang@umn.edu)>  
**Sent:** Thursday, May 14, 2020 12:33 PM  
**To:** Baric, Ralph S <[rbaric@email.unc.edu](mailto:rbaric@email.unc.edu)>  
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Thanks for the information. How soon do you think your model will be ready for testing? We have a nanobody drug that looks promising biochemically. And we are very eager to test it in animal challenge experiments.

Best,  
Fang

On Thu, May 14, 2020 at 11:22 AM Baric, Ralph S <[rbaric@email.unc.edu](mailto:rbaric@email.unc.edu)> wrote:

Hi Fang, Yes, we have a lethal challenge model, but are working out details to get it out fast. In the future, yes. What is the drug? ralph

**From:** Fang Li <[lifang@umn.edu](mailto:lifang@umn.edu)>  
**Sent:** Thursday, May 14, 2020 10:02 AM  
**To:** Baric, Ralph S <[rbaric@email.unc.edu](mailto:rbaric@email.unc.edu)>  
**Subject:** Re: SARS-CoV-2 challenge experiments in mice

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Fang

On Sun, Apr 19, 2020 at 5:34 PM Baric, Ralph S <[rbaric@email.unc.edu](mailto:rbaric@email.unc.edu)> wrote:

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**From:** Fang Li <[lifang@umn.edu](mailto:lifang@umn.edu)>  
**Sent:** Saturday, April 18, 2020 5:14 PM  
**To:** Baric, Ralph S <[rbaric@email.unc.edu](mailto:rbaric@email.unc.edu)>  
**Subject:** SARS-CoV-2 challenge experiments in mice

Hi Ralph,

I guess we are both too busy to talk on the phone (understandably!). Anyway, I have some vaccine and drug candidates now. I am looking for collaborators to test them out in animals. What is your lab's current capacity to do SARS-CoV-2 challenge experiments in mice?

Thanks,

Fang

--

\*\*\*\*\*

Fang Li, Ph.D.  
Associate Professor  
Department of Veterinary and Biomedical Sciences  
University of Minnesota Twin Cities  
612-625-6149, [lifang@umn.edu](mailto:lifang@umn.edu)  
<http://www.msi.umn.edu/~lifang>

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## RE: SARS-CoV-2 challenge experiments in mice

---

From: Bartholomew, Kyle <kbartho@email.unc.edu>  
To: lifang@umn.edu  
Cc: Parsons, Kelly Sivertson <kelly.parsons@unc.edu>, Baric, Ralph S <rbaric@email.unc.edu>  
Sent: May 21, 2020 8:35:14 AM CDT  
Received: May 21, 2020 8:35:18 AM CDT

Hi Fang,

It is a pleasure to meet you electronically. My name is Kyle Bartholomew, and I work with Kelly Parsons to manage the IP coming out of Dr. Baric's lab. Please have your tech transfer office contact me to discuss the IP surrounding your potential collaboration with Ralph.

Best,  
Kyle

Kyle R. Bartholomew, Ph.D.  
Commercialization Manager

**THE UNIVERSITY OF NORTH CAROLINA AT CHAPEL HILL**  
**INNOVATION, ENTREPRENEURSHIP AND ECONOMIC DEVELOPMENT – INNOVATE CAROLINA**  
Office of Technology Commercialization (note new office name)  
Campus Box 4105  
109 Church Street | Chapel Hill, NC 27516  
T: 919.962.5921 | F: 919.962.0646  
Email: [kyle.bartholomew@unc.edu](mailto:kyle.bartholomew@unc.edu) | Twitter: [@innovateunc](https://twitter.com/innovateunc) | Facebook: [@InnovateUNC](https://www.facebook.com/InnovateUNC)  
Web: [otc.unc.edu](http://otc.unc.edu) | [innovate.unc.edu](http://innovate.unc.edu)

## Re: SARS-CoV-2 challenge experiments in mice

---

From: Fang Li <lifang@umn.edu>  
To: Bartholomew, Kyle <kbartho@email.unc.edu>, [REDACTED],  
Kenneth Karanja <kara0108@umn.edu>  
Cc: Parsons, Kelly Sivertson <kelly.parsons@unc.edu>, Baric, Ralph S  
<rbaric@email.unc.edu>  
Sent: May 21, 2020 10:03:44 AM CDT

Dear Kyle and Kelly,

Thanks for your email. I am copying [REDACTED] and Kenny from my University's patent office who will get in touch with you.

Best regards,  
Fang

On Thu, May 21, 2020 at 8:35 AM Bartholomew, Kyle <[kbartho@email.unc.edu](mailto:kbartho@email.unc.edu)> wrote:

Hi Fang,

It is a pleasure to meet you electronically. My name is Kyle Bartholomew, and I work with Kelly Parsons to manage the IP coming out of Dr. Baric's lab. Please have your tech transfer office contact me to discuss the IP surrounding your potential collaboration with Ralph.

Best,

Kyle

Kyle R. Bartholomew, Ph.D.  
Commercialization Manager

**THE UNIVERSITY OF NORTH CAROLINA AT CHAPEL HILL**  
INNOVATION, ENTREPRENEURSHIP AND ECONOMIC DEVELOPMENT – INNOVATE CAROLINA  
Office of Technology Commercialization (note new office name)  
Campus Box 4105  
109 Church Street | Chapel Hill, NC 27516  
T: 919.962.5921 | F: 919.962.0646  
Email: [kyle.bartholomew@unc.edu](mailto:kyle.bartholomew@unc.edu) | Twitter: [@innovateunc](https://twitter.com/innovateunc) | Facebook: [@InnovateUNC](https://www.facebook.com/InnovateUNC)  
Web: [otc.unc.edu](http://otc.unc.edu) | [innovate.unc.edu](http://innovate.unc.edu)

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Fang Li, Ph.D.  
Associate Professor  
Department of Veterinary and Biomedical Sciences  
University of Minnesota Twin Cities  
612-625-6149, [lifang@umn.edu](mailto:lifang@umn.edu)

<http://www.msi.umn.edu/~lifang>

\*\*\*\*\*

**Re: Grant Number: 5R01AI089728 - 10 PI Name: Li, Fang**

---

From : Fang Li <lifang@umn.edu>  
To: Waller, Caleb (NIH/NIAID) [C] <caleb.waller@nih.gov>, Ralph Baric <rbaric@email.unc.edu>  
Cc: carls234@umn.edu, Stemmy, Erik (NIH/NIAID) [E] <erik.stemmy@nih.gov>  
Sent: May 21, 2020 2:29:50 PM CDT

Dear Ralph,

Please see the message below. Could you provide an updated Other Support document?

Thank you,  
Fang

On Thu, May 21, 2020 at 2:09 PM Waller, Caleb (NIH/NIAID) [C] <[caleb.waller@nih.gov](mailto:caleb.waller@nih.gov)> wrote:

Good Afternoon,

Thank you for your RPPR submitted for Grant 5R01AI089728 - 10.

The Other Support document submitted for Dr. Baric totals greater than 12CM as Grant R01 AI148260 was awarded and is no longer counted as pending.

Please provide an updated OS document for Dr. Baric by COB 05/22/20.

Thank you,

- Caleb

Caleb Waller, MBA [C]

Grants Management Specialist

NIH/NIAID/DEA/GMP

5601 Fisher LN, RM 4G54

Rockville MD 20852

Ph: 301-761-6643

Email: [Caleb.Waller@nih.gov](mailto:Caleb.Waller@nih.gov)



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Fang Li, Ph.D.  
Associate Professor  
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University of Minnesota Twin Cities  
612-625-6149, [lifang@umn.edu](mailto:lifang@umn.edu)  
<http://www.msi.umn.edu/~lifang>

\*\*\*\*\*

**Grant Number: 5R01AI089728 - 10 --Revised Other Support for Dr. Baric Needed by tomorrow 5/21**

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From: Lesley Schmidt Sindberg <schm1421@umn.edu>  
To: Baric, Ralph S <rbaric@email.unc.edu>, Baric, Toni C <antoinette\_baric@med.unc.edu>  
Cc: Fang Li <lifang@umn.edu>  
Sent: May 21, 2020 3:31:31 PM CDT  
Received: May 21, 2020 3:31:44 PM CDT

Dear Dr. Baric,

We received the email below from NIH regarding the Other Support document you submitted for the recent RPPR submitted for the above referenced award. They indicated that your total calendar month exceeded 12. **Please provide a revised Other Support document as soon as possible but no later than noon tomorrow. It is due to NIH tomorrow.**

Thanks,  
Lesley

Lesley Schmidt Sindberg, MPH  
Administrative Director | [Department of Veterinary & Biomedical Sciences](#)  
College of Veterinary Medicine | University of Minnesota  
[schm1421@umn.edu](mailto:schm1421@umn.edu) | 612-301-1234 | [REDACTED]

Preparing a research proposal? Please submit an [Intent to Submit](#) form.

----- Forwarded Message -----

**Subject:** Grant Number: 5R01AI089728 - 10 PI Name: Li, Fang  
**Date:** Thu, 21 May 2020 19:09:50 +0000  
**From:** Waller, Caleb (NIH/NIAID) [C] <[caleb.waller@nih.gov](mailto:caleb.waller@nih.gov)>  
**To:** [lifang@umn.edu](mailto:lifang@umn.edu) <[lifang@umn.edu](mailto:lifang@umn.edu)>, [carls234@umn.edu](mailto:carls234@umn.edu) <[carls234@umn.edu](mailto:carls234@umn.edu)>  
**CC:** Stemmy, Erik (NIH/NIAID) [E] <[erik.stemmy@nih.gov](mailto:erik.stemmy@nih.gov)>

Good Afternoon,

Thank you for your RPPR submitted for Grant 5R01AI089728 - 10.

The Other Support document submitted for Dr. Baric totals greater than 12CM as Grant R01 AI148260 was awarded and is no longer counted as pending.

Please provide an updated OS document for Dr. Baric by COB 05/22/20.

Thank you,

- Caleb

Caleb Waller, MBA [C]

Grants Management Specialist

NIH/NIAID/DEA/GMP

5601 Fisher LN, RM 4G54

Rockville MD 20852

Ph: 301-761-6643

Email: [Caleb.Waller@nih.gov](mailto:Caleb.Waller@nih.gov)

## RE: Grant Number: 5R01AI089728 - 10 --Revised Other Support for Dr. Baric Needed by tomorrow 5/21

---

From: Baric, Toni C <antoinette\_baric@med.unc.edu>  
To: Lesley Schmidt Sindberg <schm1421@umn.edu>, Baric, Ralph S <rbaric@email.unc.edu>  
Cc: Fang Li <lifang@umn.edu>  
Sent: May 22, 2020 11:40:03 AM CDT  
Received: May 22, 2020 11:40:06 AM CDT  
Attachments: Baric Other Support\_May 2020...docx

Hi Lesley,  
Attached is a revised OS.  
Toni

---

**From:** Lesley Schmidt Sindberg <schm1421@umn.edu>  
**Sent:** Thursday, May 21, 2020 4:32 PM  
**To:** Baric, Ralph S <rbaric@email.unc.edu>; Baric, Toni C <antoinette\_baric@med.unc.edu>  
**Cc:** Fang Li <lifang@umn.edu>  
**Subject:** Grant Number: 5R01AI089728 - 10 --Revised Other Support for Dr. Baric Needed by tomorrow 5/21

Dear Dr. Baric,

We received the email below from NIH regarding the Other Support document you submitted for the recent RPPR submitted for the above referenced award. They indicated that your total calendar month exceeded 12. **Please provide a revised Other Support document as soon as possible but no later than noon tomorrow. It is due to NIH tomorrow.**

Thanks,  
Lesley

Lesley Schmidt Sindberg, MPH  
Administrative Director | [Department of Veterinary & Biomedical Sciences](#)  
College of Veterinary Medicine | University of Minnesota  
[schm1421@umn.edu](mailto:schm1421@umn.edu) | 612-301-1234 | [REDACTED]

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**Date:** Thu, 21 May 2020 19:09:50 +0000  
**From:** Waller, Caleb (NIH/NIAID) [C] <[caleb.waller@nih.gov](mailto:caleb.waller@nih.gov)>  
**To:** [lifang@umn.edu](mailto:lifang@umn.edu) <[lifang@umn.edu](mailto:lifang@umn.edu)>, [carls234@umn.edu](mailto:carls234@umn.edu) <[carls234@umn.edu](mailto:carls234@umn.edu)>  
**CC:** Stemmy, Erik (NIH/NIAID) [E] <[erik.stemmy@nih.gov](mailto:erik.stemmy@nih.gov)>

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Please provide an updated OS document for Dr. Baric by COB 05/22/20.

Thank you,

- Caleb

Caleb Waller, MBA [C]  
Grants Management Specialist  
NIH/NIAID/DEA/GMP  
5601 Fisher LN, RM 4G54  
Rockville MD 20852  
Ph: 301-761-6643  
Email: [Caleb.Waller@nih.gov](mailto:Caleb.Waller@nih.gov)

**1. Baric Other Support\_May 2020...docx**

Type: application/vnd.openxmlformats-officedocument.wordprocessingml.document  
Size: 28 KB (29,644 bytes)

## OTHER SUPPORT

BARIC, RALPH S.

Active Total: 11.88 cal months

### ACTIVE

R01 AI110700 (PI: Baric) 04/20/15-03/31/21 1.08 cal mos  
NIH/NIAID \$601,878

#### **Mechanisms of MERS-CoV Entry, Cross-species Transmission and Pathogenesis**

The overall goal is to build a comprehensive understanding of the molecular mechanisms guiding group 2c CoV receptor recognition, entry and pathogenesis.

Foreign component funded by grant: No

*There are no Domestic/Foreign gifts, appointments, lab or office space, scientific materials, affiliations, and/or foreign faculty/scholars/scientists/post-docs for this grant.*

U19AI142759 CETR (PI: Whitley) 03/01/14-02/28/24 1.20 cal mos  
UAB/NIH/NIAID \$375,233

#### **Antiviral Drug Discovery and Development Center (AD3C)**

The specific aims of the proposal will identify small molecule inhibitors of CoV fidelity and RNA capping, define their mechanism of action, and determine their efficacy against SARS-CoV and across CoV families using in vivo mouse models of acute and persistent CoV disease.

Role: Investigator

Foreign component funded by grant: No

*There are no Domestic/Foreign gifts, appointments, lab or office space, scientific materials, affiliations, and/or foreign faculty/scholars/scientists/post-docs for this grant.*

U19-AI100625 (PI: Baric/Heise-MPI) 08/05/12-08/31/22 1.80 cal mos  
NIH/NIAID \$2,160,886

#### **Systems Immunogenetics of Biodefense and Emerging Pathogens in the Collaborative Cross**

Specific Aims: In this proposal, we are utilizing the Collaborative Cross (CC), a novel panel of reproducible, recombinant inbred (RI) mouse lines to identify genes and gene interactions which regulate the induction, kinetics, and magnitude of the innate, inflammatory and adaptive arms of the immune response following virus infection. Specifically, we will develop novel modeling algorithms to predict and validate the causal relationships between natural genetic variation and host signaling networks, immune cell recruitment, and immune function.

Foreign component funded by grant: No

*There are no Domestic/Foreign gifts, appointments, lab or office space, scientific materials, affiliations, and/or foreign faculty/scholars/scientists/post-docs for this grant.*

R01AI108197 (MPI: Denison/Baric) 03/01/18-02/28/23 0.60 cal mos  
Vanderbilt Univ/NIH \$189,141

#### **Determinants of Coronavirus Fidelity in Replication and Pathogenesis**

To identify common and unique determinants of CoV nsp14-ExoN functions CoV replication, fidelity and IFN sensitivity across CoVs; To determine pathways of adaptation to loss of nsp14-ExoN activity in vitro and in vivo; and To define mechanisms of ExoN-regulated CoV sensitivity to the innate antiviral immune response.

Foreign component funded by grant: No

*There are no Domestic/Foreign gifts, appointments, lab or office space, scientific materials, affiliations, and/or foreign faculty/scholars/scientists/post-docs for this grant.*

P01 AI 106695 (PI: Harris) 07/29/15-06/30/20 0.36 cal mos  
UCB/NIH \$186,002

#### **Protective immunity following dengue virus natural infections and vaccination**

We will perform studies to characterize the B-cell/ antibody (responses in people who receive dengue live attenuated virus vaccines (DLAV).

Role: Investigator

Foreign component funded by grant: No

*There are no Domestic/Foreign gifts, appointments, lab or office space, scientific materials, affiliations, and/or foreign faculty/scholars/scientists/post-docs for this grant.*

R01AI107731 (Desilva) 08/05/13-08/31/23 0.72 cal mos  
NIH/NIAID \$416,379

**Molecular Basis of Dengue Virus Neutralization by Human Antibodies**

To determine the origin and properties of these useful cross protective antibodies. We will also study the properties of antibodies that neutralize Zika viruses.

Role: Investigator

Foreign component funded by grant: No

*There are no Domestic/Foreign gifts, appointments, lab or office space, scientific materials, affiliations, and/or foreign faculty/scholars/scientists/post-docs for this grant.*

K24AI141744 (Becker-Dreps) 12/06/18-11/30/23 0.12 cal mos  
NIH/NIAID \$157,100

**The Development of Norovirus Immunity in Early Childhood and Implications for Norovirus Vaccines**

To acquire new research skills and carry out a research plan that will allow guidance of the development of pediatric norovirus vaccines.

Role: Investigator

Foreign component funded by grant: Yes

Foreign investigators: Dr. Samuel Vilchez (Universidad Nacional Autonoma de Nicaragua, Leon)

Dr. Filemon Bucardo (Universidad Nacional Autonoma de Nicaragua, Leon)

In Kind Lab: Universidad Nacional Autonoma de Nicaragua, LeonCenter for Infectious Disease  
Research (CEI) Lab

Technology transfer to foreign site: No

U01 AI149644 (PI: Baric) 04/19/19-03/31/24 1.20 cal mos  
NIH/NIAID \$644,071

**Respiratory Virus Vaccine and Adjuvant Exploration**

This project takes advantage of expertise in adjuvant development, vaccinology, and complex trait genetics, proposes to use advanced Systems Vaccinology and Genetics approaches to define the polymorphic genes/gene networks that regulate the immune response to select respiratory virus adjuvanted immunogens.

Foreign component funded by grant: No

*There are no Domestic/Foreign gifts, appointments, lab or office space, scientific materials, affiliations, and/or foreign faculty/scholars/scientists/post-docs for this grant.*

R01AI089728 (PI: Li) 06/07/16-05/31/20 0.36 cal mos  
Univ Minn/NIH \$120,384

**Receptor recognition and cell entry of coronaviruses**

To investigate how CoVs explore host receptors and host proteases for regulation of their host range, cross-species transmission, tissue tropism, and pathogenesis.

Role: Subcontract PI

Foreign component funded by grant: No

*There are no Domestic/Foreign gifts, appointments, lab or office space, scientific materials, affiliations, and/or foreign faculty/scholars/scientists/post-docs for this grant.*

R01AI127845 (PI: Becker-Dreps) 09/27/16-08/31/21 0.12 cal mos  
NIH \$498,959

**Natural history, immunity, and transmission patterns of sapovirus in a Nicaraguan birth cohort**

To characterize the natural history and risk factors for sapovirus gastroenteritis, elucidate the development of immunity to sapovirus in early childhood and the potential protective effect of maternal immunity, and apply novel genetic and analytic tools to characterize patterns of sapovirus transmission in households and communities.

Role: Investigator

Foreign component funded by grant: Yes



Foreign investigators: Dr. Samuel Vilchez (Universidad Nacional Autonoma de Nicaragua, Leon)  
Dr. Filemon Bucardo (Universidad Nacional Autonoma de Nicaragua, Leon)  
In Kind Lab: Universidad Nacional Autonoma de Nicaragua, LeonCenter for Infectious Disease  
Research (CEI) Lab  
Technology transfer to foreign site: No

R01-AI125198 (PI: DeSilva) 05/04/16-04/30/21 0.60 cal mos  
NIH/NIAID \$755,289

**Preclinical Assays To Predict Tetravalent Dengue Vaccine Efficacy**

Dengue is the most significant mosquito transmitted viral infection of humans. Vaccination is a feasible solution to prevent and control dengue. Although dengue vaccines are under development, we do not know the specific properties of antibodies induced by vaccines that are likely to protect from infection. In this project investigators from the University of North Carolina and Sanofi Pasteur, a leading dengue vaccine developer, will collaborate to define properties of antibodies induced by the Sanofi vaccine that correlate with protection. The main goal of the project is to develop new assays to support the current global effort to develop dengue virus vaccines.

Role: Investigator

Foreign component funded by grant: No

*There are no Domestic/Foreign gifts, appointments, lab or office space, scientific materials, affiliations, and/or foreign faculty/scholars/scientists/post-docs for this grant.*

R01AI132178 (PI: Baric/Sheahan) 08/09/17-07/31/22 0.60 cal mos  
NIH \$919,427

**Broad-spectrum antiviral GS-5734 to treat MERS-CoV and related emerging CoV**

To focus on two areas: novel second generation compounds or compounds not previously provided by Gilead Sciences; and selecting and evaluating drug resistance profiles for SARS-CoV and MERS-CoV mutants in primary human lung cells.

Foreign component funded by grant: No

*There are no Domestic/Foreign gifts, appointments, lab or office space, scientific materials, affiliations, and/or foreign faculty/scholars/scientists/post-docs for this grant.*

D43 TW010923 (PI: Becker-Dreps/Meshnick) 05/10/18-02/28/23 0.24 cal mos.  
NIH \$230,000

**Nicaraguan Emerging and Endemic Diseases (NEED)**

The goals of this program are to 1) train young Nicaraguan scientists in Infectious Disease Epidemiology at the UNC, 2) create a sustainable supply of scientists in the region by establishing an accredited PhD program in Biomedical Sciences at the Universidad Nacional Autonoma de Nicaragua Leon and 3) foster professional growth and development among trainees and local faculty to ensure academic and research success.

Role: Investigator

Foreign component funded by grant: Yes

Foreign investigators: Dr. Samuel Vilchez (Universidad Nacional Autonoma de Nicaragua, Leon)

Dr. Filemon Bucardo (Universidad Nacional Autonoma de Nicaragua, Leon)

In Kind Lab: Universidad Nacional Autonoma de Nicaragua, LeonCenter for Infectious Disease  
Research (CEI) Lab

Technology transfer to foreign site: Training in epidemiologic research methods, basic molecular and immunological laboratory methods

U01 AI141997 (PI: Kirkpatrick) 02/01/19-01/31/24 0.24 cal mos  
Univ Vermont/NIH \$64,128

**Mechanisms of Protection and Durability for a Live Attenuated Tetravalent Dengue Vaccine**

Tetravalent dengue vaccination must offer safe and durable protection against all four serotypes of dengue viruses. We leverage four vaccine trials and viral challenges evaluating the NIH dengue vaccine to explore and confirm immune mechanisms associated with protection.

Role: Investigator

Foreign component funded by grant: No

*There are no Domestic/Foreign gifts, appointments, lab or office space, scientific materials, affiliations, and/or foreign faculty/scholars/scientists/post-docs for this grant.*

R21 AI137887 (MPI: Moorman/Heise) 02/05/18-01/31/21 0.12 cal mos  
NIH/NIAID \$125,000

**Molecular Characterization of Functional RNA Structures in the ZikV genome**

Zika virus is an emerging pathogen that is associated with severe congenital neurologic defects, such as microcephaly. The proposed studies will identify new viral virulence determinants that can be targeted to generate safer and more effective Zika virus vaccines and therapeutics. Role: Investigator

Foreign component funded by grant: No

*There are no Domestic/Foreign gifts, appointments, lab or office space, scientific materials, affiliations, and/or foreign faculty/scholars/scientists/post-docs for this grant.*

HHSN272201700036I (PI: Baric) 07/15/19-07/14/24 0.60 cal mos  
NIH/NIAID \$442,129

**Task Order A24 - Establishment of Chronic Bacterial Infection Models in Mouse Models of Cystic Fibrosis with Pseudomonas aeruginosa and Staphylococcus aureus**

To test and refine currently available mouse models of cystic fibrosis (CF) chronic lung infections. Key determinants for this refinement include the ability to screen existing clinical isolate collections (both P. aeruginosa and S. aureus) to identify bacterial strains with increased likelihood of establishing chronic lung infections in wild-type (WT) mice using an established protocol for embedding bacteria in agar beads and the availability of Cftr-deficient mice to test the outcome of chronic infection with novel bacterial strains.

Foreign component funded by grant: No

*There are no Domestic/Foreign gifts, appointments, lab or office space, scientific materials, affiliations, and/or foreign faculty/scholars/scientists/post-docs for this grant.*

HHSN272201700036I (PI: Baric) 09/15/19-03/14/21 0.60 cal mos  
NIH/NIAID \$271,640

**Task Order A36 - Efficacy of Coronavirus Vaccines and Monoclonal Antibodies in Mouse Models**

To use our novel panel of recombinant virus challenge strains to assess the efficacy of candidate vaccine and therapeutic monoclonal antibodies in murine coronavirus challenge models and to understand the immunological mechanisms and correlates of protection.

Foreign component funded by grant: No

*There are no Domestic/Foreign gifts, appointments, lab or office space, scientific materials, affiliations, and/or foreign faculty/scholars/scientists/post-docs for this grant.*

R21AI151231 (PI: Koller) 03/03/20-02/28/22 0.12 cal mos  
NIH/NIAID \$150,000

**Genetically humanized mice for modeling human Fc-receptor interaction during influenza infection**

The goal of this proposal is to develop and refine tools for the study of human antibody receptor interactions in vivo. Role: Investigator

Foreign component funded by grant: No

*There are no Domestic/Foreign gifts, appointments, lab or office space, scientific materials, affiliations, and/or foreign faculty/scholars/scientists/post-docs for this grant.*

R01AI148260 (PI: Baric) 03/05/20-02/28/25 1.2 cal mos  
NIH/NIAID \$622,759

**Antibody Landscape following Human Norovirus Infection and Vaccination**

These studies will reveal important new insights into the virus epitopes that elicit type specific and broadly neutralizing antibody (bnAB), reveal mechanisms of cross protection, antibody neutralization and escape, and provide an atomic level understanding of HuNoV neutralization and pandemic strain emergence mechanisms, leading to improved 2<sup>nd</sup> generation vaccines for in vivo testing.

Foreign component funded by grant: No

*There are no Domestic/Foreign gifts, appointments, lab or office space, scientific materials, affiliations, and/or foreign faculty/scholars/scientists/post-docs for this grant.*

**PENDING:**

**U19AI116484** (PI: Kuo and Amieva) 03/01/20-02/28/21 0.12 cal mos  
Stanford Univ/NIH \$150,000

**Human lung and intestinal organoid models of SARS-CoV-2 infection– Admin Supplement**

This project will contribute a new and unique tool to prevent SARS-CoV2 infection that has an established clinical translation pathway and can be used as a standalone vaccine or in combination with other vaccines or therapies. Role: Subcontract PI

*Foreign component funded by grant: No*

*There are no Domestic/Foreign gifts, appointments, lab or office space, scientific materials, affiliations, and/or foreign faculty/scholars/scientists/post-docs for this grant.*

**P01AI129859** (PI: Permar) 07/01/20-06/30/22 0.12 cal mos  
Duke Univ/NIH \$78,243

**Immunologic and virologic determinants of congenital Cytomegalovirus transmission and disease in rhesus monkeys – Admin Supplement**

This project will contribute a new and unique tool to prevent SARS-CoV2 infection that has an established clinical translation pathway and can be used as a standalone vaccine or in combination with other vaccines or therapies. Role: Subcontract PI

*Foreign component funded by grant: No*

*There are no Domestic/Foreign gifts, appointments, lab or office space, scientific materials, affiliations, and/or foreign faculty/scholars/scientists/post-docs for this grant.*

**R01** (PI: Heise and Baric) 12/01/20-11/30/25 0.60 cal mos  
NIH \$499,242

**Genetic Analysis of COVID-19 Susceptibility and Resistance Determinants in the Collaborative Cross**

This work will accomplish two critical research objectives by: 1) developing critically needed mouse models of nCoV2-induced disease, and 2) identifying polymorphic host genes/pathways that regulate resistance or susceptibility to nCoV2-disease.

*Foreign component funded by grant: No*

*There are no Domestic/Foreign gifts, appointments, lab or office space, scientific materials, affiliations, and/or foreign faculty/scholars/scientists/post-docs for this grant.*

**OVERLAP:** None

**Re: Grant Number: 5R01AI089728 - 10 --Revised Other Support for Dr. Baric  
Needed by tomorrow 5/21**

---

From: Lesley Schmidt Sindberg <[schm1421@umn.edu](mailto:schm1421@umn.edu)>  
To: Baric, Toni C <[antoinette\\_baric@med.unc.edu](mailto:antoinette_baric@med.unc.edu)>  
Cc: Baric, Ralph S <[rbaric@email.unc.edu](mailto:rbaric@email.unc.edu)>, Fang Li <[lifang@umn.edu](mailto:lifang@umn.edu)>  
Sent: May 22, 2020 12:14:41 PM CDT  
Received: May 22, 2020 12:14:54 PM CDT

Thank you!

-Lesley

On Fri, May 22, 2020 at 11:40 AM Baric, Toni C <[antoinette\\_baric@med.unc.edu](mailto:antoinette_baric@med.unc.edu)> wrote:

Hi Lesley,

Attached is a revised OS.

Toni

---

**From:** Lesley Schmidt Sindberg <[schm1421@umn.edu](mailto:schm1421@umn.edu)>  
**Sent:** Thursday, May 21, 2020 4:32 PM  
**To:** Baric, Ralph S <[rbaric@email.unc.edu](mailto:rbaric@email.unc.edu)>; Baric, Toni C <[antoinette\\_baric@med.unc.edu](mailto:antoinette_baric@med.unc.edu)>  
**Cc:** Fang Li <[lifang@umn.edu](mailto:lifang@umn.edu)>  
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Lesley

Lesley Schmidt Sindberg, MPH  
Administrative Director | [Department of Veterinary & Biomedical Sciences](#)  
College of Veterinary Medicine | University of Minnesota  
[schm1421@umn.edu](mailto:schm1421@umn.edu) | 612-301-1234 | [REDACTED]

Preparing a research proposal? Please submit an [Intent to Submit](#) form.

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**Subject:** Grant Number: 5R01AI089728 - 10 PI Name: Li, Fang

**Date:** Thu, 21 May 2020 19:09:50 +0000

**From:** Waller, Caleb (NIH/NIAID) [C] <[caleb.waller@nih.gov](mailto:caleb.waller@nih.gov)>

**To:** [lifang@umn.edu](mailto:lifang@umn.edu) <[lifang@umn.edu](mailto:lifang@umn.edu)>, [carls234@umn.edu](mailto:carls234@umn.edu) <[carls234@umn.edu](mailto:carls234@umn.edu)>

**CC:** Stemmy, Erik (NIH/NIAID) [E] <[erik.stemmy@nih.gov](mailto:erik.stemmy@nih.gov)>

Good Afternoon,

Thank you for your RPPR submitted for Grant 5R01AI089728 - 10.

The Other Support document submitted for Dr. Baric totals greater than 12CM as Grant R01 AI148260 was awarded and is no longer counted as pending.

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Thank you,

- Caleb

Caleb Waller, MBA [C]

Grants Management Specialist

NIH/NIAID/DEA/GMP

5601 Fisher LN, RM 4G54

Rockville MD 20852

Ph: 301-761-6643

Email: [Caleb.Waller@nih.gov](mailto:Caleb.Waller@nih.gov)

## Re: SARS-CoV-2 challenge experiments in mice

---

From: Fang Li <lifang@umn.edu>  
To: Baric, Ralph S <rbaric@email.unc.edu>  
Sent: May 24, 2020 3:38:49 PM CDT



Hi Ralph,

While the two universities are working on the agreement, we can keep planning for the experiments. We also have a VLP vaccine almost ready for animal testing. Do you have the capacity to test for both drugs and vaccines?

By the way, human ACE2 transgenic mice may work better than the wild type mice. But if the number of transgenic mice is a limiting factor, wild type mice should also work (since the mutant virus only contains one mutation in the RBD).

Best,  
Fang

On Wed, May 20, 2020 at 4:28 PM Baric, Ralph S <[rbaric@email.unc.edu](mailto:rbaric@email.unc.edu)> wrote:

Hi Fang, I have attached Kelly's email address who can help with this discussion. Hope your doing well.  
Thanks, ralph

---

**From:** Fang Li <[lifang@umn.edu](mailto:lifang@umn.edu)>  
**Sent:** Wednesday, May 20, 2020 5:11 PM  
**To:** Baric, Ralph S <[rbaric@email.unc.edu](mailto:rbaric@email.unc.edu)>  
**Subject:** Re: SARS-CoV-2 challenge experiments in mice

Hi Ralph,

Thanks for the information. My University's patent office would like to get in touch with your University's patent office. Do you know the contact information of your University's patent office?

Best,  
Fang

On Sun, May 17, 2020 at 12:21 PM Baric, Ralph S <[rbaric@email.unc.edu](mailto:rbaric@email.unc.edu)> wrote:

Hi Fang, [REDACTED] so this shouldn't be a concern? YES?NO If so, likely need to use ACE2 transgenic mouse model. You could send us the drug and we can test using live recombinant [REDACTED], give you an idea of breadth and potency against future high risk strains.

Patent office: I assume IP sharing. I leave it to you as the innovation and design are most of it and completely yours. I'd estimate 20% or less, but be glad to hear your thoughts on this. Hope you are doing well.

Ralph

**From:** Fang Li <[lifang@umn.edu](mailto:lifang@umn.edu)>  
**Sent:** Saturday, May 16, 2020 10:41 PM  
**To:** Baric, Ralph S <[rbaric@email.unc.edu](mailto:rbaric@email.unc.edu)>  
**Subject:** Re: SARS-CoV-2 challenge experiments in mice

Hi Ralph,

Thanks for your response. Do you work on human ACE2 transgenic mice right now? Is it a lethal model for SARS-CoV-2?

My University's patent office is filing a patent on the drug candidate. Before I commit to animal testing with you (or with others), the patent office would like to know whether the animal testing will be fee-for-service, or whether it involves IP sharing. If it is the latter, they'd like to know the estimated percentage of the contribution from animal testing in the drug development process (prior to clinical trials). Please let me know.

Thanks,

Fang

On Thu, May 14, 2020 at 1:15 PM Baric, Ralph S <[rbaric@email.unc.edu](mailto:rbaric@email.unc.edu)> wrote:

Fang, 3 weeks from today—plus or minus a few days while I try to find someone to run the experiment. Ralph

**From:** Fang Li <[lifang@umn.edu](mailto:lifang@umn.edu)>  
**Sent:** Thursday, May 14, 2020 2:10 PM  
**To:** Baric, Ralph S <[rbaric@email.unc.edu](mailto:rbaric@email.unc.edu)>  
**Subject:** Re: SARS-CoV-2 challenge experiments in mice

Is it another 2-3 weeks on top of the 3 weeks?

I am contacting multiple places for the testing, and so a good estimate of timeline would be very helpful.

Thanks,

Fang

On Thu, May 14, 2020 at 1:06 PM Baric, Ralph S <[rbaric@email.unc.edu](mailto:rbaric@email.unc.edu)> wrote:

2-3 weeks.

**From:** Fang Li <[lifang@umn.edu](mailto:lifang@umn.edu)>  
**Sent:** Thursday, May 14, 2020 1:51 PM  
**To:** Baric, Ralph S <[rbaric@email.unc.edu](mailto:rbaric@email.unc.edu)>  
**Subject:** Re: SARS-CoV-2 challenge experiments in mice

There must be a long waiting list of things for you to test after your mouse model is ready? What is your estimated timeline for testing our drug?

Thanks,

Fang

On Thu, May 14, 2020 at 12:49 PM Baric, Ralph S <[rbaric@email.unc.edu](mailto:rbaric@email.unc.edu)> wrote:

Mouse model is ready, we are doing experiments to finish the description, then we are better positioned to test in vivo. ralph

**From:** Fang Li <[lifang@umn.edu](mailto:lifang@umn.edu)>  
**Sent:** Thursday, May 14, 2020 1:42 PM  
**To:** Baric, Ralph S <[rbaric@email.unc.edu](mailto:rbaric@email.unc.edu)>  
**Subject:** Re: SARS-CoV-2 challenge experiments in mice

Hi Ralph,

It binds to the [REDACTED].

So your mouse model will be ready in 3 weeks, or your staff will be available to test our drug in 3 weeks?



Thanks,

Fang

On Thu, May 14, 2020 at 11:58 AM Baric, Ralph S <[rbaric@email.unc.edu](mailto:rbaric@email.unc.edu)> wrote:

Hi Fang, ~3 weeks. Does it work in [REDACTED]? What does it target? ralph

**From:** Fang Li <[lifang@umn.edu](mailto:lifang@umn.edu)>  
**Sent:** Thursday, May 14, 2020 12:33 PM  
**To:** Baric, Ralph S <[rbaric@email.unc.edu](mailto:rbaric@email.unc.edu)>  
**Subject:** Re: SARS-CoV-2 challenge experiments in mice

Hi Ralph,

Thanks for the information. How soon do you think your model will be ready for testing? We have a nanobody drug that looks promising biochemically. And we are very eager to test it in animal challenge experiments.

Best,

Fang

On Thu, May 14, 2020 at 11:22 AM Baric, Ralph S <[rbaric@email.unc.edu](mailto:rbaric@email.unc.edu)> wrote:

Hi Fang, Yes, we have a lethal challenge model, but are working out details to get it out fast. In the future, yes. What is the drug? ralph

**From:** Fang Li <[lifang@umn.edu](mailto:lifang@umn.edu)>  
**Sent:** Thursday, May 14, 2020 10:02 AM  
**To:** Baric, Ralph S <[rbaric@email.unc.edu](mailto:rbaric@email.unc.edu)>  
**Subject:** Re: SARS-CoV-2 challenge experiments in mice

Hi Ralph,

Is your lab ready for mice challenge experiments? I have a drug candidate that looks promising. I wonder whether you have the capacity to help us test it in mice.

Thanks,

Fang

On Sun, Apr 19, 2020 at 5:34 PM Baric, Ralph S <[rbaric@email.unc.edu](mailto:rbaric@email.unc.edu)> wrote:

Crazy times, sorry we missed talking yesterday. Good in about 3-4 weeks when we have fully characterized our ma virus. ralph

**From:** Fang Li <[lifang@umn.edu](mailto:lifang@umn.edu)>  
**Sent:** Saturday, April 18, 2020 5:14 PM  
**To:** Baric, Ralph S <[rbaric@email.unc.edu](mailto:rbaric@email.unc.edu)>  
**Subject:** SARS-CoV-2 challenge experiments in mice

Hi Ralph,

I guess we are both too busy to talk on the phone (understanbly!). Anyway, I have some vaccine and drug candidates now. I am looking for collaborators to test them out in animals. What is your lab's current capacity to do SARS-CoV-2 challenge experiments in mice?

Thanks,

Fang

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\*\*\*\*\*  
Fang Li, Ph.D.  
Associate Professor  
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University of Minnesota Twin Cities  
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<http://www.msi.umn.edu/~lifang>  
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<http://www.msi.umn.edu/~lifang>  
\*\*\*\*\*

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## immunized mice ready for challenge experiment

---

From: Fang Li <lifang@umn.edu>  
To: Ralph Baric <rbaric@email.unc.edu>  
Sent: May 26, 2020 10:25:42 PM CDT

Hi Ralph,

We now have B6 mice close to 40 days post immunization. Strong neutralization antibody responses have been detected. Is it ok if we send the mice to you for virus challenge experiment? If this is doable, we can ship the mice to you immediately. Please let me know at your earliest convenience.

Thanks,  
Fang

--

\*\*\*\*\*

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612-625-6149, [lifang@umn.edu](mailto:lifang@umn.edu)  
<http://www.msi.umn.edu/~lifang>

\*\*\*\*\*

## **vaccine and drug projects**

---

From: Fang Li <lifang@umn.edu>  
To: Ralph Baric <rbaric@email.unc.edu>  
Sent: May 27, 2020 6:11:41 PM CDT

Hi Ralph,

Thanks for agreeing to help us with our vaccine and drug projects. I appreciate it.

With regard to the vaccine project, we would like to immunize BALB/c mice from the beginning and send the immunized BALB/c mice to you. Could you send us the contact info of UNC's animal facilities?

Also, we can send you the drug for testing first. Please let me know when would be a good time for us to ship the drug to you and also your contact info for shipping.

Best,  
Fang

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\*\*\*\*\*

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University of Minnesota  
612-625-6149, [lifang@umn.edu](mailto:lifang@umn.edu)  
<http://www.msi.umn.edu/~lifang>

\*\*\*\*\*

## protein shipping

---

From: Fang Li <lifang@umn.edu>  
To: Ralph Baric <rbaric@email.unc.edu>, gang ye <yegang1130@gmail.com>  
Sent: June 4, 2020 7:12:03 PM CDT

Dear Ralph,

It is too late to ship the protein today. We will have to send the protein to you on Monday, and you will receive it on Tuesday. Should we use the following shipping address?

Lisa Lindesmith

University of North Carolina

3109 MHRC

135 Dauer Dr.

Chapel Hill, NC 27599

Ph: 919-966-4689

Thanks,

Fang

--

\*\*\*\*\*

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University of Minnesota  
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<http://www.msi.umn.edu/~lifang>

\*\*\*\*\*

## drug testing in mice

---

From: Fang Li <lifang@umn.edu>  
To: Ralph Baric <rbaric@email.unc.edu>  
Sent: June 7, 2020 9:50:21 PM CDT

Hi Ralph,

We will ship the protein to you tomorrow. Could you let me know who in your lab will do the cell and animal experiments for us and also connect us to that person? We would like to discuss with him/her the experimental approaches so that we can decide how much protein we will send to you tomorrow.

Thanks!

Fang

--

\*\*\*\*\*

Fang Li, Ph.D.

Professor

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University of Minnesota

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<http://www.msi.umn.edu/~lifang>

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## Re: drug testing in mice

---

From: Fang Li <lifang@umn.edu>  
To: Ralph Baric <rbaric@email.unc.edu>  
Sent: June 14, 2020 9:11:57 PM CDT

Hi Ralph,

My student said that your lab already received the protein on Tuesday. Has the cell culture experiment been scheduled? When?

Thanks,  
Fang

On Sun, Jun 7, 2020 at 9:50 PM Fang Li <[lifang@umn.edu](mailto:lifang@umn.edu)> wrote:  
Hi Ralph,

We will ship the protein to you tomorrow. Could you let me know who in your lab will do the cell and animal experiments for us and also connect us to that person? We would like to discuss with him/her the experimental approaches so that we can decide how much protein we will send to you tomorrow.

Thanks!  
Fang

--

\*\*\*\*\*

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\*\*\*\*\*



## Figure 7 legend in Molecular Mechanism for Antibody-Dependent Enhancement of Coronavirus Entry

---

From: Oscar Conchillo-Solé <Oscar.Conchillo@uab.cat>  
To: LDu@nybc.org, lifang@umn.edu  
Sent: June 15, 2020 4:31:11 AM CDT  
Received: June 15, 2020 4:31:21 AM CDT

Dear professors Du and Li.

First of all I would like to congratulate you for your article titled "Molecular Mechanism for Antibody-Dependent Enhancement of Coronavirus Entry" published in Journal of Virology It's one of the best I read recently. I truly believe it is a great job and one of the most important published papers regarding the Protein S.

However I'm puzzled for something that maybe I misunderstood.

In the Figure 7A legend this text can be read:

SARS-CoV S-e complexed with S230 MAb (PDB code 6NB7). The antibody binds to the side of the RBD, away from the viral-receptor-binding site, stabilizes the RBD in the lying-down state, and hence does not trigger conformational changes of SARS-CoV S-e.

Regarding this, in the discussion section it is written:

newly published study demonstrated that a SARS-CoV RBD-specific MAb (named S230) bound to the ACE2-binding region in SARS-CoV RBD, stabilized the RBD in the standing-up position, and triggered conformational changes of SARS-CoV spike (Fig. 7A)

I read it several times and it looks to me that the opposite is stated in the Figure Legend (lying-down state) than in the body of the discussion (standing-up position).

This is also happening for the other part of the Figure. In the Figure 7B legend:

MERS-CoV S-e complexed with LCA60 MAb (PDB code 6NB4). The antibody binds to the viral-receptor-binding site in the RBD, stabilizes the RBD in the **standing-up state**, and hence triggers conformational changes of MERS-CoV S-e.

Discussion section:

In contrast, a MERS-CoV RBD-specific MAb (named LCA60) bound to the side of MERS-CoV RBD, away from the DPP4-binding region, stabilized the RBD in the **lying-down position**, and did not trigger conformational changes of MERS-CoV spike (Fig. 7B).

To me It seems that the same is happening. The figure legend states the opposite that is being said in the body of the discussion section.

This is why I would like to ask you if I am misunderstanding something in the figure legend or there has been some kind of confusion when generating the figure 7 legend which has brought some kind of misplacement of the figure elements.

Again, I would like to congratulate for your fantastic job and thank you in advance for your answer.

Looking forward to hearing from you.

Oscar Conchillo Solé

--  
Oscar Conchillo Solé  
Computational Biology Group  
Data Center Manager, Sysadmin and Bioinformatics  
Institut de Biotecnologia i Biomedicina (UAB)  
mail: [ocs@bioinf.uab.es](mailto:ocs@bioinf.uab.es)

telf:0034 93586 8939; 0034 93581 4431

## Re: Animal testing agreement

---

From: Fang Li <lifang@umn.edu>  
To: Ralph Baric <rbaric@email.unc.edu>  
Sent: June 15, 2020 4:29:17 PM CDT

Hi Ralph,

I called multiple times today but you seemed to be unavailable for the whole day.

I am sorry that an agreement cannot be reached between the two universities. Since the project is extremely time sensitive, I must look at other options for animal testing. Could you ship the protein back to us? I will ask my student to provide our FedEx account and shipping address.

Regarding the vaccine project, I am still hopeful that there will be enough time for the two universities to reach an agreement.

Thanks,  
Fang

On Mon, Jun 15, 2020 at 11:14 AM Fang Li <[lifang@umn.edu](mailto:lifang@umn.edu)> wrote:  
Hi Ralph,

It appears that the two Universities are having difficulty reaching an agreement on animal testing conditions. Please do not start any experiments in case that complicates the agreement. I'll call again today to discuss how to proceed from here.

Thanks.  
Fang

--

\*\*\*\*\*  
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\*\*\*\*\*

## Re: shipping protein back to Minnesota

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From: [REDACTED]  
To: Fang Li <lifang@umn.edu>  
Cc: Lindesmith, Lisa C <lisal@unc.edu>, Ralph Baric <rbaric@email.unc.edu>  
Sent: June 15, 2020 4:46:43 PM CDT  
Received: June 15, 2020 4:46:56 PM CDT

Hi Lisa

Our FedEx accounts: [REDACTED]

shipping address:

[REDACTED]  
1988 Fitch Ave, Room [REDACTED] AS/VM building,  
Saint Paul, MN, 55108

Thanks  
[REDACTED]

On Mon, Jun 15, 2020 at 4:36 PM Fang Li <[lifang@umn.edu](mailto:lifang@umn.edu)> wrote:

Hi [REDACTED]

Could you please give our FedEx account and shipping address to Lisa?

Hi Lisa,

My student [REDACTED] said that you received the protein from him last Tuesday. Could you ship it back to us? Room temperature shipping should be fine.

Thanks,  
Fang

--

\*\*\*\*\*  
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University of Minnesota  
612-625-6149, [lifang@umn.edu](mailto:lifang@umn.edu)  
<http://www.msi.umn.edu/~lifang>  
\*\*\*\*\*

## RE: Animal testing agreement

---

From: Baric, Ralph S <rbaric@email.unc.edu>  
To: Fang Li <lifang@umn.edu>  
Sent: June 15, 2020 5:59:22 PM CDT  
Received: June 15, 2020 5:59:29 PM CDT

Hi Fang, I called back around 3, then got caught up with grandkids. Sorry it didn't work out. We will send the protein back. Ralph

---

**From:** Fang Li <lifang@umn.edu>  
**Sent:** Monday, June 15, 2020 5:29 PM  
**To:** Baric, Ralph S <rbaric@email.unc.edu>  
**Subject:** Re: Animal testing agreement

Hi Ralph,

I called multiple times today but you seemed to be unavailable for the whole day.

I am sorry that an agreement cannot be reached between the two universities. Since the project is extremely time sensitive, I must look at other options for animal testing. Could you ship the protein back to us? I will ask my student to provide our FedEx account and shipping address.

Regarding the vaccine project, I am still hopeful that there will be enough time for the two universities to reach an agreement.

Thanks,  
Fang

On Mon, Jun 15, 2020 at 11:14 AM Fang Li <[lifang@umn.edu](mailto:lifang@umn.edu)> wrote:

Hi Ralph,

It appears that the two Universities are having difficulty reaching an agreement on animal testing conditions. Please do not start any experiments in case that complicates the agreement. I'll call again today to discuss how to proceed from here.

Thanks.  
Fang

--

\*\*\*\*\*

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Department of Veterinary and Biomedical Sciences

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612-625-6149, [lifang@umn.edu](mailto:lifang@umn.edu)

<http://www.msi.umn.edu/~lifang>

\*\*\*\*\*

## Re: shipping protein back to Minnesota

---

From: [REDACTED]  
To: Lindesmith, Lisa C <lisal@unc.edu>  
Cc: Fang Li <lifang@umn.edu>, Baric, Ralph S <rbaric@email.unc.edu>  
Sent: June 18, 2020 8:58:05 AM CDT  
Received: June 18, 2020 8:58:16 AM CDT

Hi Lisa

I have received the protein you send back.  
Thanks

[REDACTED]

On Tue, Jun 16, 2020 at 8:32 AM Lindesmith, Lisa C <[lisal@unc.edu](mailto:lisal@unc.edu)> wrote:

Lindesmith, Lisa C ([lisal@unc.edu](mailto:lisal@unc.edu)) has sent you a protected message.



[Read the message](#)

[Learn about messages protected by Office 365 Message Encryption.](#)

[Privacy Statement](#)

Email encryption powered by Office 365. [Learn More](#)  
Microsoft Corporation, One Microsoft Way, Redmond, WA 98052

## Re: JIT Request for Grant R01AI157975

---

From: Lesley Schmidt Sindberg <schm1421@umn.edu>  
To: Ng, Crystal <CNg@nybc.org>  
Cc: lifang@umn.edu, Han, Jeffrey <KHan@nybc.org>, Mathis, Kenneth <KMathis@nybc.org>, Ross, Deborah <DRoss2@nybc.org>, Du, Lanying <LDu@nybc.org>, Anne Mockovak <a-mock@umn.edu>  
Sent: June 29, 2020 5:53:23 PM CDT  
Received: June 29, 2020 5:53:37 PM CDT

Here is our current [F&A agreement](#). We will send the other support documents later this week.

-Lesley

On Mon, Jun 29, 2020 at 4:41 PM Ng, Crystal <CNg@nybc.org> wrote:

Good evening Lesley,

We're currently gathering documents for JIT for grant R01AI157975, titled, "Novel nanobodies to prevent and treat SARS-CoV-2 and other pathogenic human coronaviruses." Please submit the following documents by **Thursday, July 2<sup>nd</sup>**:

- Other Support Documents for all Senior Key Personnel
  - Dr. Fang Li
  - Dr. Aaron LeBeau
- F&A Agreement

Please let me know if you have any further questions

Thank you

Best,

Crystal Ng

Financial Grants Analyst | New York Blood Center

Phone: 212.570.3150

Website: [www.nybloodcenter.org](http://www.nybloodcenter.org)



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## Re: nih grant impact score

---

From: Fang Li <lifang@umn.edu>  
To: Baric, Ralph S <rbaric@email.unc.edu>  
Sent: June 29, 2020 9:57:57 PM CDT

Hi Ralph,

Thanks for the great news! Congratulations to you as well.

Best,  
Fang

On Mon, Jun 29, 2020 at 7:25 PM Baric, Ralph S <[rbaric@email.unc.edu](mailto:rbaric@email.unc.edu)> wrote:

Hi Fang, Hope you are well. The NIH grant got a 5% impact score. Congrats on a job nicely done and I look forward to working together for another 5 years. Ralph

---

**From:** Fang Li <[lifang@umn.edu](mailto:lifang@umn.edu)>  
**Sent:** Monday, June 15, 2020 5:36 PM  
**To:** Lindesmith, Lisa C <[lisal@unc.edu](mailto:lisal@unc.edu)>; Baric, Ralph S <[rbaric@email.unc.edu](mailto:rbaric@email.unc.edu)>; [REDACTED]  
**Subject:** shipping protein back to Minnesota

Hi [REDACTED]

Could you please give our FedEx account and shipping address to Lisa?

Hi Lisa,

My student [REDACTED] said that you received the protein from him last Tuesday. Could you ship it back to us? Room temperature shipping should be fine.

Thanks,

Fang

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\*\*\*\*\*

## Re: JIT Request for Grant R01AI157975

---

From: Lesley Schmidt Sindberg <schm1421@umn.edu>  
To: Ng, Crystal <CNg@nybc.org>  
Cc: lifang@umn.edu, Han, Jeffrey <KHan@nybc.org>, Mathis, Kenneth <KMathis@nybc.org>, Ross, Deborah <DRoss2@nybc.org>, Du, Lanying <LDu@nybc.org>, Anne Mockovak <a-mock@umn.edu>  
Sent: June 30, 2020 4:02:00 PM CDT  
Received: June 30, 2020 4:02:18 PM CDT  
Attachments: Fang Li\_Other Support 6-30-2020.docx, LeBeau\_Other Support\_6-30-20.docx  
Hi Crystal,

Please see attached for the Other Support documents for Drs. Li and LeBeau.

Thanks,  
Lesley

Lesley Schmidt Sindberg, MPH  
Administrative Director | [Department of Veterinary & Biomedical Sciences](#)  
College of Veterinary Medicine | University of Minnesota  
[schm1421@umn.edu](mailto:schm1421@umn.edu) | [REDACTED]

Preparing a research proposal? Please submit an [Intent to Submit](#) form.

On Mon, Jun 29, 2020 at 5:53 PM Lesley Schmidt Sindberg <[schm1421@umn.edu](mailto:schm1421@umn.edu)> wrote:  
Here is our current [F&A agreement](#). We will send the other support documents later this week.

-Lesley

On Mon, Jun 29, 2020 at 4:41 PM Ng, Crystal <[CNg@nybc.org](mailto:CNg@nybc.org)> wrote:

Good evening Lesley,

We're currently gathering documents for JIT for grant R01AI157975, titled, "Novel nanobodies to prevent and treat SARS-CoV-2 and other pathogenic human coronaviruses." Please submit the following documents by **Thursday, July 2<sup>nd</sup>**:

- Other Support Documents for all Senior Key Personnel
  - Dr. Fang Li
  - Dr. Aaron LeBeau
- F&A Agreement

Please let me know if you have any further questions

Thank you

Best,

Crystal Ng

Financial Grants Analyst | New York Blood Center

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**1. Fang Li\_Other Support 6-30-2020.docx**

Type: application/vnd.openxmlformats-officedocument.wordprocessingml.document  
Size: 17 KB (17,523 bytes)

**2. LeBeau\_Other Support\_6-30-20.docx**

Type: application/vnd.openxmlformats-officedocument.wordprocessingml.document  
Size: 30 KB (30,747 bytes)

## Fang Li Other Support

### Active

**Overlap: There is no scientific overlap among the following grants.**

National Institutes of Health 06/7/2016 – 05/31/2021  
2R01AI089728 \$2,285,084  
Role: Principal Investigator 3.0 calendar months

#### **Receptor Recognition and Cell Entry of Coronaviruses**

Goal: This research investigates the molecular and structural mechanisms for the receptor recognition and cell entry of coronaviruses. It explores novel principles governing viral evolution, receptor recognition, cell entry, host ranges, cross-species infections, and tissue tropisms. These studies are critical for evaluating the emerging disease potentials of coronaviruses and for preventing, controlling and treating the spread of coronaviruses in humans or other animals.

National Institutes of Health 05/21/2018 – 04/30/2023  
R01AI139092 \$923,000  
Role: Co-Investigator (PI: Lanying Du, New York Blood Center) 1.2 calendar months

#### **Structure-based design of coronavirus subunit vaccines**

Goal: This research establishes that artificially exposed unfavorable epitopes on viral subunit vaccines pose a severe intrinsic limitation to viral subunit vaccine designs. It further develops novel structure-based approaches to overcome this limitation in vaccine design. It produces highly effective subunit vaccines to combat the infections of highly pathogenic coronaviruses such as MERS and SARS coronaviruses, and also has implications for subunit vaccine design against other life-threatening viruses.  
10% effort for Fang Li

National Institutes of Health 01/01/2020 – 12/31/2024  
R01CA245922 \$110,880 (\$554,400-total)  
Role: Co-Investigator (PI: Aaron LeBeau, University of Minnesota) 0.9 calendar months

#### **Cyclic Peptide Protease Inhibitors for the Treatment of Prostate Cancer**

Goal: This research is to develop clinically relevant therapeutics by targeting a cell surface protease overexpressed in aggressive variant prostate carcinoma. This approach has significant clinical potential to result in an effective treatment modality for a form of prostate cancer that is currently incurable.

University of Minnesota 10/01/2019-9/30/2022  
Academic Investment Research Program \$125,000  
Role: Co-Investigator (PI: Alon Herschhorn, University of Minnesota) 0.2 calendar months

#### **Bioengineering conformation-stabilized HIV-1 Env immunogens**

Goal: This research builds a new collaborative platform for the development of a conformation-defined HIV Envelope protein vaccine.

### Pending

National Institutes of Health 12/01/2020 – 11/30/2025  
**Cell entry, cross-species transmission and pathogenesis of novel coronavirus from Wuhan**  
Role: Co-Investigator (PI: Ralph Baric, University of North Carolina)  
2.4 calendar months  
\$1,897,327 (Li subaward)

National Institutes of Health 9/01/2020 – 8/31/2025

**Novel nanobodies to prevent and treat SARS-CoV-2 and other pathogenic human coronaviruses**

Role: Co-Investigator (PI: Lanying Du, New York Blood Center)

.72 calendar months

\$ 1,424,340 (Li subaward)



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**For New and Renewal Applications (PHS 398) – DO NOT SUBMIT UNLESS REQUESTED**

**PHS 398 OTHER SUPPORT**

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**LEBEAU, AARON M.**

ACTIVE

**18CHAL12** LeBeau/Moriarity (MPI) 12/31/2018 – 12/31/2020 1.2 cal.  
Prostate Cancer Foundation (Challenge Award)

*CD133-Targeted Natural Killer Cell Therapy for Aggressive Variant Prostate Cancer*

The purpose of this multi-PI grant is to investigate the distribution of natural killer cells during the different stages of prostate cancer disease progression, develop nuclear imaging methods to imaging natural killer cells in vivo and test the therapeutic applicability of chimeric antigen receptor natural killer cells in models of aggressive variant prostate cancer.

**1R01 CA233563-01** LeBeau (PI) 07/01/2019 – 06/30/2024 1.8 cal.  
NIH / NCI

*Novel Radioimmunotherapy Strategies for Prostate Cancer*

The goal of this project is to evaluate different antibody constructs as radioimmunotherapy agents, increase their efficacy in vivo by combination therapy with radiosensitizing agents and discover novel antigens for non-androgen receptor driven prostate cancer.

**W89XAH-19-9-029** Vander Griend (PI) 04/01/2019 – 03/31/2022 0.6 cal.

University of Illinois at Chicago – Prime: DOD

*Function and Clinical Utility of the HOXB13 Co-Factors MEIS1 and MEIS2 in Prostate Cancer Progression*

For this grant, we are responsible for making recombinant antibodies for MEIS1 and MEIS2 by human antibody phage display. To be funded  
Role: Consortium PI (Year 2 only)

**W81XWH-19-1-0243** LeBeau (PI) 08/01/2019 – 07/31/2022 1.8 cal.

Department of Defense Prostate Cancer Research Program

*Natural Killer Cell Therapy for Aggressive Prostate Cancer*

The goal of this proposal is to optimize chimeric antigen natural killer cell therapies for prostate cancer and evaluate their therapeutic efficacy in animal models.

**1R01 CA237272-01** LeBeau (PI) 07/01/2019 – 06/30/2024 1.8 cal.  
NIH / NCI

*Targeting CD133 for imaging and therapy in prostate cancer*

The goal of this project is to evaluate minibody, immunoglobulin and novel non-human single-domain constructs as imaging agents for CD133 in vivo and determine the therapeutic efficacy of the immunoglobulin when administered as fractionated doses in vivo.

**1R01 CA245922** LeBeau (PI) 12/01/2019 – 11/30/2024 2.4 cal.

NIH / NCI

*Cyclic Peptide Protease Inhibitors for the Treatment of Prostate Cancer*

The purpose of this award is to develop optimized multivalent cyclic peptide inhibitors for aminopeptidase N and evaluate their therapeutic efficacy in vitro and in vivo in addition to performing crystallization studies.

COMPLETED

**MNP IF #16.05** LeBeau (PI) 10/01/2016 – 11/31/2019

Minnesota Partnership for Biotechnology and Medical Genomics

*The Development of the Minnesota Antibody Network*

The purpose of this infrastructure award is to create a resource that can make antibodies for hard to target proteins using antibody phage display.

**13YIA10**

LeBeau (PI)

07/13 – 06/17

Prostate Cancer Foundation Young Investigator Award

*Targeting active urokinase plasminogen activator for therapy using an internalizing human antibody*

The goal of this project is to discover and characterize inhibitory antibodies for urokinase plasminogen activator (uPA) and perform preliminary in vitro monotherapy studies.

**American Cancer Society Institutional Research Grant** LeBeau (PI)

12/15 – 11/16

*AMACR promoter driven reporter genes for prostate cancer imaging*

The goal of this project is to use the prostate cancer-specific AMACR promoter to drive the expression of infrared fluorescent proteins for in vivo optical imaging.

PENDING

**None**

## RE: JIT Request for Grant R01AI157975

---

From: Ng, Crystal <CNg@nybc.org>  
To: Lesley Schmidt Sindberg <schm1421@umn.edu>  
Cc: lifang@umn.edu, Han, Jeffrey <KHan@nybc.org>, Mathis, Kenneth <KMathis@nybc.org>, Ross, Deborah <DRoss2@nybc.org>, Du, Lanying <LDu@nybc.org>, Anne Mockovak <a-mock@umn.edu>  
Sent: July 1, 2020 8:35:50 AM CDT  
Received: July 1, 2020 8:35:54 AM CDT  
Attachments: LeBeau\_Other Support\_6-30-20.docx

Good morning Lesley,

Thank you for getting back to us so quickly with Dr. Fang Li and Dr. Aaron LeBeau's Other Support

Please see Dr. Dr. Aaron LeBeau's attached Other Support document with the addition of Grant R01AI157975, for your references

Thank you ! Have a great Fourth of July weekend !

Best,  
Crystal Ng  
Financial Grants Analyst | New York Blood Center  
Phone: 212.570.3150  
Website: [www.nybloodcenter.org](http://www.nybloodcenter.org)

---

**From:** Lesley Schmidt Sindberg <schm1421@umn.edu>  
**Sent:** Tuesday, June 30, 2020 5:02 PM  
**To:** Ng, Crystal <CNg@nybc.org>  
**Cc:** lifang@umn.edu; Han, Jeffrey <KHan@nybc.org>; Mathis, Kenneth <KMathis@nybc.org>; Ross, Deborah <DRoss2@nybc.org>; Du, Lanying <LDu@nybc.org>; Anne Mockovak <a-mock@umn.edu>  
**Subject:** Re: JIT Request for Grant R01AI157975

Hi Crystal,

Please see attached for the Other Support documents for Drs. Li and LeBeau.

Thanks,

Lesley

Lesley Schmidt Sindberg, MPH  
Administrative Director | [Department of Veterinary & Biomedical Sciences](#)  
College of Veterinary Medicine | University of Minnesota  
[schm1421@umn.edu](mailto:schm1421@umn.edu) | [REDACTED]

Preparing a research proposal? Please submit an [Intent to Submit](#) form.

On Mon, Jun 29, 2020 at 5:53 PM Lesley Schmidt Sindberg <[schm1421@umn.edu](mailto:schm1421@umn.edu)> wrote:

Here is our current [F&A agreement](#). We will send the other support documents later this week.

-Lesley

On Mon, Jun 29, 2020 at 4:41 PM Ng, Crystal <[CNg@nybc.org](mailto:CNg@nybc.org)> wrote:

Good evening Lesley,

We're currently gathering documents for JIT for grant R01AI157975, titled, "Novel nanobodies to prevent and treat SARS-CoV-2 and other pathogenic human coronaviruses." Please submit the following documents by **Thursday, July 2<sup>nd</sup>**:

- Other Support Documents for all Senior Key Personnel
  - Dr. Fang Li
  - Dr. Aaron LeBeau
  
- F&A Agreement

Please let me know if you have any further questions

Thank you

Best,  
Crystal Ng  
Financial Grants Analyst | New York Blood Center  
Phone: 212.570.3150  
Website: [www.nybloodcenter.org](http://www.nybloodcenter.org)

  
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**1. LeBeau\_Other Support\_6-30-20.docx**

Type: application/vnd.openxmlformats-officedocument.wordprocessingml.document  
Size: 31 KB (32,128 bytes)

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**For New and Renewal Applications (PHS 398) – DO NOT SUBMIT UNLESS REQUESTED**

**PHS 398 OTHER SUPPORT**

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**LEBEAU, AARON M.**

ACTIVE

**18CHAL12** LeBeau/Moriarity (MPI) 12/31/2018 – 12/31/2020 1.2 cal.

Prostate Cancer Foundation (Challenge Award)

*CD133-Targeted Natural Killer Cell Therapy for Aggressive Variant Prostate Cancer*

The purpose of this multi-PI grant is to investigate the distribution of natural killer cells during the different stages of prostate cancer disease progression, develop nuclear imaging methods to imaging natural killer cells in vivo and test the therapeutic applicability of chimeric antigen receptor natural killer cells in models of aggressive variant prostate cancer.

**1R01 CA233563-01** LeBeau (PI) 07/01/2019 – 06/30/2024 1.8 cal.

NIH / NCI

*Novel Radioimmunotherapy Strategies for Prostate Cancer*

The goal of this project is to evaluate different antibody constructs as radioimmunotherapy agents, increase their efficacy in vivo by combination therapy with radiosensitizing agents and discover novel antigens for non-androgen receptor driven prostate cancer.

**W89XAH-19-9-029** Vander Griend (PI) 04/01/2019 – 03/31/2022 0.6 cal.

University of Illinois at Chicago – Prime: DOD

*Function and Clinical Utility of the HOXB13 Co-Factors MEIS1 and MEIS2 in Prostate Cancer Progression*

For this grant, we are responsible for making recombinant antibodies for MEIS1 and MEIS2 by human antibody phage display. To be funded  
Role: Consortium PI (Year 2 only)

**W81XWH-19-1-0243** LeBeau (PI) 08/01/2019 – 07/31/2022 1.8 cal.

Department of Defense Prostate Cancer Research Program

*Natural Killer Cell Therapy for Aggressive Prostate Cancer*

The goal of this proposal is to optimize chimeric antigen natural killer cell therapies for prostate cancer and evaluate their therapeutic efficacy in animal models.

**1R01 CA237272-01** LeBeau (PI) 07/01/2019 – 06/30/2024 1.8 cal.

NIH / NCI

*Targeting CD133 for imaging and therapy in prostate cancer*

The goal of this project is to evaluate minibody, immunoglobulin and novel non-human single-domain constructs as imaging agents for CD133 in vivo and determine the therapeutic efficacy of the immunoglobulin when administered as fractionated doses in vivo.

**1R01 CA245922** LeBeau (PI) 12/01/2019 – 11/30/2024 2.4 cal.

NIH / NCI

*Cyclic Peptide Protease Inhibitors for the Treatment of Prostate Cancer*

The purpose of this award is to develop optimized multivalent cyclic peptide inhibitors for aminopeptidase N and evaluate their therapeutic efficacy in vitro and in vivo in addition to performing crystallization studies.

COMPLETED

**MNP IF #16.05** LeBeau (PI) 10/01/2016 – 11/31/2019

Minnesota Partnership for Biotechnology and Medical Genomics

*The Development of the Minnesota Antibody Network*

The purpose of this infrastructure award is to create a resource that can make antibodies for hard to target proteins using antibody phage display.

**13YIA10** LeBeau (PI) 07/13 – 06/17  
Prostate Cancer Foundation Young Investigator Award  
*Targeting active urokinase plasminogen activator for therapy using an internalizing human antibody*  
The goal of this project is to discover and characterize inhibitory antibodies for urokinase plasminogen activator (uPA) and perform preliminary in vitro monotherapy studies.

**American Cancer Society Institutional Research Grant** LeBeau (PI) 12/15 – 11/16  
*AMACR promoter driven reporter genes for prostate cancer imaging*  
The goal of this project is to use the prostate cancer-specific AMACR promoter to drive the expression of infrared fluorescent proteins for in vivo optical imaging.

PENDING

**R01AI157975** Du (PI), LeBeau (Co-Investigator) 09/01/2020 – 08/31/2025 0.24 cal.  
NIH  
*Novel nanobodies to prevent and treat SARS-CoV-2 and other pathogenic human coronaviruses*  
This proposal will develop highly effective neutralizing nanobodies (Nbs) specific to the SARS-CoV-2 surface spike protein in order to stop the current coronavirus disease 2019 (COVID-19) pandemic.

## RE: JIT Request for Grant R01AI157975

---

From: Ng, Crystal <CNg@nybc.org>  
To: Lesley Schmidt Sindberg <schm1421@umn.edu>  
Cc: lifang@umn.edu, Han, Jeffrey <KHan@nybc.org>, Mathis, Kenneth <KMathis@nybc.org>, Ross, Deborah <DRoss2@nybc.org>, Du, Lanying <LDu@nybc.org>, Anne Mockovak <a-mock@umn.edu>  
Sent: July 1, 2020 11:16:30 AM CDT  
Received: July 1, 2020 11:16:34 AM CDT  
Attachments: Fang Li\_Other Support 6-30-2020.docx, Fang NYBC Prime NIH Budget\_3-26-20.xlsx

Good morning Lesley,

After reviewing Dr. Fang Li's Other Support, for Grant R01AI157975, it states ".72 Calendar Months" and we just want to clarify his effort. The budget that was sent to us states "0.63 Academic Calendar Months" and "0.60 Summer Calendar Months."

Thank you

Best,

---

**From:** Ng, Crystal  
**Sent:** Wednesday, July 1, 2020 9:36 AM  
**To:** Lesley Schmidt Sindberg <schm1421@umn.edu>  
**Cc:** lifang@umn.edu; Han, Jeffrey <KHan@nybc.org>; Mathis, Kenneth <KMathis@nybc.org>; Ross, Deborah <DRoss2@nybc.org>; Du, Lanying <LDu@nybc.org>; Anne Mockovak <a-mock@umn.edu>  
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**Sent:** Tuesday, June 30, 2020 5:02 PM  
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**Cc:** [lifang@umn.edu](mailto:lifang@umn.edu); Han, Jeffrey <[KHan@nybc.org](mailto:KHan@nybc.org)>; Mathis, Kenneth <[KMathis@nybc.org](mailto:KMathis@nybc.org)>; Ross, Deborah <[DRoss2@nybc.org](mailto:DRoss2@nybc.org)>; Du, Lanying <[LDu@nybc.org](mailto:LDu@nybc.org)>; Anne Mockovak <[a-mock@umn.edu](mailto:a-mock@umn.edu)>  
**Subject:** Re: JIT Request for Grant R01AI157975

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Thanks,

Lesley

Lesley Schmidt Sindberg, MPH  
Administrative Director | [Department of Veterinary & Biomedical Sciences](#)  
College of Veterinary Medicine | University of Minnesota  
[schm1421@umn.edu](mailto:schm1421@umn.edu) | [REDACTED]

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  - Dr. Aaron LeBeau
- F&A Agreement

Please let me know if you have any further questions

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Phone: 212.570.3150  
Website: [www.nybloodcenter.org](http://www.nybloodcenter.org)

[REDACTED]  
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[REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED]  
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**1. Fang Li\_Other Support 6-30-2020.docx**

Type: application/vnd.openxmlformats-officedocument.wordprocessingml.document  
Size: 17 KB (17,663 bytes)

**2. Fang NYBC Prime NIH Budget\_3-26-20.xlsx**

Type: application/vnd.openxmlformats-officedocument.spreadsheetml.sheet  
Size: 104 KB (107,496 bytes)

## Fang Li Other Support

### Active

**Overlap: There is no scientific overlap among the following grants.**

National Institutes of Health 06/7/2016 – 05/31/2021  
2R01AI089728 \$2,285,084  
Role: Principal Investigator 3.0 calendar months

#### **Receptor Recognition and Cell Entry of Coronaviruses**

Goal: This research investigates the molecular and structural mechanisms for the receptor recognition and cell entry of coronaviruses. It explores novel principles governing viral evolution, receptor recognition, cell entry, host ranges, cross-species infections, and tissue tropisms. These studies are critical for evaluating the emerging disease potentials of coronaviruses and for preventing, controlling and treating the spread of coronaviruses in humans or other animals.

National Institutes of Health 05/21/2018 – 04/30/2023  
R01AI139092 \$923,000  
Role: Co-Investigator (PI: Lanying Du, New York Blood Center) 1.2 calendar months

#### **Structure-based design of coronavirus subunit vaccines**

Goal: This research establishes that artificially exposed unfavorable epitopes on viral subunit vaccines pose a severe intrinsic limitation to viral subunit vaccine designs. It further develops novel structure-based approaches to overcome this limitation in vaccine design. It produces highly effective subunit vaccines to combat the infections of highly pathogenic coronaviruses such as MERS and SARS coronaviruses, and also has implications for subunit vaccine design against other life-threatening viruses.  
10% effort for Fang Li

National Institutes of Health 01/01/2020 – 12/31/2024  
R01CA245922 \$110,880 (\$554,400-total)  
Role: Co-Investigator (PI: Aaron LeBeau, University of Minnesota) 0.9 calendar months

#### **Cyclic Peptide Protease Inhibitors for the Treatment of Prostate Cancer**

Goal: This research is to develop clinically relevant therapeutics by targeting a cell surface protease overexpressed in aggressive variant prostate carcinoma. This approach has significant clinical potential to result in an effective treatment modality for a form of prostate cancer that is currently incurable.

University of Minnesota 10/01/2019-9/30/2022  
Academic Investment Research Program \$125,000  
Role: Co-Investigator (PI: Alon Herschhorn, University of Minnesota) 0.2 calendar months

#### **Bioengineering conformation-stabilized HIV-1 Env immunogens**

Goal: This research builds a new collaborative platform for the development of a conformation-defined HIV Envelope protein vaccine.

### Pending

National Institutes of Health 12/01/2020 – 11/30/2025  
**Cell entry, cross-species transmission and pathogenesis of novel coronavirus from Wuhan**  
Role: Co-Investigator (PI: Ralph Baric, University of North Carolina)  
2.4 calendar months  
\$1,897,327 (Li subaward)

National Institutes of Health 9/01/2020 – 8/31/2025  
**Novel nanobodies to prevent and treat SARS-CoV-2 and other pathogenic human coronaviruses**  
Role: Co-Investigator (PI: Lanying Du, New York Blood Center)  
.72 calendar months  
\$ 1,424,340 (Li subaward)

### FOR NIH DETAILED BUDGET

Does not include 2% increase

Start: 9/01/2020  
End: 8/31/2025

|                                              | Li 120<br>LeBeau 80<br>200 |        |               |           | Li 120<br>LeBeau 80<br>200 |        |           |           | Li 120<br>LeBeau 80<br>200 |        |           |           | Li 120<br>LeBeau 40<br>160 |        |           |           | Li 120<br>LeBeau 40<br>160 |        |           |           | TOTAL       |
|----------------------------------------------|----------------------------|--------|---------------|-----------|----------------------------|--------|-----------|-----------|----------------------------|--------|-----------|-----------|----------------------------|--------|-----------|-----------|----------------------------|--------|-----------|-----------|-------------|
|                                              | YEAR 1<br>9/01/20-8/31/21  |        |               |           | YEAR 2<br>9/01/21-8/30/22  |        |           |           | YEAR 3<br>9/01/22-8/31/23  |        |           |           | YEAR 4<br>9/01/23-8/31/24  |        |           |           | YEAR 5<br>9/01/24-8/31/25  |        |           |           |             |
|                                              | Effort                     | Cal Mo | Base Sal      | Amount    | Effort                     | Cal Mo | Base Sal  | Amount    | Effort                     | Cal Mo | Base Sal  | Amount    | Effort                     | Cal Mo | Base Sal  | Amount    | Effort                     | Cal Mo | Base Sal  | Amount    |             |
| <b>A. KEY/SR PERSON</b>                      |                            |        |               |           |                            |        |           |           |                            |        |           |           |                            |        |           |           |                            |        |           |           |             |
| Dr. Fang Li, Co-PI Academic                  | 7%                         | 0.63   | \$138,690     | \$9,708   | 7%                         | 0.63   | \$138,690 | \$9,708   | 7%                         | 0.63   | \$138,690 | \$9,708   | 7%                         | 0.63   | \$138,690 | \$9,708   | 7%                         | 0.63   | \$138,690 | \$9,708   | \$48,540    |
| Dr. Fang Li, Co-PI Summer                    | 20%                        | 0.60   | \$46,230      | \$9,246   | 20%                        | 0.60   | \$46,230  | \$9,246   | 20%                        | 0.60   | \$46,230  | \$9,246   | 20%                        | 0.60   | \$46,230  | \$9,246   | 20%                        | 0.60   | \$46,230  | \$9,246   | \$46,230    |
| Dr. Aaron LeBeau, Co-I                       | 2%                         | 0.24   | \$117,513     | \$2,350   | 2%                         | 0.24   | \$117,513 | \$2,350   | 2%                         | 0.24   | \$117,513 | \$2,350   | 2%                         | 0.24   | \$117,513 | \$2,350   | 2%                         | 0.24   | \$117,513 | \$2,350   | \$11,750    |
| Total Salary                                 |                            | 0.00   |               | \$21,304  |                            | 0.00   |           | \$21,304  |                            | 0.00   |           | \$21,304  |                            | 0.00   |           | \$21,304  |                            | 0.00   |           | \$21,304  | \$106,520   |
| <b>FRINGE</b>                                |                            |        | Rate          |           |                            |        | Rate      |           |                            |        | Rate      |           |                            |        | Rate      |           |                            |        | Rate      |           |             |
| Dr. Fang Li, Co-PI Academic                  |                            |        | 36.00%        | \$3,495   |                            |        | 36.00%    | \$3,495   |                            |        | 36.00%    | \$3,495   |                            |        | 36.00%    | \$3,495   |                            |        | 36.00%    | \$3,495   | \$17,475    |
| Dr. Fang Li, Co-PI Summer                    |                            |        | 36.00%        | \$3,329   |                            |        | 36.00%    | \$3,329   |                            |        | 36.00%    | \$3,329   |                            |        | 36.00%    | \$3,329   |                            |        | 36.00%    | \$3,329   | \$16,645    |
| Dr. Aaron LeBeau, Co-I                       |                            |        | 36.00%        | \$846     |                            |        | 36.00%    | \$846     |                            |        | 36.00%    | \$846     |                            |        | 36.00%    | \$846     |                            |        | 36.00%    | \$846     | \$4,230     |
| Total Fringe                                 |                            |        |               | \$7,670   |                            |        |           | \$7,670   |                            |        |           | \$7,670   |                            |        |           | \$7,670   |                            |        |           | \$7,670   | \$38,350    |
| <b>TOTAL KEY/SR PERSONNEL</b>                |                            |        |               | \$28,974  |                            |        |           | \$28,974  |                            |        |           | \$28,974  |                            |        |           | \$28,974  |                            |        |           | \$28,974  | \$144,870   |
| <b>B. OTHER PERSONNEL</b>                    |                            |        | Rate          |           |                            |        | Rate      |           |                            |        | Rate      |           |                            |        | Rate      |           |                            |        | Rate      |           |             |
| TBN, Post Doc                                | 75%                        | 9.00   | \$50,000      | \$37,500  | 75%                        | 9.00   | \$50,000  | \$37,500  | 75%                        | 9.00   | \$50,000  | \$37,500  | 75%                        | 9.00   | \$50,000  | \$37,500  | 75%                        | 9.00   | \$50,000  | \$37,500  | \$187,500   |
| TBN, Technician - Researcher 2               | 50%                        | 6.00   | \$43,054      | \$21,527  | 50%                        | 6.00   | \$43,054  | \$21,527  | 50%                        | 6.00   | \$43,054  | \$21,527  | 50%                        | 6.00   | \$43,054  | \$21,527  | 50%                        | 6.00   | \$43,054  | \$21,527  | \$107,635   |
| Total Salary                                 |                            |        |               | \$59,027  |                            |        |           | \$59,027  |                            |        |           | \$59,027  |                            |        |           | \$59,027  |                            |        |           | \$59,027  | \$295,135   |
| <b>FRINGE</b>                                |                            |        | Rate          |           |                            |        | Rate      |           |                            |        | Rate      |           |                            |        | Rate      |           |                            |        | Rate      |           |             |
| TBN, Post Doc                                |                            |        | 24.30%        | \$9,113   |                            |        | 24.30%    | \$9,113   |                            |        | 24.30%    | \$9,113   |                            |        | 24.30%    | \$9,113   |                            |        | 24.30%    | \$9,113   | \$45,565    |
| TBN, Technician - Researcher 2               |                            |        | 29.50%        | \$6,350   |                            |        | 29.50%    | \$6,350   |                            |        | 29.50%    | \$6,350   |                            |        | 29.50%    | \$6,350   |                            |        | 29.50%    | \$6,350   | \$31,750    |
| Total Fringe                                 |                            |        |               | \$15,463  |                            |        |           | \$15,463  |                            |        |           | \$15,463  |                            |        |           | \$15,463  |                            |        |           | \$15,463  | \$77,315    |
| <b>TOTAL OTHER PERSONNEL</b>                 |                            |        |               | \$74,490  |                            |        |           | \$74,490  |                            |        |           | \$74,490  |                            |        |           | \$74,490  |                            |        |           | \$74,490  | \$372,450   |
| <b>C. EQUIPMENT (Exceeding \$5,000)</b>      |                            |        |               |           |                            |        |           |           |                            |        |           |           |                            |        |           |           |                            |        |           |           |             |
| Equipment Item #1                            |                            |        |               | \$0       |                            |        |           | \$0       |                            |        |           | \$0       |                            |        |           | \$0       |                            |        |           | \$0       | \$0         |
| Equipment Item #2                            |                            |        |               | \$0       |                            |        |           | \$0       |                            |        |           | \$0       |                            |        |           | \$0       |                            |        |           | \$0       | \$0         |
| Total Equipment                              |                            |        |               | \$0       |                            |        |           | \$0       |                            |        |           | \$0       |                            |        |           | \$0       |                            |        |           | \$0       | \$0         |
| <b>D. TRAVEL</b>                             |                            |        |               |           |                            |        |           |           |                            |        |           |           |                            |        |           |           |                            |        |           |           |             |
| Domestic Travel Costs                        |                            |        |               | \$2,000   |                            |        |           | \$2,000   |                            |        |           | \$2,000   |                            |        |           | \$2,000   |                            |        |           | \$2,000   | \$10,000    |
| International Travel Costs                   |                            |        |               | \$0       |                            |        |           | \$0       |                            |        |           | \$0       |                            |        |           | \$0       |                            |        |           | \$0       | \$0         |
| Total Travel                                 |                            |        |               | \$2,000   |                            |        |           | \$2,000   |                            |        |           | \$2,000   |                            |        |           | \$2,000   |                            |        |           | \$2,000   | \$10,000    |
| <b>E. PARTICIPANTS/TRAINEE SUPPORT COSTS</b> |                            |        |               |           |                            |        |           |           |                            |        |           |           |                            |        |           |           |                            |        |           |           |             |
| 1. Tuition/Fees/Health Insurance             |                            |        |               | \$0       |                            |        |           | \$0       |                            |        |           | \$0       |                            |        |           | \$0       |                            |        |           | \$0       | \$0         |
| 2. Stipends                                  |                            |        |               | \$0       |                            |        |           | \$0       |                            |        |           | \$0       |                            |        |           | \$0       |                            |        |           | \$0       | \$0         |
| 3. Travel                                    |                            |        |               | \$0       |                            |        |           | \$0       |                            |        |           | \$0       |                            |        |           | \$0       |                            |        |           | \$0       | \$0         |
| 4. Subsistence                               |                            |        |               | \$0       |                            |        |           | \$0       |                            |        |           | \$0       |                            |        |           | \$0       |                            |        |           | \$0       | \$0         |
| 5. Other: (List here)                        |                            |        |               | \$0       |                            |        |           | \$0       |                            |        |           | \$0       |                            |        |           | \$0       |                            |        |           | \$0       | \$0         |
| # of Participants/Trainees                   |                            |        |               | 0         |                            |        |           | 0         |                            |        |           | 0         |                            |        |           | 0         |                            |        |           | 0         | \$0         |
| Total Participants/Trainee Costs             |                            |        |               | \$0       |                            |        |           | \$0       |                            |        |           | \$0       |                            |        |           | \$0       |                            |        |           | \$0       | \$0         |
| <b>F. OTHER DIRECT COSTS</b>                 |                            |        |               |           |                            |        |           |           |                            |        |           |           |                            |        |           |           |                            |        |           |           |             |
| 1. Materials and Supplies                    |                            |        |               | \$91,536  |                            |        |           | \$91,536  |                            |        |           | \$91,536  |                            |        |           | \$91,536  |                            |        |           | \$91,536  | \$377,680   |
| 2. Publication Costs                         |                            |        |               | \$2,000   |                            |        |           | \$2,000   |                            |        |           | \$2,000   |                            |        |           | \$2,000   |                            |        |           | \$2,000   | \$10,000    |
| 3. Consultant Services                       |                            |        |               | \$0       |                            |        |           | \$0       |                            |        |           | \$0       |                            |        |           | \$0       |                            |        |           | \$0       | \$0         |
| 4. ADR/Computer Services                     |                            |        |               | \$0       |                            |        |           | \$0       |                            |        |           | \$0       |                            |        |           | \$0       |                            |        |           | \$0       | \$0         |
| 5. Subawards/Consortium/Contractual          |                            |        |               | \$0       |                            |        |           | \$0       |                            |        |           | \$0       |                            |        |           | \$0       |                            |        |           | \$0       | \$0         |
| 6. Equipment or Facility Rental/User Fees    |                            |        |               | \$0       |                            |        |           | \$0       |                            |        |           | \$0       |                            |        |           | \$0       |                            |        |           | \$0       | \$0         |
| 7. Alterations and Renovations               |                            |        |               | \$0       |                            |        |           | \$0       |                            |        |           | \$0       |                            |        |           | \$0       |                            |        |           | \$0       | \$0         |
| 8. Equipment Maintenance                     |                            |        |               | \$1,000   |                            |        |           | \$1,000   |                            |        |           | \$1,000   |                            |        |           | \$1,000   |                            |        |           | \$1,000   | \$5,000     |
| 9. (List)                                    |                            |        |               | \$0       |                            |        |           | \$0       |                            |        |           | \$0       |                            |        |           | \$0       |                            |        |           | \$0       | \$0         |
| Total Other Direct Costs                     |                            |        |               | \$94,536  |                            |        |           | \$94,536  |                            |        |           | \$94,536  |                            |        |           | \$94,536  |                            |        |           | \$94,536  | \$392,680   |
| <b>TOTAL DIRECT COSTS</b>                    |                            |        |               | \$200,000 |                            |        |           | \$200,000 |                            |        |           | \$200,000 |                            |        |           | \$200,000 |                            |        |           | \$200,000 | \$920,000   |
| <b>INDIRECT COSTS BASE*</b>                  |                            |        |               | \$200,000 |                            |        |           | \$200,000 |                            |        |           | \$200,000 |                            |        |           | \$200,000 |                            |        |           | \$200,000 | \$160,000   |
| <b>INDIRECT COSTS (TDC)</b>                  |                            |        | 54%/55% split | \$108,340 |                            |        | 55%       | \$110,000 |                            |        | 55%       | \$110,000 |                            |        | 55%       | \$88,000  |                            |        | 55%       | \$88,000  | \$504,340   |
| <b>INDIRECT COST CHANGES!</b>                |                            |        |               |           |                            |        |           |           |                            |        |           |           |                            |        |           |           |                            |        |           |           |             |
| <b>TOTAL</b>                                 |                            |        |               | \$308,340 |                            |        |           | \$310,000 |                            |        |           | \$310,000 |                            |        |           | \$248,000 |                            |        |           | \$248,000 | \$1,424,340 |

\*=Standard exclusions:

|                                                    | Yr 1 IDC Calculations |       |            |             |
|----------------------------------------------------|-----------------------|-------|------------|-------------|
|                                                    | Days at Rate          | Rate  | F&A Amount | MTDC Amount |
| Capital equipment                                  |                       |       |            |             |
| Capital expenditures                               |                       |       |            |             |
| Participant support costs                          |                       |       |            |             |
| Patient care charges                               | 303                   | 54.00 | \$89,655   | \$166,027   |
| Rental of space                                    | 62                    | 55.00 | \$18,685   | \$33,973    |
| Scholarships and fellowships                       |                       |       | \$108,340  | \$200,000   |
| The portion of a subcontract in excess of \$25,000 |                       |       |            |             |
| Tuition remission                                  |                       |       |            |             |

| <b>Year 1</b>                    |              |             | <b>Year 2</b>   |                                  |              | <b>Year 3</b> |                 |                                  |            |
|----------------------------------|--------------|-------------|-----------------|----------------------------------|--------------|---------------|-----------------|----------------------------------|------------|
| <b>Item</b>                      | <b>QTY</b>   | <b>Cost</b> | <b>Total</b>    | <b>Item</b>                      | <b>QTY</b>   | <b>Cost</b>   | <b>Total</b>    | <b>Item</b>                      | <b>QTY</b> |
| Lab Supplies for<br>Aaron LeBeau | 1            | \$75,206    | \$75,206        | Lab Supplies for<br>Aaron LeBeau | 1            | \$75,206      | \$75,206        | Lab Supplies for<br>Aaron LeBeau | 1          |
| Supplies for Fang Li             | 1            | \$16,330    | \$16,330        | Supplies for Fang Li             | 1            | \$16,33       | \$16,330        | Supplies for Fang Li             | 1          |
|                                  |              |             | \$0             |                                  |              |               | \$0             |                                  |            |
|                                  |              |             | \$0             |                                  |              |               | \$0             |                                  |            |
|                                  |              |             | \$0             |                                  |              |               | \$0             |                                  |            |
|                                  |              |             | \$0             |                                  |              |               | \$0             |                                  |            |
|                                  |              |             | \$0             |                                  |              |               | \$0             |                                  |            |
|                                  |              |             | \$0             |                                  |              |               | \$0             |                                  |            |
|                                  |              |             | \$0             |                                  |              |               | \$0             |                                  |            |
|                                  | <b>Total</b> |             | <b>\$91,536</b> |                                  | <b>Total</b> |               | <b>\$91,536</b> |                                  |            |



## Re: JIT Request for Grant R01AI157975

---

From: Lesley Schmidt Sindberg <[schm1421@umn.edu](mailto:schm1421@umn.edu)>  
To: Ng, Crystal <[CNg@nybc.org](mailto:CNg@nybc.org)>  
Cc: [lifang@umn.edu](mailto:lifang@umn.edu), Han, Jeffrey <[KHan@nybc.org](mailto:KHan@nybc.org)>, Mathis, Kenneth <[KMathis@nybc.org](mailto:KMathis@nybc.org)>, Ross, Deborah <[DRoss2@nybc.org](mailto:DRoss2@nybc.org)>, Du, Lanying <[LDu@nybc.org](mailto:LDu@nybc.org)>, Anne Mockovak <[a-mock@umn.edu](mailto:a-mock@umn.edu)>  
Sent: July 1, 2020 12:02:04 PM CDT  
Received: July 1, 2020 12:02:20 PM CDT  
Attachments: Fang Li\_Other Support 7-1-20.docx  
See attached for an updated version.

-Lesley

On Wed, Jul 1, 2020 at 11:16 AM Ng, Crystal <[CNg@nybc.org](mailto:CNg@nybc.org)> wrote:

Good morning Lesley,

After reviewing Dr. Fang Li's Other Support, for Grant R01AI157975, it states ".72 Calendar Months" and we just want to clarify his effort. The budget that was sent to us states "0.63 Academic Calendar Months" and "0.60 Summer Calendar Months."

Thank you

Best,

---

**From:** Ng, Crystal  
**Sent:** Wednesday, July 1, 2020 9:36 AM  
**To:** Lesley Schmidt Sindberg <[schm1421@umn.edu](mailto:schm1421@umn.edu)>  
**Cc:** [lifang@umn.edu](mailto:lifang@umn.edu); Han, Jeffrey <[KHan@nybc.org](mailto:KHan@nybc.org)>; Mathis, Kenneth <[KMathis@nybc.org](mailto:KMathis@nybc.org)>; Ross, Deborah <[DRoss2@nybc.org](mailto:DRoss2@nybc.org)>; Du, Lanying <[LDu@nybc.org](mailto:LDu@nybc.org)>; Anne Mockovak <[a-mock@umn.edu](mailto:a-mock@umn.edu)>  
**Subject:** RE: JIT Request for Grant R01AI157975

Good morning Lesley,

Thank you for getting back to us so quickly with Dr. Fang Li and Dr. Aaron LeBeau's Other Support

Please see Dr. Dr. Aaron LeBeau's attached Other Support document with the addition of Grant R01AI157975, for your references

Thank you ! Have a great Fourth of July weekend !

Best,

Crystal Ng

Financial Grants Analyst | New York Blood Center

Phone: 212.570.3150

Website: [www.nybloodcenter.org](http://www.nybloodcenter.org)

---

**From:** Lesley Schmidt Sindberg <[schm1421@umn.edu](mailto:schm1421@umn.edu)>

**Sent:** Tuesday, June 30, 2020 5:02 PM

**To:** Ng, Crystal <[CNg@nybc.org](mailto:CNg@nybc.org)>

**Cc:** [lifang@umn.edu](mailto:lifang@umn.edu); Han, Jeffrey <[KHan@nybc.org](mailto:KHan@nybc.org)>; Mathis, Kenneth <[KMathis@nybc.org](mailto:KMathis@nybc.org)>; Ross, Deborah <[DRoss2@nybc.org](mailto:DRoss2@nybc.org)>; Du, Lanying <[LDu@nybc.org](mailto:LDu@nybc.org)>; Anne Mockovak <[a-mock@umn.edu](mailto:a-mock@umn.edu)>

**Subject:** Re: JIT Request for Grant R01AI157975

Hi Crystal,

Please see attached for the Other Support documents for Drs. Li and LeBeau.

Thanks,

Lesley

Lesley Schmidt Sindberg, MPH  
Administrative Director | [Department of Veterinary & Biomedical Sciences](#)  
College of Veterinary Medicine | University of Minnesota  
[schm1421@umn.edu](mailto:schm1421@umn.edu) | [REDACTED]

Preparing a research proposal? Please submit an [Intent to Submit](#) form.

On Mon, Jun 29, 2020 at 5:53 PM Lesley Schmidt Sindberg <[schm1421@umn.edu](mailto:schm1421@umn.edu)> wrote:



Here is our current [F&A agreement](#). We will send the other support documents later this week.

-Lesley

On Mon, Jun 29, 2020 at 4:41 PM Ng, Crystal <[CNg@nybc.org](mailto:CNg@nybc.org)> wrote:

Good evening Lesley,

We're currently gathering documents for JIT for grant R01AI157975, titled, "Novel nanobodies to prevent and treat SARS-CoV-2 and other pathogenic human coronaviruses." Please submit the following documents by **Thursday, July 2<sup>nd</sup>**:

- Other Support Documents for all Senior Key Personnel
  - Dr. Fang Li
  - Dr. Aaron LeBeau
- F&A Agreement

Please let me know if you have any further questions

Thank you

Best,

Crystal Ng

Financial Grants Analyst | New York Blood Center

Phone: 212.570.3150

Website: [www.nybloodcenter.org](http://www.nybloodcenter.org)



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**1. Fang Li\_Other Support 7-1-20.docx**

Type: application/vnd.openxmlformats-officedocument.wordprocessingml.document  
Size: 17 KB (17,527 bytes)

## Fang Li Other Support

### Active

**Overlap: There is no scientific overlap among the following grants.**

National Institutes of Health 06/7/2016 – 05/31/2021  
2R01AI089728 \$2,285,084  
Role: Principal Investigator 3.0 calendar months

#### **Receptor Recognition and Cell Entry of Coronaviruses**

Goal: This research investigates the molecular and structural mechanisms for the receptor recognition and cell entry of coronaviruses. It explores novel principles governing viral evolution, receptor recognition, cell entry, host ranges, cross-species infections, and tissue tropisms. These studies are critical for evaluating the emerging disease potentials of coronaviruses and for preventing, controlling and treating the spread of coronaviruses in humans or other animals.

National Institutes of Health 05/21/2018 – 04/30/2023  
R01AI139092 \$923,000  
Role: Co-Investigator (PI: Lanying Du, New York Blood Center) 1.2 calendar months

#### **Structure-based design of coronavirus subunit vaccines**

Goal: This research establishes that artificially exposed unfavorable epitopes on viral subunit vaccines pose a severe intrinsic limitation to viral subunit vaccine designs. It further develops novel structure-based approaches to overcome this limitation in vaccine design. It produces highly effective subunit vaccines to combat the infections of highly pathogenic coronaviruses such as MERS and SARS coronaviruses, and also has implications for subunit vaccine design against other life-threatening viruses.  
10% effort for Fang Li

National Institutes of Health 01/01/2020 – 12/31/2024  
R01CA245922 \$110,880 (\$554,400-total)  
Role: Co-Investigator (PI: Aaron LeBeau, University of Minnesota) 0.9 calendar months

#### **Cyclic Peptide Protease Inhibitors for the Treatment of Prostate Cancer**

Goal: This research is to develop clinically relevant therapeutics by targeting a cell surface protease overexpressed in aggressive variant prostate carcinoma. This approach has significant clinical potential to result in an effective treatment modality for a form of prostate cancer that is currently incurable.

University of Minnesota 10/01/2019-9/30/2022  
Academic Investment Research Program \$125,000  
Role: Co-Investigator (PI: Alon Herschhorn, University of Minnesota) 0.2 calendar months

#### **Bioengineering conformation-stabilized HIV-1 Env immunogens**

Goal: This research builds a new collaborative platform for the development of a conformation-defined HIV Envelope protein vaccine.

### Pending

National Institutes of Health 12/01/2020 – 11/30/2025  
**Cell entry, cross-species transmission and pathogenesis of novel coronavirus from Wuhan**  
Role: Co-Investigator (PI: Ralph Baric, University of North Carolina)  
2.4 calendar months  
\$1,897,327 (Li subaward)

National Institutes of Health 9/01/2020 – 8/31/2025

**Novel nanobodies to prevent and treat SARS-CoV-2 and other pathogenic human coronaviruses**

Role: Co-Investigator (PI: Lanying Du, New York Blood Center)

1.2 calendar months

\$1,424,340 (Li subaward)

## Shipping mice to UTMB

---

From: Du, Lanying <LDu@nybc.org>  
To: Tang, Kathy <KTang@nybc.org>, peshi@utmb.edu, vimenach@utmb.edu  
Cc: Fang Li <lifang@umn.edu>  
Sent: July 3, 2020 11:42:48 AM CDT  
Received: July 3, 2020 11:42:51 AM CDT

Hi Kathy,

We will ship 30 mice to Dr. Vineet Menachery and Dr. Pei-Yong Shi at the UTMB. Vineet will give you the contact of his animal facilities.

Hi Vineet and Pei-Yong,

Kathy Tang (cc'ed) is the head of our animal facilities, who will work with your animal facilities to transfer the mice and answer related questions.

Best regards,

Lanying



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## Re: UNC/ NY Blood Center/UMN Collaboration Vaccine Collaboration

---

From: [REDACTED]  
To: Bartholomew, Kyle <kbartho@email.unc.edu>  
Cc: Kenneth Karanja <kara0108@umn.edu>, UNC Office of Tech Dev MTA <mta@unc.edu>, Baric, Ralph S <rbaric@email.unc.edu>, Fang Li <lifang@umn.edu>, Du, Lanying <LDu@nybc.org>, KTang@nybc.org, Glasky Bergman, Ph.D., Michelle <michelle.glaskybergman@klgates.com>  
Sent: July 6, 2020 3:04:57 PM CDT  
Received: July 6, 2020 3:05:36 PM CDT

Hi Kyle,

Thanks for the update. The immunized mice are at New York Blood Center now. I think the appropriate MTA can be arranged between UNC and NYBC. Kathy at NYBC copied here will facilitate the process.

Best,

[REDACTED]

On Mon, Jul 6, 2020 at 10:57 AM Bartholomew, Kyle <[kbartho@email.unc.edu](mailto:kbartho@email.unc.edu)> wrote:

Hi [REDACTED]

I spoke with my investigators earlier today, and they are willing to participate in this project, and they will cover the cost of the challenge studies.

Given this, we should be able to get this project moving with a simple MTA. If the mice are coming from NY Blood Center, please have let them know to send UNC an MTA to review.

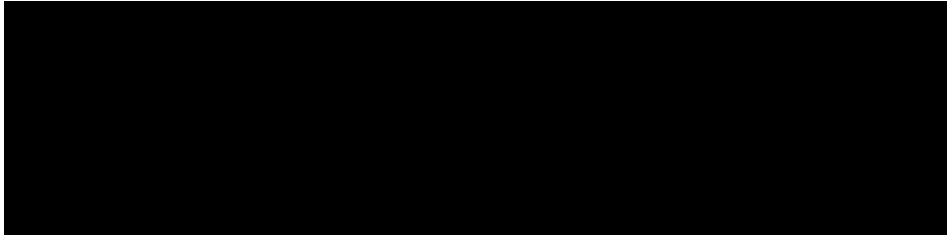
Best,

Kyle

Kyle R. Bartholomew, Ph.D.  
Commercialization Manager

**THE UNIVERSITY OF NORTH CAROLINA AT CHAPEL HILL**  
INNOVATION, ENTREPRENEURSHIP AND ECONOMIC DEVELOPMENT – INNOVATE CAROLINA  
Office of Technology Commercialization  
Campus Box 4105  
109 Church Street | Chapel Hill, NC 27516  
T: 919.962.5921 | F: 919.962.0646  
Email: [kyle.bartholomew@unc.edu](mailto:kyle.bartholomew@unc.edu)

Follow and Connect: [Twitter](#) | [Facebook](#) | [Instagram](#) | [LinkedIn](#) | [YouTube](#) | [Podcast](#)  
Web: [otc.unc.edu](http://otc.unc.edu) | [innovate.unc.edu](http://innovate.unc.edu)





## Re: Happy Thanksgiving and meeting next year, June 12-13, 2020

---

From: Tang, Qiyi <qiyi.tang@Howard.edu>  
To: Liu, Shan-Lu <liu.6244@osu.edu>, zhengzhiming4@gmail.com, haitao@iupui.edu, tzhou@mail.nih.gov, GCheng@mednet.ucla.edu, liangy@umn.edu, rli@vcu.edu, wjma@ksu.edu, xjmeng@vt.edu, Zhijian.Chen@UTSouthwestern.edu, mluo@gsu.edu, zhangyj@umd.edu, xzhu1@umd.edu, jqiu@kumc.edu, lijun@uic.edu, fengwei.bai@usm.edu, andyu@iupui.edu, reachxw@vt.edu, gluo@uab.edu, ldu@nybc.org, hxu@tulane.edu, liu\_fy@berkeley.edu, shitao.li@okstate.edu, Shan.lu@umassmed.edu, haihu@UTMB.edu, wenzheho@temple.edu, Qfeng4@central.uh.edu, tang@bio.fsu.edu, feng.li@sdstate.edu, ruilu@lsu.edu, sxiang2@unl.edu, dingsw@ucr.edu, guohua@missouri.edu, bling@tulane.edu, junwang@pharmacy.arizona.edu, lifang@umn.edu, wang518@umd.edu, gaos8@upmc.edu, pewang@uchc.edu, xiangy@uthscsa.edu, fzhu@bio.fsu.edu, chen.liang@mcgill.ca, lyuan@vt.edu, fgao@duke.edu, wangjw28@163.com, xfyu1@zju.edu.cn, bzhao@partners.org, jianw@musc.edu, zyang@ksu.edu, yu.cong@nih.gov, weiming.yuan@usc.edu, Zongdi.feng@nationwidechildrens.org, juh13@psu.edu, hengx@missouri.edu, lsu@med.unc.edu, ywu8@gmu.edu, jwu@whu.edu.cn, tshuo@uic.edu, Shibojiang@fudan.edu.cn, sjiang@nybc.org, pinwang@usc.edu, rzhao@som.umaryland.edu, shuylong@mail.sysu.edu.cn, xuefeng.liu@georgetown.edu, yuxingli@som.umaryland.edu, shixia.wang@umassmed.edu, yhe@ipbcams.ac.cn, Pinghui.feng@usc.edu, juttao.guo@bblumberg.org, lin.liu@okstate.edu, hua.zhu@rutgers.edu, Jinhong.chang@bblumberg.org, jianzhu1012@gmail.com, ronghai@ucr.edu, jun.zhu@nih.gov, jliu4@uams.edu, xiangpeng.kong@med.nyu.edu, haoquanwu@outlook.com, Wenjun.liu@defence.gov.au, Liang.shan@wustl.edu, hliao@duke.edu, yuan2@upenn.edu, zxing@umn.edu, hongmin.li@health.ny.gov, pzheng@ihv.umaryland.edu, yaliu@ihv.umaryland.edu, jxw103@case.edu, xiangguo.qiu@canada.ca, Feng Shao <shaofeng@nibs.ac.cn>, zishi@wh.iov.cn, klan@whu.edu.cn, zengmsh@mail.sysu.edu.cn, Nan Yan <Nan.Yan@UTSouthwestern.edu>, Zhang, Rong <rongzhang@wustl.edu>, liliwang@upenn.edu, Linheng Li <LIL@stowers.org>, kli1@uthsc.edu, tsx@case.edu, ssun@mdanderson.org, ysang@tnstate.edu, wu@crystal.harvard.edu, Sun.Jie@mayo.edu, peijun@strubi.ox.ac.uk, jiayu@coh.org, bchen@crystal.harvard.edu, Wen, Haitao <Haitao.Wen@osumc.edu>, Qu, Feng <qu.28@osu.edu>, Hezhao.Ji@umanitoba.ca, Li, Zihai <zihai@musc.edu>, zhengyo@msu.edu, zhanglinqi@tsinghua.edu.cn, wxiao@temple.edu, Whu@temple.edu, RSun@mednet.ucla.edu, Guangping.Gao@umassmed.edu, GMSWANG@nus.edu.sg, peshi@UTMB.EDU, ziyang-yan@uiowa.edu, lqiao@luc.edu, yong.xiong@yale.edu, Wang, Qihong <wang.655@osu.edu>, shuping\_tong\_md@brown.edu, pinghuif@usc.edu, gaof@im.ac.cn

Sent: July 7, 2020 10:47:05 PM CDT

Received: July 7, 2020 10:47:37 PM CDT

Hi professors,

I apologize if you are bothered by this email. I am helping my friend, Ed Seto to advertise his recruiting post-doc:

### Postdoctoral Position

Applications are invited for a postdoctoral fellowship to study the structures, functions, and mechanisms of histone deacetylases. Candidates with experiences in biochemical, molecular, and cell biological approaches are preferred.

Recent selected articles from our lab:

PMID: 32540961

PMID: 32457045

PMID: 31162605

PMID: 30517871

PMID: 30456376

PMID: 29958910

Please send a CV and names of three references to:

Ed Seto, Ph.D.

Email: [seto@gwu.edu](mailto:seto@gwu.edu)

## 1R01AI157975-01 - Year 1 Subaward

---

From: Ng, Crystal <CNg@nybc.org>  
To: schm1421@umn.edu, lifang@umn.edu  
Cc: Han, Jeffrey <KHan@nybc.org>, Du, Lanying <LDu@nybc.org>, Mathis, Kenneth <KMathis@nybc.org>, Ross, Deborah <DRoss2@nybc.org>  
Sent: July 13, 2020 4:04:41 PM CDT  
Received: July 13, 2020 4:04:52 PM CDT  
Attachments: Fang NYBC Prime NIH Budget\_3-26-20.xlsx, R01-nanobody-budget-justification 3-26-20-FL.doc, R01\_nanobody\_Statement\_of\_work\_Minnesota\_Final.docx, Attachment 3B.pdf

Good evening all,

University of Minnesota's budget for Year 1 of Grant #: 1R01AI157975, titled, "Novel nanobodies to prevent and treat SARS-CoV-2 and other pathogenic human coronaviruses" is **\$308,000 Total Cost**.

Please send back the following documents by **Friday, July 17<sup>th</sup>**, I've attached the original budget and budget justification for your reference:

- Budget
- Budget Justification
- Attachment 3B

Please also see the attached Statement of Work and confirm whether there are any further changes

Thank you, please let me know if you have any further questions

Best,  
Crystal Ng  
Financial Grants Analyst | New York Blood Center  
Phone: 212.570.3150  
Website: [www.nybloodcenter.org](http://www.nybloodcenter.org)

  
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**1. Fang NYBC Prime NIH Budget\_3-26-20.xlsx**

Type: application/vnd.openxmlformats-officedocument.spreadsheetml.sheet  
Size: 104 KB (107,496 bytes)

**2. R01-nanobody-budget-justification 3-26-20-FL.doc**

Type: application/vnd.ms-word  
Size: 32 KB (32,768 bytes)

**3. R01\_nanobody\_Statement\_of\_work\_Minnesota\_Final.docx**

Type: application/vnd.openxmlformats-officedocument.wordprocessingml.document  
Size: 17 KB (17,412 bytes)

**4. Attachment 3B.pdf**

Type: application/pdf  
Size: 728 KB (745,555 bytes)

# FOR NIH DETAILED BUDGET

Does not include 2% increase

Start: 9/01/2020  
End: 8/31/2025

|                                              | Li 120<br>LeBeau 80<br>200 |        |               |                  | Li 120<br>LeBeau 80<br>200 |        |           |                  | Li 120<br>LeBeau 80<br>200 |        |           |                  | Li 120<br>LeBeau 40<br>160 |        |           |                  | Li 120<br>LeBeau 40<br>160 |        |           |                  | TOTAL              |
|----------------------------------------------|----------------------------|--------|---------------|------------------|----------------------------|--------|-----------|------------------|----------------------------|--------|-----------|------------------|----------------------------|--------|-----------|------------------|----------------------------|--------|-----------|------------------|--------------------|
|                                              | YEAR 1                     |        |               |                  | YEAR 2                     |        |           |                  | YEAR 3                     |        |           |                  | YEAR 4                     |        |           |                  | YEAR 5                     |        |           |                  |                    |
|                                              | 9/01/20-8/31/21            |        |               |                  | 9/01/21-8/30/22            |        |           |                  | 9/01/22-8/31/23            |        |           |                  | 9/01/23-8/31/24            |        |           |                  | 9/01/24-8/31/25            |        |           |                  |                    |
| <b>A. KEY/SR PERSON</b>                      |                            |        |               |                  |                            |        |           |                  |                            |        |           |                  |                            |        |           |                  |                            |        |           |                  |                    |
| Dr. Fang Li, Co-PI Academic                  | Effort                     | Cal Mo | Base Sal      | Amount           | Effort                     | Cal Mo | Base Sal  | Amount           | Effort                     | Cal Mo | Base Sal  | Amount           | Effort                     | Cal Mo | Base Sal  | Amount           | Effort                     | Cal Mo | Base Sal  | Amount           |                    |
|                                              | 7%                         | 0.63   | \$138,690     | \$9,708          | 7%                         | 0.63   | \$138,690 | \$9,708          | 7%                         | 0.63   | \$138,690 | \$9,708          | 7%                         | 0.63   | \$138,690 | \$9,708          | 7%                         | 0.63   | \$138,690 | \$9,708          | \$48,540           |
| Dr. Fang Li, Co-PI Summer                    | 20%                        | 0.60   | \$46,230      | \$9,246          | 20%                        | 0.60   | \$46,230  | \$9,246          | 20%                        | 0.60   | \$46,230  | \$9,246          | 20%                        | 0.60   | \$46,230  | \$9,246          | 20%                        | 0.60   | \$46,230  | \$9,246          | \$46,230           |
| Dr. Aaron LeBeau, Co-I                       | 2%                         | 0.24   | \$117,513     | \$2,350          | 2%                         | 0.24   | \$117,513 | \$2,350          | 2%                         | 0.24   | \$117,513 | \$2,350          | 2%                         | 0.24   | \$117,513 | \$2,350          | 2%                         | 0.24   | \$117,513 | \$2,350          | \$11,750           |
|                                              |                            | 0.00   |               | \$0              |                            | 0.00   |           | \$0              |                            | 0.00   |           | \$0              |                            | 0.00   |           | \$0              |                            | 0.00   |           | \$0              | \$0                |
| <b>Total Salary</b>                          |                            |        |               | <b>\$21,304</b>  |                            |        |           | <b>\$21,304</b>  |                            |        |           | <b>\$21,304</b>  |                            |        |           | <b>\$21,304</b>  |                            |        |           | <b>\$21,304</b>  | <b>\$106,520</b>   |
| <b>FRINGE</b>                                |                            |        |               |                  |                            |        |           |                  |                            |        |           |                  |                            |        |           |                  |                            |        |           |                  |                    |
| Dr. Fang Li, Co-PI Academic                  |                            |        | Rate          |                  |                            |        | Rate      |                  |                            |        | Rate      |                  |                            |        | Rate      |                  |                            |        | Rate      |                  |                    |
|                                              |                            |        | 36.00%        | \$3,495          |                            |        | 36.00%    | \$3,495          |                            |        | 36.00%    | \$3,495          |                            |        | 36.00%    | \$3,495          |                            |        | 36.00%    | \$3,495          | \$17,475           |
| Dr. Fang Li, Co-PI Summer                    |                            |        | 36.00%        | \$3,329          |                            |        | 36.00%    | \$3,329          |                            |        | 36.00%    | \$3,329          |                            |        | 36.00%    | \$3,329          |                            |        | 36.00%    | \$3,329          | \$16,645           |
| Dr. Aaron LeBeau, Co-I                       |                            |        | 36.00%        | \$846            |                            |        | 36.00%    | \$846            |                            |        | 36.00%    | \$846            |                            |        | 36.00%    | \$846            |                            |        | 36.00%    | \$846            | \$4,230            |
|                                              |                            |        |               | \$0              |                            |        |           | \$0              |                            |        |           | \$0              |                            |        |           | \$0              |                            |        |           | \$0              | \$0                |
| <b>Total Fringe</b>                          |                            |        |               | <b>\$7,670</b>   |                            |        |           | <b>\$7,670</b>   |                            |        |           | <b>\$7,670</b>   |                            |        |           | <b>\$7,670</b>   |                            |        |           | <b>\$7,670</b>   | <b>\$38,350</b>    |
| <b>TOTAL KEY/SR PERSONNEL</b>                |                            |        |               | <b>\$28,974</b>  |                            |        |           | <b>\$28,974</b>  |                            |        |           | <b>\$28,974</b>  |                            |        |           | <b>\$28,974</b>  |                            |        |           | <b>\$28,974</b>  | <b>\$144,870</b>   |
| <b>B. OTHER PERSONNEL</b>                    |                            |        |               |                  |                            |        |           |                  |                            |        |           |                  |                            |        |           |                  |                            |        |           |                  |                    |
| TBN, Post Doc                                | Effort                     | Cal Mo | Base Sal      | Amount           | Effort                     | Cal Mo | Base Sal  | Amount           | Effort                     | Cal Mo | Base Sal  | Amount           | Effort                     | Cal Mo | Base Sal  | Amount           | Effort                     | Cal Mo | Base Sal  | Amount           |                    |
|                                              | 75%                        | 9.00   | \$50,000      | \$37,500         | 75%                        | 9.00   | \$50,000  | \$37,500         | 75%                        | 9.00   | \$50,000  | \$37,500         | 75%                        | 9.00   | \$50,000  | \$37,500         | 75%                        | 9.00   | \$50,000  | \$37,500         | \$187,500          |
| TBN, Technician - Researcher 2               | 50%                        | 6.00   | \$43,054      | \$21,527         | 50%                        | 6.00   | \$43,054  | \$21,527         | 50%                        | 6.00   | \$43,054  | \$21,527         | 50%                        | 6.00   | \$43,054  | \$21,527         | 50%                        | 6.00   | \$43,054  | \$21,527         | \$107,635          |
| <b>Total Salary</b>                          |                            |        |               | <b>\$59,027</b>  |                            |        |           | <b>\$59,027</b>  |                            |        |           | <b>\$59,027</b>  |                            |        |           | <b>\$59,027</b>  |                            |        |           | <b>\$59,027</b>  | <b>\$295,135</b>   |
| <b>FRINGE</b>                                |                            |        |               |                  |                            |        |           |                  |                            |        |           |                  |                            |        |           |                  |                            |        |           |                  |                    |
| TBN, Post Doc                                |                            |        | Rate          |                  |                            |        | Rate      |                  |                            |        | Rate      |                  |                            |        | Rate      |                  |                            |        | Rate      |                  |                    |
|                                              |                            |        | 24.30%        | \$9,113          |                            |        | 24.30%    | \$9,113          |                            |        | 24.30%    | \$9,113          |                            |        | 24.30%    | \$9,113          |                            |        | 24.30%    | \$9,113          | \$45,565           |
| TBN, Technician - Researcher 2               |                            |        | 29.50%        | \$6,350          |                            |        | 29.50%    | \$6,350          |                            |        | 29.50%    | \$6,350          |                            |        | 29.50%    | \$6,350          |                            |        | 29.50%    | \$6,350          | \$31,750           |
|                                              |                            |        |               | \$0              |                            |        |           | \$0              |                            |        |           | \$0              |                            |        |           | \$0              |                            |        |           | \$0              | \$0                |
| <b>Total Fringe</b>                          |                            |        |               | <b>\$15,463</b>  |                            |        |           | <b>\$15,463</b>  |                            |        |           | <b>\$15,463</b>  |                            |        |           | <b>\$15,463</b>  |                            |        |           | <b>\$15,463</b>  | <b>\$77,315</b>    |
| <b>TOTAL OTHER PERSONNEL</b>                 |                            |        |               | <b>\$74,490</b>  |                            |        |           | <b>\$74,490</b>  |                            |        |           | <b>\$74,490</b>  |                            |        |           | <b>\$74,490</b>  |                            |        |           | <b>\$74,490</b>  | <b>\$372,450</b>   |
| <b>C. EQUIPMENT (Exceeding \$5,000)</b>      |                            |        |               |                  |                            |        |           |                  |                            |        |           |                  |                            |        |           |                  |                            |        |           |                  |                    |
| Equipment Item #1                            |                            |        |               | \$0              |                            |        |           | \$0              |                            |        |           | \$0              |                            |        |           | \$0              |                            |        |           | \$0              | \$0                |
| Equipment Item #2                            |                            |        |               | \$0              |                            |        |           | \$0              |                            |        |           | \$0              |                            |        |           | \$0              |                            |        |           | \$0              | \$0                |
| <b>Total Equipment</b>                       |                            |        |               | <b>\$0</b>       |                            |        |           | <b>\$0</b>       |                            |        |           | <b>\$0</b>       |                            |        |           | <b>\$0</b>       |                            |        |           | <b>\$0</b>       | <b>\$0</b>         |
| <b>D. TRAVEL</b>                             |                            |        |               |                  |                            |        |           |                  |                            |        |           |                  |                            |        |           |                  |                            |        |           |                  |                    |
| Domestic Travel Costs                        |                            |        |               | \$2,000          |                            |        |           | \$2,000          |                            |        |           | \$2,000          |                            |        |           | \$2,000          |                            |        |           | \$2,000          | \$10,000           |
| International Travel Costs                   |                            |        |               | \$0              |                            |        |           | \$0              |                            |        |           | \$0              |                            |        |           | \$0              |                            |        |           | \$0              | \$0                |
| <b>Total Travel</b>                          |                            |        |               | <b>\$2,000</b>   |                            |        |           | <b>\$2,000</b>   |                            |        |           | <b>\$2,000</b>   |                            |        |           | <b>\$2,000</b>   |                            |        |           | <b>\$2,000</b>   | <b>\$10,000</b>    |
| <b>E. PARTICIPANTS/TRAINEE SUPPORT COSTS</b> |                            |        |               |                  |                            |        |           |                  |                            |        |           |                  |                            |        |           |                  |                            |        |           |                  |                    |
| 1. Tuition/Fees/Health Insurance             |                            |        |               | \$0              |                            |        |           | \$0              |                            |        |           | \$0              |                            |        |           | \$0              |                            |        |           | \$0              | \$0                |
| 2. Stipends                                  |                            |        |               | \$0              |                            |        |           | \$0              |                            |        |           | \$0              |                            |        |           | \$0              |                            |        |           | \$0              | \$0                |
| 3. Travel                                    |                            |        |               | \$0              |                            |        |           | \$0              |                            |        |           | \$0              |                            |        |           | \$0              |                            |        |           | \$0              | \$0                |
| 4. Subsistence                               |                            |        |               | \$0              |                            |        |           | \$0              |                            |        |           | \$0              |                            |        |           | \$0              |                            |        |           | \$0              | \$0                |
| 5. Other: (List here)                        |                            |        |               | \$0              |                            |        |           | \$0              |                            |        |           | \$0              |                            |        |           | \$0              |                            |        |           | \$0              | \$0                |
| # of Participants/Trainees                   |                            | 0      |               | \$0              |                            |        |           | \$0              |                            |        |           | \$0              |                            |        |           | \$0              |                            |        |           | \$0              | \$0                |
| <b>Total Participants/Trainee Costs</b>      |                            |        |               | <b>\$0</b>       |                            |        |           | <b>\$0</b>       |                            |        |           | <b>\$0</b>       |                            |        |           | <b>\$0</b>       |                            |        |           | <b>\$0</b>       | <b>\$0</b>         |
| <b>F. OTHER DIRECT COSTS</b>                 |                            |        |               |                  |                            |        |           |                  |                            |        |           |                  |                            |        |           |                  |                            |        |           |                  |                    |
| 1. Materials and Supplies                    |                            |        |               | \$91,536         |                            |        |           | \$91,536         |                            |        |           | \$91,536         |                            |        |           | \$51,536         |                            |        |           | \$51,536         | \$377,680          |
| 2. Publication Costs                         |                            |        |               | \$2,000          |                            |        |           | \$2,000          |                            |        |           | \$2,000          |                            |        |           | \$2,000          |                            |        |           | \$2,000          | \$10,000           |
| 3. Consultant Services                       |                            |        |               | \$0              |                            |        |           | \$0              |                            |        |           | \$0              |                            |        |           | \$0              |                            |        |           | \$0              | \$0                |
| 4. ADP/Computer Services                     |                            |        |               | \$0              |                            |        |           | \$0              |                            |        |           | \$0              |                            |        |           | \$0              |                            |        |           | \$0              | \$0                |
| 5. Subawards/Consortium/Contractual          |                            |        |               | \$0              |                            |        |           | \$0              |                            |        |           | \$0              |                            |        |           | \$0              |                            |        |           | \$0              | \$0                |
| 6. Equipment or Facility Rental/User Fees    |                            |        |               | \$0              |                            |        |           | \$0              |                            |        |           | \$0              |                            |        |           | \$0              |                            |        |           | \$0              | \$0                |
| 7. Alterations and Renovations               |                            |        |               | \$0              |                            |        |           | \$0              |                            |        |           | \$0              |                            |        |           | \$0              |                            |        |           | \$0              | \$0                |
| 8. Equipment Maintenance                     |                            |        |               | \$1,000          |                            |        |           | \$1,000          |                            |        |           | \$1,000          |                            |        |           | \$1,000          |                            |        |           | \$1,000          | \$5,000            |
| 9. (List)                                    |                            |        |               | \$0              |                            |        |           | \$0              |                            |        |           | \$0              |                            |        |           | \$0              |                            |        |           | \$0              | \$0                |
| <b>Total Other Direct Costs</b>              |                            |        |               | <b>\$94,536</b>  |                            |        |           | <b>\$94,536</b>  |                            |        |           | <b>\$94,536</b>  |                            |        |           | <b>\$54,536</b>  |                            |        |           | <b>\$54,536</b>  | <b>\$392,680</b>   |
| <b>TOTAL DIRECT COSTS</b>                    |                            |        |               | <b>\$200,000</b> |                            |        |           | <b>\$200,000</b> |                            |        |           | <b>\$200,000</b> |                            |        |           | <b>\$160,000</b> |                            |        |           | <b>\$160,000</b> | <b>\$920,000</b>   |
| INDIRECT COSTS BASE*                         |                            |        |               | \$200,000        |                            |        |           | \$200,000        |                            |        |           | \$200,000        |                            |        |           | \$160,000        |                            |        |           | \$160,000        |                    |
| INDIRECT COSTS (TDC)                         |                            |        | 54%/55% split | \$108,340        |                            |        | 55%       | \$110,000        |                            |        | 55%       | \$110,000        |                            |        | 55%       | \$88,000         |                            |        | 55%       | \$88,000         | \$504,340          |
| <b>INDIRECT COST CHANGES!</b>                |                            |        |               |                  |                            |        |           |                  |                            |        |           |                  |                            |        |           |                  |                            |        |           |                  |                    |
| <b>TOTAL</b>                                 |                            |        |               | <b>\$308,340</b> |                            |        |           | <b>\$310,000</b> |                            |        |           | <b>\$310,000</b> |                            |        |           | <b>\$248,000</b> |                            |        |           | <b>\$248,000</b> | <b>\$1,424,340</b> |

\*=Standard exclusions:

Yr 1 IDC Calculations

|                                                    | Days at Rate | Rate  | F&A Amount | MTDC Amount |
|----------------------------------------------------|--------------|-------|------------|-------------|
| Capital equipment                                  |              |       |            |             |
| Capital expenditures                               |              |       |            |             |
| Participant support costs                          |              |       |            |             |
| Patient care charges                               | 303          | 54.00 | \$89,655   | \$166,027   |
| Rental of space                                    | 62           | 55.00 | \$18,685   | \$33,973    |
| Scholarships and fellowships                       |              |       | \$108,340  | \$200,000   |
| The portion of a subcontract in excess of \$25,000 |              |       |            |             |
| Tuition remission                                  |              |       |            |             |

| Year 1                        |     |              |                 | Year 2                        |     |              |                 | Year 3                        |     |
|-------------------------------|-----|--------------|-----------------|-------------------------------|-----|--------------|-----------------|-------------------------------|-----|
| Item                          | QTY | Cost         | Total           | Item                          | QTY | Cost         | Total           | Item                          | QTY |
| Lab Supplies for Aaron LeBeau | 1   | \$75,206     | \$75,206        | Lab Supplies for Aaron LeBeau | 1   | \$75,206     | \$75,206        | Lab Supplies for Aaron LeBeau | 1   |
| Supplies for Fang Li          | 1   | \$ 16,330    | \$16,330        | Supplies for Fang Li          | 1   | \$16,33      | \$16,330        | Supplies for Fang Li          | 1   |
|                               |     |              | \$0             |                               |     |              | \$0             |                               |     |
|                               |     |              | \$0             |                               |     |              | \$0             |                               |     |
|                               |     |              | \$0             |                               |     |              | \$0             |                               |     |
|                               |     |              | \$0             |                               |     |              | \$0             |                               |     |
|                               |     |              | \$0             |                               |     |              | \$0             |                               |     |
|                               |     |              | \$0             |                               |     |              | \$0             |                               |     |
|                               |     |              | \$0             |                               |     |              | \$0             |                               |     |
|                               |     | <b>Total</b> | <b>\$91,536</b> |                               |     | <b>Total</b> | <b>\$91,536</b> |                               |     |

| Year 4       |                 |                      |     |              |                 |
|--------------|-----------------|----------------------|-----|--------------|-----------------|
| Cost         | Total           | Item                 | QTY | Cost         | Total           |
|              |                 | Lab Supplies for     |     |              |                 |
| \$75,206     | \$75,206        | Aaron LeBeau         | 1   | \$35,206     | \$35,206        |
| \$16,333     | \$16,330        | Supplies for Fang Li | 1   | \$16,333     | \$16,330        |
|              | \$0             |                      |     |              | \$0             |
|              | \$0             |                      |     |              | \$0             |
|              | \$0             |                      |     |              | \$0             |
|              | \$0             |                      |     |              | \$0             |
|              | \$0             |                      |     |              | \$0             |
|              | \$0             |                      |     |              | \$0             |
| <b>Total</b> | <b>\$91,536</b> |                      |     | <b>Total</b> | <b>\$51,536</b> |

| Year 5               |     |              |                 |
|----------------------|-----|--------------|-----------------|
| Item                 | QTY | Cost         | Total           |
| Lab Supplies for     |     |              |                 |
| Aaron LeBeau         | 1   | \$35,206     | \$35,206        |
| Supplies for Fang Li | 1   | \$ 16,330    | \$16,330        |
|                      |     |              | \$0             |
|                      |     |              | \$0             |
|                      |     |              | \$0             |
|                      |     |              | \$0             |
|                      |     |              | \$0             |
|                      |     |              | \$0             |
|                      |     |              | \$0             |
| <b>Total</b>         |     | <b>Total</b> | <b>\$51,536</b> |

## **University of Minnesota Budget Justification**

### **Personnel Justification**

Fang Li, PhD, Co-Principal Investigator (1.2 calendar months), 10% effort, will be responsible for laboratory management and supervision of the projects, including experimental design, execution, data analysis, and write-up.

Aaron LeBeau, PhD, Co-Investigator (0.24 calendar months), 2% effort, will facilitate laboratory management and supervision of the projects, including experimental design, execution, data analysis, and write-up.

One Postdoctoral Scientist (To be named) (9.00 calendar months), 75% effort, will be responsible for conducting experiments on (1) construction and preparation of coronavirus spike proteins (from SARS-CoV-2, SARS-CoV, and MERS-CoV), (2) screening of camelid phage nanobody libraries targeting coronavirus spike proteins, (3) optimization of selected nanobodies using phage display to increase nanobody/antigen binding affinity, (4) characterization and purification of the selected nanobodies, and (5) determination of the structures of coronavirus spike proteins complexed with nanobodies.

Research assistant (To be named) (6.00 calendar months), 50% effort, will facilitate experiments on (1) construction and preparation of coronavirus spike proteins (from SARS-CoV-2, SARS-CoV, and MERS-CoV), (2) screening of camelid phage nanobody libraries targeting coronavirus spike proteins, (3) optimization of selected nanobodies using phage display to increase nanobody/antigen binding affinity, (4) characterization and purification of the selected nanobodies, and (5) determination of the structures of coronavirus spike proteins complexed with nanobodies.

### **Research Supplies Justification**

Research supplies will include reagents for molecular biology, cell culture, protein purification, protein biochemistry, protein crystallization, and electron microscopy. More specifically, research supplies will include cloning enzymes, restriction enzymes, plasmid purification kits, DNA retraction kits, insect cells, insect cell culture media, mammalian cells, mammalian cell culture media, protein purification columns, crystallization kits and plates, crystal freezing tools, electron microscopic grids and tools, Biacore chips, AlphaScreen beads and plates, and pseudovirus assay reagents.

Year 1 = \$91,536

Year 2 = \$91,536

Year 3 = \$91,536

Year 4 = \$51,536

Year 5 = \$51,536

### **Publication**

On average two publications will be expected per year. \$2,000/year

### **Equipment maintenance**

Purchase of service contracts for equipments such as AKTA purification system, centrifuges, ultracentrifuges, and insect cell shaker/incubators. \$1000/year

### **Indirect Costs**

The University of Minnesota has a negotiated rate of 54% MTDC through 7/2021 and 55% MTDC effective thereafter. Indirect costs requested equal \$504,340.



## **Statement of work – University of Minnesota**

Dr. Fang Li, associate professor at the University of Minnesota, is a structural and molecular biologist. He studies how coronaviruses infect host cells and transmit among host species. His research has been one of the major driving forces in shaping up what we now know about receptor recognition and cell entry of coronaviruses. He has also developed structure-based strategies for viral vaccine designs and antibody developments. His research provides foundational knowledge for the field of coronaviruses.

Dr. Aaron LeBeau, assistant professor at the University of Minnesota, is an expert on developing novel antibody-based molecular imaging agents and targeted therapeutics for metastatic prostate cancer. His laboratory specializes in antibody phage display. This technique allows him to rapidly identify antibody fragments against cancer-associated antigens using his in-house human antibody libraries. He has also developed non-human single-domain antibody libraries from naïve camelids and nurse sharks.

In this R01 application, the University of Minnesota team will work on the following experiments related to the proposed studies:

(1) construction and preparation of coronavirus spike proteins (from SARS-CoV-2, SARS-CoV, and MERS-CoV), (2) screening of camelid phage nanobody libraries targeting coronavirus spike proteins, (3) optimization of selected nanobodies using phage display to increase nanobody/antigen binding affinity, (4) characterization and purification of the selected nanobodies, and (5) determination of the structures of coronavirus spike proteins complexed with nanobodies.

**Attachment 3B**  
Research Subaward Agreement  
Subrecipient Contacts

Subaward Number:

**Subrecipient Information for [FFATA](#)**

reporting Entity's UEI/DUNS Name:

EIN No.:  Institution Type:

UEI / DUNS:  Currently registered in SAM.gov:  Yes  No  
Exempt from reporting executive compensation:  Yes  No (if no, complete 3Bpg2)

Parent UEI / DUNS:  **This section for U.S. Entities:** Zip Code [Look-up](#)  
Congressional District:  Zip Code+4:

**Place of Performance Address**

**Subrecipient Contacts**

Central Email:   
Website:

Principal Investigator Name:

Email:  Telephone Number:

Administrative Contact Name:

Email:  Telephone Number:

Financial Contact Name:

Email:  Telephone Number:

Invoice Email:

Authorized Official Name:

Email:  Telephone Number:

**Legal Address:**

**Administrative Address:**

**Payment Address:**

## Re: 1R01AI157975-01 - Year 1 Subaward

---

From: Lesley Schmidt Sindberg <schm1421@umn.edu>  
To: Ng, Crystal <CNg@nybc.org>  
Cc: lifang@umn.edu, Han, Jeffrey <KHan@nybc.org>, Du, Lanying <LDu@nybc.org>, Mathis, Kenneth <KMathis@nybc.org>, Ross, Deborah <DRoss2@nybc.org>, Anne Mockovak <a-mock@umn.edu>  
Sent: July 13, 2020 4:43:52 PM CDT  
Received: July 13, 2020 4:44:10 PM CDT  
Attachments: Attachment 3B - completed Fang Li.pdf

Hi Crystal,

Here is the attachment 3B. We will work on the budget and be in touch. Can you please send the NOA?

Thanks,  
Lesley

Lesley Schmidt Sindberg, MPH  
Administrative Director | [Department of Veterinary & Biomedical Sciences](#)  
College of Veterinary Medicine | University of Minnesota  
[schm1421@umn.edu](mailto:schm1421@umn.edu) [REDACTED]

Preparing a research proposal? Please submit an [Intent to Submit](#) form.

On Mon, Jul 13, 2020 at 4:04 PM Ng, Crystal <[CNg@nybc.org](mailto:CNg@nybc.org)> wrote:

Good evening all,

University of Minnesota's budget for Year 1 of Grant #: 1R01AI157975, titled, "Novel nanobodies to prevent and treat SARS-CoV-2 and other pathogenic human coronaviruses" is **\$308,000 Total Cost**.

Please send back the following documents by **Friday, July 17<sup>th</sup>**, I've attached the original budget and budget justification for your reference:

- Budget
- Budget Justification
- Attachment 3B

Please also see the attached Statement of Work and confirm whether there are any further changes

Thank you, please let me know if you have any further questions

Best,

Crystal Ng

Financial Grants Analyst | New York Blood Center

Phone: 212.570.3150

Website: [www.nybloodcenter.org](http://www.nybloodcenter.org)



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**1. Attachment 3B - completed Fang Li.pdf**

Type: application/pdf  
Size: 641 KB (656,572 bytes)

### Attachment 3B

#### Research Subaward Agreement Subrecipient Contacts



Subaward Number:

**Subrecipient Information for [FFATA](#)**reporting Entity's UEI/DUNS Name: EIN No.:  Institution Type: UEI / DUNS:  Currently registered in SAM.gov:  Yes  NoExempt from reporting executive compensation:  Yes  No (if no, complete 3Bpg2)Parent UEI / DUNS:  This section for U.S. Entities:  Zip Code [Look-up](#)Congressional District:  Zip Code+4: **Place of Performance Address**  
  
**Subrecipient Contacts**Central Email: Website: Principal Investigator Name: Email:  Telephone Number: Administrative Contact Name: Email:  Telephone Number: Financial Contact Name: Email:  Telephone Number: Invoice Email: Authorized Official Name: Email:  Telephone Number: **Legal Address:**  
  
  
**Administrative Address:**  
  
  
**Payment Address:**

## Re: 1R01AI157975-01 - Year 1 Subaward

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From: Lesley Schmidt Sindberg <[schm1421@umn.edu](mailto:schm1421@umn.edu)>  
To: Ng, Crystal <[CNg@nybc.org](mailto:CNg@nybc.org)>  
Cc: lifang@umn.edu, Han, Jeffrey <[KHan@nybc.org](mailto:KHan@nybc.org)>, Du, Lanying <[LDu@nybc.org](mailto:LDu@nybc.org)>, Mathis, Kenneth <[KMathis@nybc.org](mailto:KMathis@nybc.org)>, Ross, Deborah <[DRoss2@nybc.org](mailto:DRoss2@nybc.org)>, Anne Mockovak <[a-mock@umn.edu](mailto:a-mock@umn.edu)>  
Sent: July 14, 2020 1:21:43 PM CDT  
Received: July 14, 2020 1:21:59 PM CDT  
Attachments: R01-nanobody-budget-justification 7-14-20.doc, Fang NYBC Prime NIH Budget\_7-14-20.xlsx

Hi Crystal,

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Lesley

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**Sent:** Monday, July 13, 2020 5:44 PM  
**To:** Ng, Crystal <[CNg@nybc.org](mailto:CNg@nybc.org)>  
**Cc:** [lifang@umn.edu](mailto:lifang@umn.edu); Han, Jeffrey <[KHan@nybc.org](mailto:KHan@nybc.org)>; Du, Lanying <[LDu@nybc.org](mailto:LDu@nybc.org)>; Mathis, Kenneth <[KMathis@nybc.org](mailto:KMathis@nybc.org)>; Ross, Deborah <[DRoss2@nybc.org](mailto:DRoss2@nybc.org)>; Anne Mockovak <[a-mock@umn.edu](mailto:a-mock@umn.edu)>  
**Subject:** Re: 1R01AI157975-01 - Year 1 Subaward

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Lesley

Lesley Schmidt Sindberg, MPH  
Administrative Director | [Department of Veterinary & Biomedical Sciences](#)  
College of Veterinary Medicine | University of Minnesota  
[schm1421@umn.edu](mailto:schm1421@umn.edu) | 

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Crystal Ng

Financial Grants Analyst | New York Blood Center

Phone: 212.570.3150

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**1. R01-nanobody-budget-justification 7-14-20.doc**

Type: application/vnd.ms-word  
Size: 28 KB (29,184 bytes)

**2. Fang NYBC Prime NIH Budget\_7-14-20.xlsx**

Type: application/vnd.openxmlformats-officedocument.spreadsheetml.sheet  
Size: 104 KB (107,191 bytes)

## **University of Minnesota Budget Justification**

### **Personnel Justification**

Fang Li, PhD, Co-Principal Investigator (1.2 calendar months), 10% effort, will be responsible for laboratory management and supervision of the projects, including experimental design, execution, data analysis, and write-up.

Aaron LeBeau, PhD, Co-Investigator (0.24 calendar months), 2% effort, will facilitate laboratory management and supervision of the projects, including experimental design, execution, data analysis, and write-up.

One Postdoctoral Scientist (To be named) (9.00 calendar months), 75% effort, will be responsible for conducting experiments on (1) construction and preparation of coronavirus spike proteins (from SARS-CoV-2, SARS-CoV, and MERS-CoV), (2) screening of camelid phage nanobody libraries targeting coronavirus spike proteins, (3) optimization of selected nanobodies using phage display to increase nanobody/antigen binding affinity, (4) characterization and purification of the selected nanobodies, and (5) determination of the structures of coronavirus spike proteins complexed with nanobodies.

Research assistant (To be named) (6.00 calendar months), 50% effort, will facilitate experiments on (1) construction and preparation of coronavirus spike proteins (from SARS-CoV-2, SARS-CoV, and MERS-CoV), (2) screening of camelid phage nanobody libraries targeting coronavirus spike proteins, (3) optimization of selected nanobodies using phage display to increase nanobody/antigen binding affinity, (4) characterization and purification of the selected nanobodies, and (5) determination of the structures of coronavirus spike proteins complexed with nanobodies.

### **Research Supplies Justification**

Research supplies will include reagents for molecular biology, cell culture, protein purification, protein biochemistry, protein crystallization, and electron microscopy. More specifically, research supplies will include cloning enzymes, restriction enzymes, plasmid purification kits, DNA retraction kits, insect cells, insect cell culture media, mammalian cells, mammalian cell culture media, protein purification columns, crystallization kits and plates, crystal freezing tools, electron microscopic grids and tools, Biacore chips, AlphaScreen beads and plates, and pseudovirus assay reagents.

Year 1 = \$91,536

Year 2 = \$91,536

Year 3 = \$91,536

Year 4 = \$51,536

Year 5 = \$51,536

### **Publication**

On average two publications will be expected per year. \$2,000/year

### **Equipment maintenance**

Purchase of service contracts for equipments such as AKTA purification system, centrifuges, ultracentrifuges, and insect cell shaker/incubators. \$1000/year

### **Indirect Costs**

The University of Minnesota has a negotiated rate of 54% MTDC through 7/2021 and 55% MTDC effective thereafter. Indirect costs requested equal \$504,000.





| <b>Year 4</b> |                 |                      |            |              |                 |
|---------------|-----------------|----------------------|------------|--------------|-----------------|
| <b>Cost</b>   | <b>Total</b>    | <b>Item</b>          | <b>QTY</b> | <b>Cost</b>  | <b>Total</b>    |
|               |                 | Lab Supplies for     |            |              |                 |
| \$75,206      | \$75,206        | Aaron LeBeau         | 1          | \$35,206     | \$35,206        |
| \$16,33       | \$16,330        | Supplies for Fang Li | 1          | \$16,33      | \$16,330        |
|               | \$0             |                      |            |              | \$0             |
|               | \$0             |                      |            |              | \$0             |
|               | \$0             |                      |            |              | \$0             |
|               | \$0             |                      |            |              | \$0             |
|               | \$0             |                      |            |              | \$0             |
|               | \$0             |                      |            |              | \$0             |
| <b>Total</b>  | <b>\$91,536</b> |                      |            | <b>Total</b> | <b>\$51,536</b> |

| <b>Year 5</b>        |            |              |                 |     |
|----------------------|------------|--------------|-----------------|-----|
| <b>Item</b>          | <b>QTY</b> | <b>Cost</b>  | <b>Total</b>    |     |
| Lab Supplies for     |            |              |                 |     |
| Aaron LeBeau         | 1          | \$35,206     | \$35,206        |     |
| Supplies for Fang Li | 1          | \$ 16,330    | \$16,330        |     |
|                      |            |              |                 | \$0 |
|                      |            |              |                 | \$0 |
|                      |            |              |                 | \$0 |
|                      |            |              |                 | \$0 |
|                      |            |              |                 | \$0 |
|                      |            |              |                 | \$0 |
|                      |            |              |                 | \$0 |
| <b>Total</b>         |            | <b>Total</b> | <b>\$51,536</b> |     |

## RE: UNC/ NY Blood Center/UMN Collaboration Vaccine Collaboration

---

From: Tang, Kathy <KTang@nybc.org>  
To: [REDACTED] du>, Bartholomew, Kyle <kbartho@email.unc.edu>  
Cc: Kenneth Karanja <kara0108@umn.edu>, UNC Office of Tech Dev MTA <mta@unc.edu>, Baric, Ralph S <rbaric@email.unc.edu>, Fang Li <lifang@umn.edu>, Du, Lanying <LDu@nybc.org>, Glasky Bergman, Ph.D., Michelle <michelle.glaskybergman@klgates.com>  
Sent: July 20, 2020 6:35:57 PM CDT  
Received: July 20, 2020 6:36:01 PM CDT  
Lanying,

You are going to have to talk to the lawyer at NYBC about the MTA. I have no idea about this and what is needed.

Kathy

---

**From:** [REDACTED]  
**Sent:** Monday, July 6, 2020 4:05 PM  
**To:** Bartholomew, Kyle <kbartho@email.unc.edu>  
**Cc:** Kenneth Karanja <kara0108@umn.edu>; UNC Office of Tech Dev MTA <mta@unc.edu>; Baric, Ralph S <rbaric@email.unc.edu>; Fang Li <lifang@umn.edu>; Du, Lanying <LDu@nybc.org>; Tang, Kathy <KTang@nybc.org>; Glasky Bergman, Ph.D., Michelle <michelle.glaskybergman@klgates.com>  
**Subject:** Re: UNC/ NY Blood Center/UMN Collaboration Vaccine Collaboration

Hi Kyle,

Thanks for the update. The immunized mice are at New York Blood Center now. I think the appropriate MTA can be arranged between UNC and NYBC. Kathy at NYBC copied here will facilitate the process.

Best,

[REDACTED]

On Mon, Jul 6, 2020 at 10:57 AM Bartholomew, Kyle <[kbartho@email.unc.edu](mailto:kbartho@email.unc.edu)> wrote:

Hi [REDACTED]

I spoke with my investigators earlier today, and they are willing to participate in this project, and they will cover the cost of the challenge studies.

Given this, we should be able to get this project moving with a simple MTA. If the mice are coming from NY Blood Center, please have let them know to send UNC an MTA to review.

Best,  
Kyle

Kyle R. Bartholomew, Ph.D.  
Commercialization Manager

**THE UNIVERSITY OF NORTH CAROLINA AT CHAPEL HILL**  
**INNOVATION, ENTREPRENEURSHIP AND ECONOMIC DEVELOPMENT – INNOVATE CAROLINA**  
Office of Technology Commercialization  
Campus Box 4105  
109 Church Street | Chapel Hill, NC 27516  
T: 919.962.5921 | F: 919.962.0646  
Email: [kyle.bartholomew@unc.edu](mailto:kyle.bartholomew@unc.edu)  
Follow and Connect: [Twitter](#) | [Facebook](#) | [Instagram](#) | [LinkedIn](#) | [YouTube](#) | [Podcast](#)  
Web: [otc.unc.edu](http://otc.unc.edu) | [innovate.unc.edu](http://innovate.unc.edu)



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## RE: 1R01AI157975-01 - Year 1 Subaward

---

From: Ng, Crystal <CNg@nybc.org>  
To: Lesley Schmidt Sindberg <schm1421@umn.edu>, carls234@umn.edu, npilman@umn.edu, Anne Mockovak <a-mock@umn.edu>, lifang@umn.edu  
Cc: Han, Jeffrey <KHan@nybc.org>, Du, Lanying <LDu@nybc.org>, Mathis, Kenneth <KMathis@nybc.org>, Ross, Deborah <DRoss2@nybc.org>  
Sent: August 5, 2020 2:22:20 PM CDT  
Received: August 5, 2020 2:22:35 PM CDT  
Attachments: Du\_Minnesota\_R01A1157975\_PO\_NYB1017234.pdf, Du\_Minnesota\_R01AI157975\_Agreement FE.pdf

Good afternoon all,

Please see attached fully executed agreement and Purchase Order.

To expedite your payment process, please reference PO# NYB1017234 on the invoice.

Also note that we've changed our email address for all subaward invoices to: [OSPSubcontracts@nybc.org](mailto:OSPSubcontracts@nybc.org)

Thank you

Best,  
Crystal Ng  
Financial Grants Analyst | New York Blood Center, Inc.  
Phone: 212.570.3150  
Website: [www.nybloodcenter.org](http://www.nybloodcenter.org)

---

**From:** Lesley Schmidt Sindberg <schm1421@umn.edu>  
**Sent:** Tuesday, July 14, 2020 2:22 PM  
**To:** Ng, Crystal <CNg@nybc.org>  
**Cc:** lifang@umn.edu; Han, Jeffrey <KHan@nybc.org>; Du, Lanying <LDu@nybc.org>; Mathis, Kenneth <KMathis@nybc.org>; Ross, Deborah <DRoss2@nybc.org>; Anne Mockovak <a-mock@umn.edu>  
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Administrative Director | [Department of Veterinary & Biomedical Sciences](#)

College of Veterinary Medicine | University of Minnesota

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**1. Du\_Minnesota\_R01A1I57975\_PO\_NYB1017234.pdf**

Type: application/pdf  
Size: 63 KB (64,679 bytes)

**2. Du\_Minnesota\_R01AI157975\_Agreement FE.pdf**

Type: application/pdf  
Size: 3 MB (3,781,715 bytes)

# Purchase Order NYB1017234

|                   |                |
|-------------------|----------------|
| Order             | NYB1017234     |
| Order Date        | 22-JUL-2020    |
| Change Order      | 0              |
| Change Order Date | 22-JUL-2020    |
| Revision          | 0              |
| Ordered           | 308,000.00 USD |

Sold To **New York Blood Center**  
**310 East 67 Street**  
**New York,**  
**NY 10065**

Supplier **REGENTS OF THE UNIVERSITY OF MINNESOTA**  
**NW 5957**  
**PO BOX 1450**  
**MINNEAPOLIS,**  
**MN 554855957**

Bill To **New York Blood Center**  
**EMAIL: [apinvoices@nybc.org](mailto:apinvoices@nybc.org)**

Ship To **NEW YORK BLOOD CENTER, INC.**  
**310 EAST 67TH STREET**  
**NEW YORK,**  
**NY 10065**  
**United States**

Notes USD = US Dollar

|                         |                    |               |               |                                                             |                 |
|-------------------------|--------------------|---------------|---------------|-------------------------------------------------------------|-----------------|
| Customer Account Number | Supplier Number    | Payment Terms | Freight Terms | FOB                                                         | Shipping Method |
|                         | 12275              | Net 30        |               |                                                             |                 |
| Confirm To              | Deliver To Contact |               |               |                                                             |                 |
| Raul Rivera             | Deborah Ross       |               |               | E-mail <a href="mailto:DRoss2@nybc.org">DRoss2@nybc.org</a> |                 |

| Line              | Item                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Price      | Quantity | UOM | Ordered           | Taxable |
|-------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|----------|-----|-------------------|---------|
| 1                 | Subcontract. Regents of the University of Minnesota, Dr. Fang Li and New York Blood Center, Inc., Dr. Lanying Du. Grant: 1R01AI157975-01. Period:07.09.2020 to 06.30.2021. NYBC#: VIM-NIH689.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 308,000.00 |          |     | 308,000.00        |         |
|                   | <p><b>Notes</b> This Subcontract between the New York Blood Center, Inc. (NYBC) and University of Minnesota for work and services to be performed under NIH grant 1R01AI157975-01 entitled "Novel nanobodies to prevent and treat SARS-CoV-2 and other pathogenic human coronaviruses". Dr. Fang Li of University of Minnesota will collaborate with NYBC's Dr. Lanying Du. Performance Period: 7/09/2020 through 6/30/2021. The total cost authorized is \$308,000.00 which includes indirect cost. Vouchers are to be submitted monthly referencing this Purchase Order Number, and shall be sent to APINVOICES@nybc.org.</p> <p><b>Promised</b><br/>7/22/20</p> <p><b>Requested</b><br/>7/22/20</p> <p>Requested and Promised Dates correspond to the date of arrival at the Ship-to Location.</p> |            |          |     |                   |         |
| <b>Line Total</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |            |          |     | <b>308,000.00</b> |         |
| <b>Total</b>      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |            |          |     | <b>308,000.00</b> |         |

## Purchase Order NYB1017234

PLEASE NOTE: The Terms of Sale set forth at the conclusion hereof apply to this Purchase Order. If, for any reason, the face of this Purchase Order has been transmitted or otherwise supplied to you without the Terms of Sale, you are nonetheless charged with notice thereof and such Terms of Sale nonetheless apply to this Purchase Order. Please contact New York Blood Center at the Telephone number indicated to obtain a copy of such Terms of Sale.

A handwritten signature in black ink, appearing to read "J. Lewis", is written over a horizontal line.

Authorized Signature

# Purchase Order NYB1017234

## TERMS OF SALE

NEW YORK BLOOD CENTER, INC. ("Buyer") hereby offers to purchase the goods, products, work and/or services specified on the face of this Purchase Order (such goods, products, work and/or services, collectively, the "Goods", and this Purchase Order, the "Order") from the person, firm or entity specified on the face of this Order ("Seller") on the specific terms and conditions set forth on the face hereof and the general provisions contained herein below.

1. Purchase Order. Buyer agrees to purchase the Goods only upon the terms and conditions set forth in this Order; acceptance of Buyer's offer to purchase the Goods is hereby expressly limited to the terms of this Order. Without limitation of the foregoing, Buyer hereby objects to any different and/or additional terms that Seller may heretofore have proposed and/or hereafter may propose with respect to this Order (in each case other than additional warranties of Seller) except as Buyer may expressly accept in writing. If this Order is issued pursuant to a master agreement between Seller and Buyer, the provisions of such master agreement shall apply to the Order but only to the extent so specified in such master agreement and such provisions do not contradict and are not inconsistent with this Order.
2. Acceptance Of Purchase Order. This Order is an offer to purchase, not an acceptance of any offer to sell. Such offer (and this Order) shall expire without liability unless Buyer has received written acceptance thereof by Seller within [five] ([5]) business days of the date of this Order (or within such shorter period of time as may be specified on the face of this Order). Acceptance is limited to the terms stated herein.
3. Cancellation. This Order may be cancelled at any time in part or in full prior to the acceptance by Buyer of any of the Goods, at no cost or obligation.
4. Packing And Marking. Seller shall securely and adequately pack the Goods (to the extent applicable, in conformance with Buyer's instructions and the requirements of the carrier). Seller shall separately number all packages or containers, showing the corresponding numbers on the invoices. An itemized packing slip bearing this Order number shall be placed in each package or container.
5. Risk Of Loss, Shipping. Unless otherwise specified on the face of this Order, the Goods shall be delivered to Buyer F.O.B. Buyer's facility at the address (and otherwise in accordance with the delivery instructions) specified on the face of this Order. Seller shall retain title to and risk of loss or damage to all Goods to be delivered hereunder until completion of delivery of the Goods to Buyer at such specified delivery point (at which time such title and risk of loss shall (subject to clause (4) of Section 2-401, and clauses (1) and (2) of Section 2-510, of the New York Uniform Commercial Code – Sales ("New York UCC")) pass to Buyer. Timely delivery of Goods is of the essence of this Order. If any Goods are not delivered by the delivery date specified on the face of this Order (or within a reasonable period of time if no such date is specified), Buyer may (without limiting any of its other rights or remedies) refuse to accept the Goods and cancel this Order. In the event this Order involves deliveries in installments, Seller's failure to deliver one installment at the time and place specified herein shall be deemed a breach with respect to the remaining installments. Acceptance of late deliveries shall not be deemed a waiver of Buyer's right to hold Seller liable for any loss or damage resulting therefrom, nor shall such acceptance act as a modification of Seller's obligation to make future deliveries in accordance with the delivery schedule. Buyer reserves the right to refuse acceptance of deliveries made (i) prior to the delivery date specified on the face of this Order, or (ii) other than during the regular business hours specified on the face of this Order.
6. Inspection And Acceptance Of Delivery. All Goods will be received subject to Buyer's right of inspection and testing, and acceptance or rejection, within a reasonable period of time (in any event, not less than three (3) business days) after delivery. Payment for Goods will not in any event constitute acceptance thereof. Buyer may reject any Goods which do not fully conform to this Order (including without limitation conformance to all warranties of Seller set forth in or otherwise applicable to this Order) or which are otherwise defective and may return such rejected Goods to Seller at Seller's risk and expense and, in addition to other rights, Buyer may charge Seller all expenses of unpacking, examining, repacking and reshipping such Goods. Seller shall not have the right to send any replacements for, or otherwise cure, rejected Goods unless approved in advance by Buyer in writing, but Seller shall promptly do so upon Buyer's request. No delay or failure to inspect or test or failure to discover any defect or non-conformance shall relieve Seller of any of its warranties set forth in or otherwise applicable to this Order or otherwise impair Buyer's rights (including without limitation indemnification rights) or remedies with respect to such defect or non-conformance. If this Order calls for delivery in installments, Buyer's rights of rejection set forth under this Order, or otherwise provided under the New York UCC, shall apply in relation to each installment regardless of whether or not the non-conformity substantially impairs the value of such installment and regardless of whether or not the non-conformity can be cured. Nothing in this Order limits Buyer's right under the New York UCC to revoke any acceptance of the Goods or any portion thereof.
7. Prices, Invoicing. Unless (and except only to the extent) otherwise provided on the face of this Order, the pricing for the Goods set forth on the face of this Order is a delivered, all-inclusive price and, without limitation of the foregoing, includes (i) any federal, state or local sales tax or other tax or duty which is imposed upon the sale, performance and/or delivery of the Goods to Buyer and (ii) all charges for packaging, storage, shipping and (to the extent applicable) insurance. A separate invoice shall be issued for each shipment.
8. Payment. Invoices must be emailed to [apinvoices@nybc.org](mailto:apinvoices@nybc.org) referencing the purchase order number. Seller will not invoice Buyer for any goods prior to delivery thereof (or, if later, the delivery date specified on the face of this order). Unless and to the extent otherwise specified on the face of this order, payment will be made in US dollars and payment will be due (subject to the other terms of this order) within 60 days (measured from the Invoice date to the date invoice is due (or Buyer otherwise makes payment)). Alternatively, seller may choose to participate in NYBC's American Express Buyer Initiated Payments ("BIP") program for expedited invoice payment in 30 Days. For information on enrolling in the BIP program. Seller should contact NYBC's Account Payable Department at 212-699-5170
9. Certain Warranties. In addition to, and without limitation of, Seller's standard warranty and/or service guarantee and all express and/or implied warranties pursuant to the New York UCC (all of which cumulatively shall apply), Seller warrants that the Goods will be of good and merchantable quality and free from defect in material or workmanship, will conform strictly to any specifications, drawings and/or samples specified and/or furnished by Buyer and (to the extent including any work and/or services other than the furnishing of goods) will be performed in a professional and workmanlike manner and in accordance with good commercial practice; that to the extent not manufactured pursuant to specific designs furnished by Buyer, the Goods will be free from all defects in design and will properly serve their ordinary, and any specified, purpose; that all materials, components, parts and other items incorporated in the Goods are new and of suitable quality for their ordinary, and any specified, purpose. All of the warranties specified or mentioned above

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in this paragraph shall survive delivery, inspection, acceptance and payment and shall inure to the benefit of Buyer and its successors and assigns.

10. **Title Warranty.** Seller warrants that it will convey to Buyer good and merchantable title to the Goods supplied hereunder, free and clear of all security interests, liens or encumbrances. Seller further warrants that the sale, use, modification and/or re-sale of the Goods furnished hereunder (other than those parts of the Goods supplied or designed by Buyer) will not infringe or contribute to infringement of any intellectual property (including without limitation patent, copyright, trademark or trade secret) or intellectual property rights of any third party.

11. **Compliance With Law.** Seller shall, in the performance of this Order, comply with, and Seller warrants and certifies that the Goods shall meet or exceed, have been or shall be manufactured and/or performed in accordance with, and otherwise comply with, all applicable federal and state statutes, rules, regulations, standards and orders, including without limitation federal and state wage and hour and employment discrimination laws, laws relating to prices and unfair competition (including without limitation the Robinson Patman Act), the Occupational Safety and Health Act of 1970, as amended ("OSHA"), Federal Child Labor Laws, 29 CFR part 470, the Equal Employment Opportunity Provisions of Executive Order 11246, as amended, Section 503 of the Rehabilitation Act of 1973, as amended, and the Vietnam Era Veterans Readjustment Assistance Act of 1974, as amended, 38 USC 4212 (formerly 2012). All electrical equipment and/or goods must have UL as well as OSHA approval. Seller will provide, when applicable, a list of product ingredients, a Hazardous Materials Data Sheet and/or drawings and specifications of the Goods. Prior to any delivery of the Goods, Seller will advise Buyer in writing (i) of any special hazards associated with handling, storage, and use of the Goods and (ii) if the Goods or any ingredient of the Goods appears on the U.S. Department of Labor's Carcinogen List or Hazardous Data Sheet. This contractor and subcontractor shall abide by the requirements of 41 CFR 60-300.5(a). This regulation prohibits discrimination against qualified protected veterans, and requires affirmative action by covered prime contractors and subcontractors to employ and advance in employment qualified protected veterans. Federal contractors are permitted to combine all of the Equal Opportunity (EO) clauses required by 41 CFR § 60-300.5(a), 41 CFR § 60-741.5(a), and 41 CFR § 60-1.4(a) into a single, consolidated "incorporation by reference" clause (must be in bold letters) as follows: This contractor and subcontractor shall abide by the requirements of 41 CFR §§ 60-1.4(a), 60-300.5(a) and 60-741.5(a). These regulations prohibit discrimination against qualified individuals based on their status as protected veterans or individuals with disabilities, and prohibit discrimination against all individuals based on their race, color, religion, sex, or national origin. Moreover, these regulations require that covered prime contractors and subcontractors take affirmative action to employ and advance in employment individuals without regard to race, color, religion, sex, national origin, protected veteran status or disability.

12. **Indemnification.** Seller shall indemnify, hold harmless and defend each of Buyer, Buyer's affiliated companies, and Buyer's and Buyer's affiliated companies' respective agents, servants, successors and assigns, against any and all claims, suits, losses, damages, liabilities, costs and expenses (including without limitation reasonable attorney's fees) incurred and/or suffered by any of them attributable (in whole or in part) to, or otherwise arising out of, (i) the purchase, and/or any use and/or consumption (by any such indemnitee and/or any third party), of the Goods (or any portion thereof) and/or the performance of any work and/or services included in the Goods and/or (ii) without limitation of clause (i), (x) any breach or violation by Seller of its representations, warranties or obligations under Paragraph 10 ("Title Warranty") or 11 ("Compliance With Law") hereof and/or (y) any Recall (as defined herein below).

13. **Recall of Goods.** "Recall" means any recall, market withdrawal, stock recovery, product correction and/or advisory safety communication, and/or any action similar to any of the foregoing, regarding any of the Goods that is announced, initiated, implemented, recommended or required by (directly or indirectly) Seller (or any of Seller's suppliers or subcontractors), any governmental agency or authority (including without limitation any court) or (acting in good faith) Buyer. Buyer will have the right to take such further action as it in good faith determines is necessary or appropriate in respect of any Recall that is announced, initiated, implemented, recommended or required by Seller or any governmental agency or authority (including without limitation any court). In the event a Recall is announced, initiated or implemented by Buyer, Seller shall fully cooperate and take all such steps as are reasonably requested by Buyer to implement the Recall in a timely and complete manner. Any and all action to be taken in connection with a Recall will be in accordance with all applicable federal and state laws and regulations. This paragraph is in addition to, and not in limitation of, Paragraph 12 ("Indemnification") hereof.

14. **Insurance.** Seller will provide at Buyer's request evidence of its liability insurance applicable to the Goods. Seller's liability insurance shall protect Buyer, to the extent permitted under applicable law, recognizing the indemnification agreement set forth in Paragraph 12 ("Indemnification") hereof.

15. **Services on Buyer's Property.** For work and/or services performed on Buyer's property pursuant to or in connection with this Order, Seller agrees to comply with Buyer's safety and insurance requirements (a copy of which will be made available on request to Seller).

16. **General Provisions.** Entire Agreement: This Order, together with all documents attached hereto or expressly incorporated herein, constitutes the final and entire agreement between the parties with respect to the subject matter hereof and may not be amended or supplemented except in a writing signed by the parties hereto, provided that this sentence does not limit or modify the provision set forth at "Remedies" below in this paragraph. Waivers: No party hereto shall be deemed to have waived any provision herein or right hereunder unless that party has executed a writing setting forth the item waived. Severability: To the fullest extent that it effectively may do so, each of Buyer and Seller hereby waives any provision of applicable law that otherwise would render any provision of this Order void, voidable or otherwise unenforceable to any extent. If (after giving effect to the preceding sentence) any provision of this Order shall be found to be unenforceable by a court or other competent body, this Order shall be interpreted as though that provision, to the extent that it is found to be unenforceable, were not contained herein. Relationship: The relationship between the parties shall be that of independent contractors, and nothing contained herein shall make either party the partner, joint venture, employee or agent of the other. Assignment; Delegation. Seller shall not (in whole or in part) assign this Order or delegate its performance hereunder without the prior written consent of Buyer, but this provision shall not restrict Seller in the procurement of component parts or materials. "Delivery" of Services: Unless the context does not permit such construction, all references herein to "delivery" of Goods means, with respect to any work and/or services (other than the furnishing of goods) comprising part of the "Goods", the completion of such work and/or services and certification of such completion to Buyer by Seller (and the words "deliver" and "delivered" shall be analogously construed). Setoffs: All claims for moneys due or to become due from Buyer shall be subject to deduction by Buyer for any setoff or counterclaim arising out of this or any other Buyer agreement with Seller, whether such setoff or counterclaim arose before or after any assignment by Seller. Venue: Any dispute arising out of or in connection with this Order will be finally resolved in (and only in) the Supreme Court of the State of New York, County of New York or County of Westchester, or the U.S. District Court for the Southern District of New York (and appellate courts from any of the foregoing). Each party (i) consents, for itself and its assets, to the jurisdiction

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of such courts for the purpose of any proceeding pursuant to the preceding sentence, (ii) agrees that service of all writs, process and summonses in any such proceeding may (without limitation) be effected in the manner specified at "Remedies" below in this paragraph, and (iii) waives any objection or claim which it may now or hereafter have to the laying of venue of any such proceeding or that such proceeding has been brought in an inconvenient forum and agrees not to plead or claim either of the foregoing. Notices: Any notices required by this Order shall be given in a writing sent by hand (including without limitation by courier) or by certified or registered mail to the address set forth on the reverse side hereof and shall be effective on the earlier of the date of receipt or the seventh (7th) day after the mailing thereof. Without limitation, notice of cancellation, rejection or revocation of acceptance may be made telephonically, by facsimile transmission and/or by electronic mail if confirmed with a notice delivered in the manner specified in the preceding sentence. Remedies: Any term of this Order to the contrary notwithstanding, the representations, warranties, rights (including without limitation indemnification rights) and remedies of or in favor of Buyer specified in this Order are not exclusive but shall be in addition to all, and do in any way limit any of, the representations, warranties, rights and remedies afforded to Buyer under the law governing this Order (including without limitation the representations, warranties, rights and remedies with respect to this Order afforded to Buyer under the New York UCC). Governing Law: This Order shall be governed by and construed in accordance with the laws of the State of New York exclusive of its choice of law provisions (other than, if applicable, Section 5-1401 of the New York General Obligations Law). The United Nations Convention on Contracts for the International Sale of Goods will not apply to this Order.





## FDP Cost Reimbursement Subaward

|                                                                                                          |                                                                |
|----------------------------------------------------------------------------------------------------------|----------------------------------------------------------------|
| <b>Federal Awarding Agency:</b> National Institutes of Health (NIH)                                      |                                                                |
| <b>Pass-Through Entity (PTE):</b><br>New York Blood Center, Inc.                                         | <b>Subrecipient:</b><br>Regents of the University of Minnesota |
| PTE PI: Lanying Du                                                                                       | Sub PI: Fang Li                                                |
| PTE Federal Award No: 1R01AI157975-01                                                                    | Subaward No: VIM-NIH689                                        |
| Project Title: Novel nanobodies to prevent and treat SARS-CoV-2 and other pathogenic human coronaviruses |                                                                |

|                                                            |                 |                                                           |
|------------------------------------------------------------|-----------------|-----------------------------------------------------------|
| <b>Subaward Period of Performance (Budget Period):</b>     |                 | <b>Amount Funded This Action (USD):</b> \$ 308,000.00     |
| Start: 07/09/2020                                          | End: 06/30/2021 |                                                           |
| <b>Estimated Project Period (if incrementally funded):</b> |                 | <b>Incrementally Estimated Total (USD):</b> \$ 308,000.00 |
| Start: 07/09/2020                                          | End: 06/30/2025 |                                                           |

### Terms and Conditions

1. PTE hereby awards a cost reimbursable Subaward, (as determined by 2 CFR 200.330), to Subrecipient. The Statement of Work and budget for this Subaward are as shown in Attachment 5. In its performance of Subaward work, Subrecipient shall be an independent entity and not an employee or agent of PTE.
2. Subrecipient shall submit invoices not more often than monthly and not less frequently than quarterly for allowable costs incurred. Upon the receipt of proper invoices, the PTE agrees to process payments in accordance with this Subaward and 2 CFR 200.305. All invoices shall be submitted using Subrecipient's standard invoice, but at a minimum shall include current and cumulative costs (including cost sharing), breakdown by major cost category, Subaward number, and certification, as required in 2 CFR 200.415(a). Invoices that do not reference PTE Subaward number shall be returned to Subrecipient. Invoices and questions concerning invoice receipt or payments shall be directed to the party's Financial Contact, shown in Attachment 3A.
3. A final statement of cumulative costs incurred, including cost sharing, marked "FINAL" must be submitted to PTE's Financial Contact, as shown in Attachment 3A, not later than 60 days after the Project Period end date. The final statement of costs shall constitute Subrecipient's final financial report.
4. All payments shall be considered provisional and are subject to adjustment within the total estimated cost in the event such adjustment is necessary as a result of an adverse audit finding against the Subrecipient.
5. Matters concerning the technical performance of this Subaward shall be directed to the appropriate party's Principal Investigator as shown in Attachments 3A and 3B. Technical reports are required as shown in Attachment 4.
6. Matters concerning the request or negotiation of any changes in the terms, conditions, or amounts cited in this Subaward, and any changes requiring prior approval, shall be directed to the PTE's Authorized Official Contact and the Subrecipient's Authorized Official Contact shown in Attachments 3A and 3B. Any such change made to this Subaward requires the written approval of each party's Authorized Official as shown in Attachments 3A and 3B.
7. The PTE may issue non-substantive changes to the Period of Performance and budget Unilaterally. Unilateral modification shall be considered valid 14 days after receipt unless otherwise indicated by Subrecipient when sent to Subrecipient's Authorized Official Contact, as shown in Attachment 3B.
8. Each party shall be responsible for its negligent acts or omissions and the negligent acts or omissions of its employees, officers, or directors, to the extent allowed by law.
9. Either party may terminate this Subaward with 30 days written notice. PTE notice shall be directed to the Authorized Official Contact, and Subrecipient notice shall be directed to the Authorized Official Contact as shown in Attachments 3A and 3B. PTE shall pay Subrecipient for termination costs as allowable under Uniform Guidance, 2 CFR 200, or 45 CFR Part 75 Appendix IX, as applicable.
10. By signing this Subaward, including the attachments hereto which are hereby incorporated by reference, Subrecipient certifies that it will perform the Statement of Work in accordance with the terms and conditions of this Subaward and the applicable terms of the Federal Award, including the appropriate Research Terms and Conditions ("RTCs") of the Federal Awarding Agency, as referenced in Attachment 2. The parties further agree that they intend this Subaward to comply with all applicable laws, regulations, and requirements.

|                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| By an Authorized Official of the PTE:<br><br>Keng Han (Jul 16, 2020 17:33 EDT)<br>Name: Keng (Jeffrey) Han<br>Title: Director, Office of Sponsored Programs<br>Date: 07/13/2020 | By an Authorized Official of the Subrecipient:<br><br>Name: Brett Carlson<br>Title: Sr. Grant & Contract Administrator<br>Date: 08/04/2020 |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

**FOR NIH DETAILED BUDGET**

**Does not include 2% increase**

Start: 9/01/2020  
End: 8/31/2025

|                                              | Li 120<br>LeBeau 80<br>200        |               |                 |               | Li 120<br>LeBeau 80<br>200        |               |                 |               | Li 120<br>LeBeau 80<br>200        |               |                 |               | Li 120<br>LeBeau 40<br>160        |               |                 |               | Li 120<br>LeBeau 40<br>160        |               |                 |               |             |
|----------------------------------------------|-----------------------------------|---------------|-----------------|---------------|-----------------------------------|---------------|-----------------|---------------|-----------------------------------|---------------|-----------------|---------------|-----------------------------------|---------------|-----------------|---------------|-----------------------------------|---------------|-----------------|---------------|-------------|
|                                              | YEAR 1<br>07/09/2020 – 06/30/2021 |               |                 |               | YEAR 2<br>07/09/2021 – 06/30/2022 |               |                 |               | YEAR 3<br>07/09/2022 – 06/30/2023 |               |                 |               | YEAR 4<br>07/09/2023 – 06/30/2024 |               |                 |               | YEAR 5<br>07/09/2024 – 06/30/2025 |               |                 |               | TOTAL       |
| A. KEY/SR PERSONNEL                          | Effort                            | Cal Mo        | Base Sal        | Amount        | Effort                            | Cal Mo        | Base Sal        | Amount        | Effort                            | Cal Mo        | Base Sal        | Amount        | Effort                            | Cal Mo        | Base Sal        | Amount        | Effort                            | Cal Mo        | Base Sal        | Amount        |             |
| Dr. Fang Li, Co-PI Academic                  | 7%                                | 0.63          | \$138,690       | \$9,708       | 7%                                | 0.63          | \$138,690       | \$9,708       | 7%                                | 0.63          | \$138,690       | \$9,708       | 7%                                | 0.63          | \$138,690       | \$9,708       | 7%                                | 0.63          | \$138,690       | \$9,708       | \$48,540    |
| Dr. Fang Li, Co-PI Summer                    | 20%                               | 0.60          | \$46,230        | \$9,246       | 20%                               | 0.60          | \$46,230        | \$9,246       | 20%                               | 0.60          | \$46,230        | \$9,246       | 20%                               | 0.60          | \$46,230        | \$9,246       | 20%                               | 0.60          | \$46,230        | \$9,246       | \$46,230    |
| Dr. Aaron LeBeau, Co-I                       | 2%                                | 0.24          | \$117,513       | \$2,350       | 2%                                | 0.24          | \$117,513       | \$2,350       | 2%                                | 0.24          | \$117,513       | \$2,350       | 2%                                | 0.24          | \$117,513       | \$2,350       | 2%                                | 0.24          | \$117,513       | \$2,350       | \$11,750    |
| <b>Total Salary</b>                          |                                   | 0.00          |                 | \$0           | 0.00                              |               |                 | \$0           | 0.00                              |               |                 | \$0           | 0.00                              |               |                 | \$0           | 0.00                              |               |                 | \$0           | \$0         |
|                                              |                                   |               |                 | \$21,304      |                                   |               |                 | \$21,304      |                                   |               |                 | \$21,304      |                                   |               |                 | \$21,304      |                                   |               |                 | \$21,304      | \$106,520   |
| <b>FRINGE</b>                                |                                   |               | <b>Rate</b>     |               |                                   |               | <b>Rate</b>     |               |                                   |               | <b>Rate</b>     |               |                                   |               | <b>Rate</b>     |               |                                   |               | <b>Rate</b>     |               |             |
| Dr. Fang Li, Co-PI Academic                  |                                   |               | 36.00%          | \$3,495       |                                   |               | 36.00%          | \$3,495       |                                   |               | 36.00%          | \$3,495       |                                   |               | 36.00%          | \$3,495       |                                   |               | 36.00%          | \$3,495       | \$17,475    |
| Dr. Fang Li, Co-PI Summer                    |                                   |               | 36.00%          | \$3,329       |                                   |               | 36.00%          | \$3,329       |                                   |               | 36.00%          | \$3,329       |                                   |               | 36.00%          | \$3,329       |                                   |               | 36.00%          | \$3,329       | \$16,645    |
| Dr. Aaron LeBeau, Co-I                       |                                   |               | 36.00%          | \$846         |                                   |               | 36.00%          | \$846         |                                   |               | 36.00%          | \$846         |                                   |               | 36.00%          | \$846         |                                   |               | 36.00%          | \$846         | \$4,230     |
| <b>Total Fringe</b>                          |                                   |               |                 | \$7,670       |                                   |               |                 | \$7,670       |                                   |               |                 | \$7,670       |                                   |               |                 | \$7,670       |                                   |               |                 | \$7,670       | \$38,350    |
| <b>TOTAL KEY/SR PERSONNEL</b>                |                                   |               |                 | \$28,974      |                                   |               |                 | \$28,974      |                                   |               |                 | \$28,974      |                                   |               |                 | \$28,974      |                                   |               |                 | \$28,974      | \$144,870   |
| <b>B. OTHER PERSONNEL</b>                    | <b>Effort</b>                     | <b>Cal Mo</b> | <b>Base Sal</b> | <b>Amount</b> | <b>Effort</b>                     | <b>Cal Mo</b> | <b>Base Sal</b> | <b>Amount</b> | <b>Effort</b>                     | <b>Cal Mo</b> | <b>Base Sal</b> | <b>Amount</b> | <b>Effort</b>                     | <b>Cal Mo</b> | <b>Base Sal</b> | <b>Amount</b> | <b>Effort</b>                     | <b>Cal Mo</b> | <b>Base Sal</b> | <b>Amount</b> |             |
| TBN, Post Doc                                | 75%                               | 9.00          | \$50,000        | \$37,500      | 75%                               | 9.00          | \$50,000        | \$37,500      | 75%                               | 9.00          | \$50,000        | \$37,500      | 75%                               | 9.00          | \$50,000        | \$37,500      | 75%                               | 9.00          | \$50,000        | \$37,500      | \$187,500   |
| TBN, Technician - Researcher 2               | 50%                               | 6.00          | \$43,054        | \$21,527      | 50%                               | 6.00          | \$43,054        | \$21,527      | 50%                               | 6.00          | \$43,054        | \$21,527      | 50%                               | 6.00          | \$43,054        | \$21,527      | 50%                               | 6.00          | \$43,054        | \$21,527      | \$107,635   |
| <b>Total Salary</b>                          |                                   |               |                 | \$59,027      |                                   |               |                 | \$59,027      |                                   |               |                 | \$59,027      |                                   |               |                 | \$59,027      |                                   |               |                 | \$59,027      | \$295,135   |
| <b>FRINGE</b>                                |                                   |               | <b>Rate</b>     |               |                                   |               | <b>Rate</b>     |               |                                   |               | <b>Rate</b>     |               |                                   |               | <b>Rate</b>     |               |                                   |               | <b>Rate</b>     |               |             |
| TBN, Post Doc                                |                                   |               | 24.30%          | \$9,113       |                                   |               | 24.30%          | \$9,113       |                                   |               | 24.30%          | \$9,113       |                                   |               | 24.30%          | \$9,113       |                                   |               | 24.30%          | \$9,113       | \$45,565    |
| TBN, Technician - Researcher 2               |                                   |               | 29.50%          | \$6,350       |                                   |               | 29.50%          | \$6,350       |                                   |               | 29.50%          | \$6,350       |                                   |               | 29.50%          | \$6,350       |                                   |               | 29.50%          | \$6,350       | \$31,750    |
| <b>Total Fringe</b>                          |                                   |               |                 | \$15,463      |                                   |               |                 | \$15,463      |                                   |               |                 | \$15,463      |                                   |               |                 | \$15,463      |                                   |               |                 | \$15,463      | \$77,315    |
| <b>TOTAL OTHER PERSONNEL</b>                 |                                   |               |                 | \$74,490      |                                   |               |                 | \$74,490      |                                   |               |                 | \$74,490      |                                   |               |                 | \$74,490      |                                   |               |                 | \$74,490      | \$372,450   |
| <b>C. EQUIPMENT (Exceeding \$5,000)</b>      |                                   |               |                 | \$0           |                                   |               | \$0             | \$0           |                                   |               | \$0             | \$0           |                                   |               | \$0             | \$0           |                                   |               | \$0             | \$0           | \$0         |
| Equipment Item #1                            |                                   |               |                 | \$0           |                                   |               | \$0             | \$0           |                                   |               | \$0             | \$0           |                                   |               | \$0             | \$0           |                                   |               | \$0             | \$0           | \$0         |
| Equipment Item #2                            |                                   |               |                 | \$0           |                                   |               | \$0             | \$0           |                                   |               | \$0             | \$0           |                                   |               | \$0             | \$0           |                                   |               | \$0             | \$0           | \$0         |
| <b>Total Equipment</b>                       |                                   |               |                 | \$0           |                                   |               | \$0             | \$0           |                                   |               | \$0             | \$0           |                                   |               | \$0             | \$0           |                                   |               | \$0             | \$0           | \$0         |
| <b>D. TRAVEL</b>                             |                                   |               |                 | \$2,000       |                                   |               | \$2,000         | \$2,000       |                                   |               | \$2,000         | \$2,000       |                                   |               | \$2,000         | \$2,000       |                                   |               | \$2,000         | \$2,000       | \$10,000    |
| Domestic Travel Costs                        |                                   |               |                 | \$2,000       |                                   |               | \$2,000         | \$2,000       |                                   |               | \$2,000         | \$2,000       |                                   |               | \$2,000         | \$2,000       |                                   |               | \$2,000         | \$2,000       | \$10,000    |
| International Travel Costs                   |                                   |               |                 | \$0           |                                   |               | \$0             | \$0           |                                   |               | \$0             | \$0           |                                   |               | \$0             | \$0           |                                   |               | \$0             | \$0           | \$0         |
| <b>Total Travel</b>                          |                                   |               |                 | \$2,000       |                                   |               | \$2,000         | \$2,000       |                                   |               | \$2,000         | \$2,000       |                                   |               | \$2,000         | \$2,000       |                                   |               | \$2,000         | \$2,000       | \$10,000    |
| <b>E. PARTICIPANTS/TRAINEE SUPPORT COSTS</b> |                                   |               |                 | \$0           |                                   |               | \$0             | \$0           |                                   |               | \$0             | \$0           |                                   |               | \$0             | \$0           |                                   |               | \$0             | \$0           | \$0         |
| 1. Tuition/Fees/Health Insurance             |                                   |               |                 | \$0           |                                   |               | \$0             | \$0           |                                   |               | \$0             | \$0           |                                   |               | \$0             | \$0           |                                   |               | \$0             | \$0           | \$0         |
| 2. Stipends                                  |                                   |               |                 | \$0           |                                   |               | \$0             | \$0           |                                   |               | \$0             | \$0           |                                   |               | \$0             | \$0           |                                   |               | \$0             | \$0           | \$0         |
| 3. Travel                                    |                                   |               |                 | \$0           |                                   |               | \$0             | \$0           |                                   |               | \$0             | \$0           |                                   |               | \$0             | \$0           |                                   |               | \$0             | \$0           | \$0         |
| 4. Subsistence                               |                                   |               |                 | \$0           |                                   |               | \$0             | \$0           |                                   |               | \$0             | \$0           |                                   |               | \$0             | \$0           |                                   |               | \$0             | \$0           | \$0         |
| 5. Other: (List here)                        |                                   |               |                 | \$0           |                                   |               | \$0             | \$0           |                                   |               | \$0             | \$0           |                                   |               | \$0             | \$0           |                                   |               | \$0             | \$0           | \$0         |
| # of Participants/Trainees                   |                                   |               |                 | 0             |                                   |               | \$0             | \$0           |                                   |               | \$0             | \$0           |                                   |               | \$0             | \$0           |                                   |               | \$0             | \$0           | \$0         |
| <b>Total Participants/Trainee Costs</b>      |                                   |               |                 | \$0           |                                   |               | \$0             | \$0           |                                   |               | \$0             | \$0           |                                   |               | \$0             | \$0           |                                   |               | \$0             | \$0           | \$0         |
| <b>F. OTHER DIRECT COSTS</b>                 |                                   |               |                 | \$91,536      |                                   |               | \$91,536        | \$91,536      |                                   |               | \$91,536        | \$51,536      |                                   |               | \$51,536        | \$51,536      |                                   |               | \$51,536        | \$51,536      | \$377,680   |
| 1. Materials and Supplies                    |                                   |               |                 | \$91,536      |                                   |               | \$91,536        | \$91,536      |                                   |               | \$91,536        | \$51,536      |                                   |               | \$51,536        | \$51,536      |                                   |               | \$51,536        | \$51,536      | \$377,680   |
| 2. Publication Costs                         |                                   |               |                 | \$2,000       |                                   |               | \$2,000         | \$2,000       |                                   |               | \$2,000         | \$2,000       |                                   |               | \$2,000         | \$2,000       |                                   |               | \$2,000         | \$2,000       | \$10,000    |
| 3. Consultant Services                       |                                   |               |                 | \$0           |                                   |               | \$0             | \$0           |                                   |               | \$0             | \$0           |                                   |               | \$0             | \$0           |                                   |               | \$0             | \$0           | \$0         |
| 4. ADP/Computer Services                     |                                   |               |                 | \$0           |                                   |               | \$0             | \$0           |                                   |               | \$0             | \$0           |                                   |               | \$0             | \$0           |                                   |               | \$0             | \$0           | \$0         |
| 5. Subawards/Consortium/Contractual          |                                   |               |                 | \$0           |                                   |               | \$0             | \$0           |                                   |               | \$0             | \$0           |                                   |               | \$0             | \$0           |                                   |               | \$0             | \$0           | \$0         |
| 6. Equipment or Facility Rental/User Fees    |                                   |               |                 | \$0           |                                   |               | \$0             | \$0           |                                   |               | \$0             | \$0           |                                   |               | \$0             | \$0           |                                   |               | \$0             | \$0           | \$0         |
| 7. Alterations and Renovations               |                                   |               |                 | \$0           |                                   |               | \$0             | \$0           |                                   |               | \$0             | \$0           |                                   |               | \$0             | \$0           |                                   |               | \$0             | \$0           | \$0         |
| 8. Equipment Maintenance                     |                                   |               |                 | \$1,000       |                                   |               | \$1,000         | \$1,000       |                                   |               | \$1,000         | \$1,000       |                                   |               | \$1,000         | \$1,000       |                                   |               | \$1,000         | \$1,000       | \$5,000     |
| 9. (List)                                    |                                   |               |                 | \$0           |                                   |               | \$0             | \$0           |                                   |               | \$0             | \$0           |                                   |               | \$0             | \$0           |                                   |               | \$0             | \$0           | \$0         |
| <b>Total Other Direct Costs</b>              |                                   |               |                 | \$94,536      |                                   |               | \$94,536        | \$94,536      |                                   |               | \$94,536        | \$54,536      |                                   |               | \$54,536        | \$54,536      |                                   |               | \$54,536        | \$54,536      | \$392,680   |
| <b>TOTAL DIRECT COSTS</b>                    |                                   |               |                 | \$200,000     |                                   |               | \$200,000       | \$200,000     |                                   |               | \$200,000       | \$160,000     |                                   |               | \$160,000       | \$160,000     |                                   |               | \$160,000       | \$160,000     | \$920,000   |
| INDIRECT COSTS BASE*                         |                                   |               |                 | \$200,000     |                                   |               | \$200,000       | \$200,000     |                                   |               | \$200,000       | \$160,000     |                                   |               | \$160,000       | \$160,000     |                                   |               | \$160,000       | \$160,000     | \$920,000   |
| INDIRECT COSTS (TDC)                         |                                   |               | 54%             | \$108,000     |                                   |               | \$110,000       | \$110,000     |                                   |               | \$110,000       | \$88,000      |                                   |               | \$88,000        | \$88,000      |                                   |               | \$88,000        | \$88,000      | \$504,000   |
| <b>INDIRECT COST CHANGES!</b>                |                                   |               |                 |               |                                   |               |                 |               |                                   |               |                 |               |                                   |               |                 |               |                                   |               |                 |               |             |
| <b>TOTAL</b>                                 |                                   |               |                 | \$308,000     |                                   |               | \$310,000       | \$310,000     |                                   |               | \$310,000       | \$248,000     |                                   |               | \$248,000       | \$248,000     |                                   |               | \$248,000       | \$248,000     | \$1,424,000 |

## **University of Minnesota Budget Justification**

### **Personnel Justification**

Fang Li, PhD, Co-Principal Investigator (1.2 calendar months), 10% effort, will be responsible for laboratory management and supervision of the projects, including experimental design, execution, data analysis, and write-up.

Aaron LeBeau, PhD, Co-Investigator (0.24 calendar months), 2% effort, will facilitate laboratory management and supervision of the projects, including experimental design, execution, data analysis, and write-up.

One Postdoctoral Scientist (To be named) (9.00 calendar months), 75% effort, will be responsible for conducting experiments on (1) construction and preparation of coronavirus spike proteins (from SARS-CoV-2, SARS-CoV, and MERS-CoV), (2) screening of camelid phage nanobody libraries targeting coronavirus spike proteins, (3) optimization of selected nanobodies using phage display to increase nanobody/antigen binding affinity, (4) characterization and purification of the selected nanobodies, and (5) determination of the structures of coronavirus spike proteins complexed with nanobodies.

Research assistant (To be named) (6.00 calendar months), 50% effort, will facilitate experiments on (1) construction and preparation of coronavirus spike proteins (from SARS-CoV-2, SARS-CoV, and MERS-CoV), (2) screening of camelid phage nanobody libraries targeting coronavirus spike proteins, (3) optimization of selected nanobodies using phage display to increase nanobody/antigen binding affinity, (4) characterization and purification of the selected nanobodies, and (5) determination of the structures of coronavirus spike proteins complexed with nanobodies.

### **Research Supplies Justification**

Research supplies will include reagents for molecular biology, cell culture, protein purification, protein biochemistry, protein crystallization, and electron microscopy. More specifically, research supplies will include cloning enzymes, restriction enzymes, plasmid purification kits, DNA retraction kits, insect cells, insect cell culture media, mammalian cells, mammalian cell culture media, protein purification columns, crystallization kits and plates, crystal freezing tools, electron microscopic grids and tools, Biacore chips, AlphaScreen beads and plates, and pseudovirus assay reagents.

Year 1 = \$91,536

Year 2 = \$91,536

Year 3 = \$91,536

Year 4 = \$51,536

Year 5 = \$51,536

### **Publication**

On average two publications will be expected per year. \$2,000/year

### **Equipment maintenance**

Purchase of service contracts for equipments such as AKTA purification system, centrifuges, ultracentrifuges, and insect cell shaker/incubators. \$1000/year

### **Indirect Costs**

The University of Minnesota has a negotiated rate of 54% MTDC through 7/2021 and 55% MTDC effective thereafter. Indirect costs requested equal \$504,000.

## **Statement of work – University of Minnesota**

Dr. Fang Li, associate professor at the University of Minnesota, is a structural and molecular biologist. He studies how coronaviruses infect host cells and transmit among host species. His research has been one of the major driving forces in shaping up what we now know about receptor recognition and cell entry of coronaviruses. He has also developed structure-based strategies for viral vaccine designs and antibody developments. His research provides foundational knowledge for the field of coronaviruses.

Dr. Aaron LeBeau, assistant professor at the University of Minnesota, is an expert on developing novel antibody-based molecular imaging agents and targeted therapeutics for metastatic prostate cancer. His laboratory specializes in antibody phage display. This technique allows him to rapidly identify antibody fragments against cancer-associated antigens using his in-house human antibody libraries. He has also developed non-human single-domain antibody libraries from naïve camelids and nurse sharks.

In this R01 application, the University of Minnesota team will work on the following experiments related to the proposed studies:

(1) construction and preparation of coronavirus spike proteins (from SARS-CoV-2, SARS-CoV, and MERS-CoV), (2) screening of camelid phage nanobody libraries targeting coronavirus spike proteins, (3) optimization of selected nanobodies using phage display to increase nanobody/antigen binding affinity, (4) characterization and purification of the selected nanobodies, and (5) determination of the structures of coronavirus spike proteins complexed with nanobodies.

**Attachment 1**  
**Certifications and Assurances**

Subaward Number:

VIM-NIH689

**Certification Regarding Lobbying (2 CFR 200.450)**

By signing this Subaward, the Subrecipient Authorized Official certifies, to the best of his/her knowledge and belief, that no Federal appropriated funds have been paid or will be paid, by or on behalf of the Subrecipient, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement in accordance with 2 CFR 200.450.

If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or intending to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the Subrecipient shall complete and submit Standard Form -LLL, "Disclosure Form to Report Lobbying," to the PTE.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. 1352. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

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**Debarment, Suspension, and Other Responsibility Matters (2 CFR 200.213 and 2 CFR 180)**

By signing this Subaward, the Subrecipient Authorized Official certifies, to the best of his/her knowledge and belief that neither the Subrecipient nor its principals are presently debarred, suspended, proposed for debarment, declared ineligible or voluntarily excluded from participation in this transaction by any federal department or agency, in accordance with 2 CFR 200.213 and 2 CFR 180.

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**Audit and Access to Records**

Per 2 CFR 200.501- 200.521, Subrecipient certifies that it will provide notice of any adverse findings which impact this Subaward and will provide access to records as required by parts 2 CFR 200.336, 200.337, and 200.201 as applicable. If Subrecipient is not subject to the Single Audit Act, then Subrecipient will provide notice of the completion of any required audits and provide access to such audits upon request.

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**Program for Enhancement of Contractor Employee Protections (41 U.S.C 4712)**

Subrecipient is hereby notified that they are required to: inform their employees working on any federal award that they are subject to the whistleblower rights and remedies of the program; inform their employees in writing of employee whistleblower protections under 41 U.S.C §4712 in the predominant native language of the workforce; and include such requirements in any agreement made with a subcontractor or subgrantee.

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The Subrecipient shall require that the language of the certifications above in this Attachment 1 be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

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**Use of Name**

Neither party shall use the other party's name, trademarks, or other logos in any publicity, advertising, or news release without the prior written approval of an authorized representative of that party. The parties agree that each party may use factual information regarding the existence and purpose of the relationship that is the subject of this Subaward for legitimate business purposes, to satisfy any reporting and funding obligations, or as required by applicable law or regulation without written permission from the other party. In any such statement, the relationship of the parties shall be accurately and appropriately described.

**Attachment 2**  
**Federal Award Terms and Conditions**

Subaward Number

VIM-NIH689

**Required Data Elements**

The data elements required by Uniform Guidance are incorporated in the attached Federal Award.

Awarding Agency Institute (If Applicable)

National Institute of Allergy and Infectious Diseases (NIAID)

Federal Award Issue Date FAIN CFDA No.

07/09/20

R01AI157975

93.855

CFDA Title

Allergy and Infectious Diseases Research

Key Personnel Per NOA

Fang Li

**This Subaward Is:**

- Research & Development     Subject to FFATA

**General Terms and Conditions**

By signing this Subaward, Subrecipient agrees to the following:

1. To abide by the conditions on activities and restrictions on expenditure of federal funds in appropriations acts that are applicable to this Subaward to the extent those restrictions are pertinent. This includes any recent legislation noted on the Federal Awarding Agency's website:

<http://grants.nih.gov/grants/policy/awardconditions.htm>

2. 2 CFR 200

3. The Federal Awarding Agency's grants policy guidance, including addenda in effect as of the beginning date of the period of performance or as amended found at:

4. Research Terms and Conditions, including any Federal Awarding Agency's Specific Requirements found at:

<http://grants.nih.gov/grants/policy/awardconditions.htm>

except for the following :

- a. No-cost extensions require the written approval of the PTE. Any requests for a no-cost extension shall be directed to the Administrative Contact shown in Attachment 3A, not less than 30 days prior to the desired effective date of the requested change.
- b. Any payment mechanisms and financial reporting requirements described in the applicable Federal Awarding Agency Terms and Conditions and Agency-Specific Requirements are replaced with Terms and Conditions (1) through (4) of this Subaward; and
- c. Any prior approvals are to be sought from the PTE and not the Federal Awarding Agency.
- d. Title to equipment as defined in 2 CFR 200.33 that is purchased or fabricated with research funds or Subrecipient cost sharing funds, as direct costs of the project or program, shall vest in the Subrecipient subject to the conditions specified in 2 CFR 200.313.
- e. Prior approval must be sought for a change in Subrecipient PI or change in Key Personnel (defined as listed on the NOA).

5. Treatment of program income: Additive

**Special Terms and Conditions:**

**Data Sharing and Access:**

Subrecipient agrees to comply with the Federal Awarding Agency's data sharing and/or access requirements as reflected in the NOA or the Federal Awarding Agency's standard terms and conditions as referenced in General Terms and Conditions 1-4 above.

Provided upon request is a Data Management and/or Sharing Plan that incorporates additional requirements as submitted to the Federal Awarding Agency.

**Data Rights:**

Subrecipient grants to PTE the right to use data created in the performance of this Subaward solely for the purpose of and only to the extent required to meet PTE's obligations to the Federal Government under its PTE Federal Award.

**Copyrights:**

Subrecipient Grants to PTE an irrevocable, royalty-free, non-transferable, non-exclusive right and license to use, reproduce, make derivative works, display, and perform publicly any copyrights or copyrighted material (including any computer software and its documentation and/or databases) first developed and delivered under this Subaward solely for the purpose of and only to the extent required to meet PTE's obligations to the Federal Government under its PTE Federal Award.

Subrecipient grants to PTE the right to use any written progress reports and deliverables created under this Subaward solely for the purpose of and only to the extent required to meet PTE's obligations to the Federal Government under its Federal Award.

**Promoting Objectivity in Research (COI):**

Subrecipient must designate herein which entity's Financial Conflicts of Interest policy (COI) will apply: Subrecipient

If applying its own COI policy, by execution of this Subaward, Subrecipient certifies that its policy complies with the requirements of the relevant Federal Awarding Agency as identified herein:

Subrecipient shall report any financial conflict of interest to PTE's Administrative Representative or COI contact, as designated on Attachment 3A. Any financial conflicts of interest identified shall, when applicable, subsequently be reported to Federal Awarding Agency. Such report shall be made before expenditure of funds authorized in this Subaward and within 45 days of any subsequently identified COI.

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**Work Involving Human or Vertebrate Animals** (Select Applicable Options)

No Human or Vertebrate Animals

This section left intentionally blank.

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**Human Subjects Data** (Select One)

This section left intentionally blank

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This section left intentionally blank

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**Additional Terms**

**Attachment 3A**  
Research Subaward Agreement  
Pass-Through Entity (PTE) Contacts

Subaward Number:  
VIM-NIH689

**PTE Information**

Entity Name:

Legal Address:

Website:

**PTE Contacts**

Central Email:

Principal Investigator Name:

Email:  Telephone Number:

Administrative Contact Name:

Email:  Telephone Number:

COI Contact email (if different to above):

Financial Contact Name:

Email:  Telephone Number:

Email invoices?  Yes  No Invoice email (if different):

Authorized Official Name:

Email:  Telephone Number:

**PI Address:**

310 East 67th Street  
New York, New York 10065-6275

**Administrative Address:**

310 East 67th Street  
New York, New York 10065-6275

**Invoice Address:**

310 East 67th Street  
New York, New York 10065-6275



**Attachment 3B****Research Subaward Agreement  
Subrecipient Contacts**

Subaward Number:

**Subrecipient Information for [FFATA](#)**

reporting Entity's UEI/DUNS Name: Regents of the University of Minnesota

EIN No.: 416007513 Institution Type: Public/State Controlled Inst. of Higher Ed.

UEI / DUNS: 555917996 Currently registered in SAM.gov:  Yes  No  
Exempt from reporting executive compensation:  Yes  No (if no, complete 3Bpg2)Parent UEI / DUNS: This section for U.S. Entities: Zip Code [Look-up](#)  
Congressional District: MN-04 Zip Code+4: 55108-6009**Place of Performance Address**1988 Fitch Ave  
AnSci/VetMed Bldg.  
Saint Paul, MN 55108-6009**Subrecipient Contacts**

Central Email: awards@umn.edu

Website: https://research.umn.edu/units/spa

Principal Investigator Name: Fang Li

Email: lifang@umn.edu Telephone Number: 612-625-6149

Administrative Contact Name: Brett Carlson

Email: carls234@umn.edu Telephone Number: 612-626-7441

Financial Contact Name: Nicole Pilman

Email: npilman@umn.edu Telephone Number: 612-624-3848

Invoice Email:

Authorized Official Name: Brett Carlson, A. Coon, K. McKoskey, P. Webb, A. Rollinger, A. Skog

Email: awards@umn.edu Telephone Number: 612-624-5599

**Legal Address:**University of Minnesota  
Office of Sponsored Projects Administration  
450 McNamara Alumni Center  
200 Oak Street SE, Minneapolis, MN 55455-2070**Administrative Address:**University of Minnesota  
Office of Sponsored Projects Administration  
450 McNamara Alumni Center  
200 Oak Street SE, Minneapolis, MN 55455-2070**Payment Address:**Regents of the University of Minnesota  
NW 5957  
P.O. Box 1450  
Minneapolis, Minnesota 55485-5957

**Attachment 3B-2**  
**Highest Compensated Officers**

Subaward Number:  
VIM-NIH689

**Subrecipient:**

Institution Name: Regents of the University of Minnesota

PI Name: Fang Li

**Highest Compensated Officers**

The names and total compensation of the five most highly compensated officers of the entity(ies) must be listed if the entity in the preceding fiscal year received 80 percent or more of its annual gross revenues in Federal awards; and \$25,000,000 or more in annual gross revenues from Federal awards; and the public does not have access to this information about the compensation of the senior executives of the entity through periodic reports filed under section 13(a) or 15(d) of the Securities Exchange Act of 1934 (15 U.S.C. §§ 78m(a), 78o(d)) or section 6104 of the Internal Revenue Code of 1986. See FFATA § 2(b)(1) Internal Revenue Code of 1986.

Officer 1 Name:

Officer 1 Compensation:

Officer 2 Name:

Officer 2 Compensation:

Officer 3 Name:

Officer 3 Compensation:

Officer 4 Name:

Officer 4 Compensation:

Officer 5 Name:

Officer 5 Compensation:

**Attachment 4**  
**Reporting and Prior Approval Terms**

Subaward Number:

VIM-NIH689

Subrecipient agrees to submit the following reports (PTE contacts are identified in Attachment 3A):

**Technical Reports:**

- Monthly technical/progress reports will be submitted to the PTE's  within  days of the end of the month.
- Quarterly technical/progress reports will be submitted within 30 days after the end of each project quarter to the PTE's .
- Annual technical / progress reports will be submitted within  days prior to the end of each budget period to the PTE's . Such report shall also include a detailed budget for the next Budget Period, updated other support for key personnel, certification of appropriate education in the conduct of human subject research of any new key personnel, and annual IRB or IACUC approval, if applicable.
- A Final technical/progress report will be submitted to the PTE's  within  days of the end of the Project Period or after termination of this award, whichever comes first.
- Technical/progress reports on the project as may be required by PTE's  in order for the PTE to satisfy its reporting obligations to the Federal Awarding Agency.

**Prior Approvals:**

Carryover:

*Carryover instructions and requirements are as stated by the Federal Awarding Agency guidance or as shown below.*

Submit carryover requests to the .

**Other Reports:**

- In accordance with 37 CFR 401.14, Subrecipient agrees to notify both the Federal Awarding Agency via iEdison and PTE's  within 60 days after Subrecipient's inventor discloses invention(s) in writing to Subrecipient's personnel responsible for patent matters. The Subrecipient will submit a final invention report using Federal Awarding Agency specific forms to the PTE's  within 60 days of the end of the Project Period to be included as part of the PTE's final invention report to the Federal Awarding Agency.

A negative report is required:

- Property Inventory Report (only when required by Federal Awarding Agency), specific requirements below.

**Additional Technical and Reporting Requirements:**



**RESEARCH**  
Department of Health and Human Services  
National Institutes of Health

Notice of Award

**Federal Award Date:** 07/09/2020



NATIONAL INSTITUTE OF ALLERGY AND INFECTIOUS DISEASES

**Grant Number:** 1R01AI157975-01

**FAIN:** R01AI157975

**Principal Investigator(s):**

Lanying Du (contact), PHD

Fang Li, PHD

Stanley Perlman, MD

**Project Title:** Novel nanobodies to prevent and treat SARS-CoV-2 and other pathogenic human coronaviruses

Mr. Han, Keng

Director of Research Administration

310 East 67th Street

New York, NY 100656275

**Award e-mailed to:** researchadmin@nybloodcenter.org

**Period Of Performance:**

**Budget Period:** 07/09/2020 – 06/30/2021

**Project Period:** 07/09/2020 – 06/30/2025

Dear Business Official:

The National Institutes of Health hereby awards a grant in the amount of [REDACTED] (see "Award Calculation" in Section I and "Terms and Conditions" in Section III) to NEW YORK BLOOD CENTER in support of the above referenced project. This award is pursuant to the authority of 42 USC 241 42 CFR 52 and is subject to the requirements of this statute and regulation and of other referenced, incorporated or attached terms and conditions.

Acceptance of this award including the "Terms and Conditions" is acknowledged by the grantee when funds are drawn down or otherwise obtained from the grant payment system.

Each publication, press release, or other document about research supported by an NIH award must include an acknowledgment of NIH award support and a disclaimer such as "Research reported in this publication was supported by the National Institute Of Allergy And Infectious Diseases of the National Institutes of Health under Award Number R01AI157975. The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health." Prior to issuing a press release concerning the outcome of this research, please notify the NIH awarding IC in advance to allow for coordination.

Award recipients must promote objectivity in research by establishing standards that provide a reasonable expectation that the design, conduct and reporting of research funded under NIH awards will be free from bias resulting from an Investigator's Financial Conflict of Interest (FCOI), in accordance with the 2011 revised regulation at 42 CFR Part 50 Subpart F. The Institution shall submit all FCOI reports to the NIH through the eRA Commons FCOI Module. The regulation does not apply to Phase I Small Business Innovative Research (SBIR) and Small Business Technology Transfer (STTR) awards. Consult the NIH website <http://grants.nih.gov/grants/policy/coi/> for a link to the regulation and additional important information.

If you have any questions about this award, please contact the individual(s) referenced in Section IV.

Sincerely yours,

Ann W. Devine  
Grants Management Officer  
NATIONAL INSTITUTE OF ALLERGY AND INFECTIOUS DISEASES

Additional information follows

**SECTION I – AWARD DATA – 1R01AI157975-01**

**Award Calculation (U.S. Dollars)**

Salaries and Wages  
 Fringe Benefits  
 Personnel Costs (Subtotal)  
 Materials & Supplies  
 Travel  
 Other  
 Subawards/Consortium/Contractual Costs  
 Publication Costs  
 Equipment or Facility Rental/User Fees

[REDACTED]

Federal Direct Costs  
 Federal F&A Costs  
 Approved Budget  
 Total Amount of Federal Funds Obligated (Federal Share)  
**TOTAL FEDERAL AWARD AMOUNT**

[REDACTED]

**AMOUNT OF THIS ACTION (FEDERAL SHARE)**

[REDACTED]

| SUMMARY TOTALS FOR ALL YEARS |            |                   |
|------------------------------|------------|-------------------|
| YR                           | THIS AWARD | CUMULATIVE TOTALS |
| 1                            | [REDACTED] | [REDACTED]        |
| 2                            | [REDACTED] | [REDACTED]        |
| 3                            | [REDACTED] | [REDACTED]        |
| 4                            | [REDACTED] | [REDACTED]        |
| 5                            | [REDACTED] | [REDACTED]        |

Recommended future year total cost support, subject to the availability of funds and satisfactory progress of the project

**Fiscal Information:**

**CFDA Name:** Allergy and Infectious Diseases Research  
**CFDA Number:** 93.855  
**EIN:** 1131949477A1  
**Document Number:** RAI157975ACV  
**PMS Account Type:** P (Subaccount)  
**Fiscal Year:** 2020

| IC | CAN     | 2020       | 2021       | 2022       | 2023       | 2024       |
|----|---------|------------|------------|------------|------------|------------|
| AI | 8044355 | [REDACTED] | [REDACTED] | [REDACTED] | [REDACTED] | [REDACTED] |

Recommended future year total cost support, subject to the availability of funds and satisfactory progress of the project

**NIH Administrative Data:**

**PCC:** M51C B / **OC:** 41021 / **Released:** ADEVINE 07/08/2020  
**Award Processed:** 07/09/2020 12:02:19 AM

**SECTION II – PAYMENT/HOTLINE INFORMATION – 1R01AI157975-01**

For payment and HHS Office of Inspector General Hotline information, see the NIH Home Page at <http://grants.nih.gov/grants/policy/awardconditions.htm>

**SECTION III – TERMS AND CONDITIONS – 1R01AI157975-01**

This award is based on the application submitted to, and as approved by, NIH on the above-titled project and is subject to the terms and conditions incorporated either directly or by reference in the following:

- a. The grant program legislation and program regulation cited in this Notice of Award.

- b. Conditions on activities and expenditure of funds in other statutory requirements, such as those included in appropriations acts.
- c. 45 CFR Part 75.
- d. National Policy Requirements and all other requirements described in the NIH Grants Policy Statement, including addenda in effect as of the beginning date of the budget period.
- e. Federal Award Performance Goals: As required by the periodic report in the RPPR or in the final progress report when applicable.
- f. This award notice, INCLUDING THE TERMS AND CONDITIONS CITED BELOW.

(See NIH Home Page at <http://grants.nih.gov/grants/policy/awardconditions.htm> for certain references cited above.)

**Research and Development (R&D):** All awards issued by the National Institutes of Health (NIH) meet the definition of "Research and Development" at 45 CFR Part§ 75.2. As such, auditees should identify NIH awards as part of the R&D cluster on the Schedule of Expenditures of Federal Awards (SEFA). The auditor should test NIH awards for compliance as instructed in Part V, Clusters of Programs. NIH recognizes that some awards may have another classification for purposes of indirect costs. The auditor is not required to report the disconnect (i.e., the award is classified as R&D for Federal Audit Requirement purposes but non-research for indirect cost rate purposes), unless the auditee is charging indirect costs at a rate other than the rate(s) specified in the award document(s).

An unobligated balance may be carried over into the next budget period without Grants Management Officer prior approval.

This grant is subject to Streamlined Noncompeting Award Procedures (SNAP).

This award is subject to the requirements of 2 CFR Part 25 for institutions to receive a Dun & Bradstreet Universal Numbering System (DUNS) number and maintain an active registration in the System for Award Management (SAM). Should a consortium/subaward be issued under this award, a DUNS requirement must be included. See <http://grants.nih.gov/grants/policy/awardconditions.htm> for the full NIH award term implementing this requirement and other additional information.

This award has been assigned the Federal Award Identification Number (FAIN) R01AI157975. Recipients must document the assigned FAIN on each consortium/subaward issued under this award.

Based on the project period start date of this project, this award is likely subject to the Transparency Act subaward and executive compensation reporting requirement of 2 CFR Part 170. There are conditions that may exclude this award; see <http://grants.nih.gov/grants/policy/awardconditions.htm> for additional award applicability information.

In accordance with P.L. 110-161, compliance with the NIH Public Access Policy is now mandatory. For more information, see NOT-OD-08-033 and the Public Access website: <http://publicaccess.nih.gov/>.

In accordance with the regulatory requirements provided at 45 CFR 75.113 and Appendix XII to 45 CFR Part 75, recipients that have currently active Federal grants, cooperative agreements, and procurement contracts with cumulative total value greater than \$10,000,000 must report and maintain information in the System for Award Management (SAM) about civil, criminal, and administrative proceedings in connection with the award or performance of a Federal award that reached final disposition within the most recent five-year period. The recipient must also make semiannual disclosures regarding such proceedings. Proceedings information will be made publicly available in the designated integrity and performance system (currently the Federal Awardee Performance and Integrity Information System (FAPIIS)). Full reporting requirements

and procedures are found in Appendix XII to 45 CFR Part 75. This term does not apply to NIH fellowships.

**Treatment of Program Income:**  
Additional Costs

---

#### **SECTION IV – AI Special Terms and Conditions – 1R01AI157975-01**

Clinical Trial Indicator: No

This award does not support any NIH-defined Clinical Trials. See the NIH Grants Policy Statement Section 1.2 for NIH definition of Clinical Trial.

This award provides funds to prevent, prepare for, and respond to coronavirus, domestically or internationally. These funds are restricted for the emergency response to COVID-19 only and may not be rebudgeted or used for any other purpose without NIAID prior approval.

\*\*\*

A recipient may, at its own risk and without NIH prior approval incur obligations and expenditures to cover costs from January 20, 2020 (the beginning of the HHS declared Public Health Emergency), and up to the beginning date of this award if such costs are necessary to conduct the project, and would be allowable under the grant, if awarded, without NIH prior approval.

If specific expenditures would otherwise require prior approval, the recipient must obtain NIH approval before incurring the cost. NIH prior approval is required for any costs incurred prior to January 20, 2020.

All remaining pre-award cost requirements remain consistent with the NIH Grants Policy Statement (see section 7.9.1).

\*\*\*

In accordance with the NIAID Financial Management Plan, NIAID does not provide funds for inflationary increases. Committed future year (s) funding was adjusted accordingly. See: <https://www.niaid.nih.gov/grants-contracts/financial-management-plan>.

\*\*\*

This Notice of Award (NoA) includes funds for activity with:

[REDACTED]

\*\*\*

Awardees who conduct research involving Select Agents (see 42 CFR 73 for the Select Agent list; and 7 CFR 331 and 9 CFR 121 for the relevant animal and plant pathogens at <http://www.selectagents.gov/Regulations.html>) must complete registration with CDC (or APHIS, depending on the agent) before using NIH funds. No funds can be used for research involving Select Agents if the final registration certificate is denied.

Prior to conducting a restricted experiment with a Select Agent or Toxin, awardees must notify the NIAID and must request and receive approval from CDC or APHIS.

\*\*\*

Select Agents:

Awardee of a project that at any time involves a restricted experiment with a select agent, is responsible for notifying and receiving prior approval from the NIAID. Please be advised that changes in the use of a Select Agent will be considered a change in scope and require NIH awarding office prior approval. The approval is necessary for new select agent experiments as well as changes in on-going experiments that would require change in the biosafety plan and/or biosafety containment level. An approval to conduct a restricted experiment granted to an individual cannot be assumed an approval to other individuals who conduct the same restricted experiment as defined in the Select Agents Regulation 42 CFR Part 73, Section 13.b (<http://www.selectagents.gov/Regulations.html>).

Highly Pathogenic Agent:

NIAID defines a Highly Pathogenic Agent as an infectious Agent or Toxin that may warrant a biocontainment safety level of BSL3 or higher according to the current edition of the CDC/NIH Biosafety in Microbiological and Biomedical Laboratories (BMBL) (<http://www.cdc.gov/OD/ohs/biosfty/bmb15/bmb15toc.htm>). Research funded under this grant must adhere to the BMBL, including using the BMBL-recommended biocontainment level at a



minimum. If your Institutional Biosafety Committee (or equivalent body) or designated institutional biosafety official recommend a higher biocontainment level, the highest recommended containment level must be used.

When submitting future Progress Reports indicate at the beginning of the report:

If no research with a Highly Pathogenic Agent or Select Agent has been performed or is planned to be performed under this grant.

If your IBC or equivalent body or official has determined, for example, by conducting a risk assessment, that the work being planned or performed under this grant may be conducted at a biocontainment safety level that is lower than BSL3.

If the work involves Select Agents and/or Highly Pathogenic Agents, also address the following points:

Any changes in the use of the Agent(s) or Toxin(s) including its restricted experiments that have resulted in a change in the required biocontainment level, and any resultant change in location, if applicable, as determined by your IBC or equivalent body or official.

If work with a new or additional Agent(s)/Toxin(s) is proposed in the upcoming project period, provide:

- o A list of the new and/or additional Agent(s) that will be studied;
- o A description of the work that will be done with the Agent(s), and whether or not the work is a restricted experiment;
- o The title and location for each biocontainment resource/facility, including the name of the organization that operates the facility, and the biocontainment level at which the work will be conducted, with documentation of approval by your IBC or equivalent body or official. It is important to note if the work is being done in a new location.

\*\*\*

The budget period anniversary start date for future year(s) will be **July 1**.

### STAFF CONTACTS

The Grants Management Specialist is responsible for the negotiation, award and administration of this project and for interpretation of Grants Administration policies and provisions. The Program Official is responsible for the scientific, programmatic and technical aspects of this project. These individuals work together in overall project administration. Prior approval requests (signed by an Authorized Organizational Representative) should be submitted in writing to the Grants Management Specialist. Requests may be made via e-mail.

**Grants Management Specialist:** Tamia Y. Powell  
**Email:** powellty@niaid.nih.gov **Phone:** 240-669-2982

**Program Official:** Erik J. Stemmy  
**Email:** erik.stemmy@nih.gov **Phone:** 240-627-3380

### SPREADSHEET SUMMARY

**GRANT NUMBER:** 1R01AI157975-01

**INSTITUTION:** NEW YORK BLOOD CENTER

| Budget                           | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 |
|----------------------------------|--------|--------|--------|--------|--------|
| Salaries and Wages               |        |        |        |        |        |
| Fringe Benefits                  |        |        |        |        |        |
| Personnel Costs (Subtotal)       |        |        |        |        |        |
| Materials & Supplies             |        |        |        |        |        |
| Travel                           |        |        |        |        |        |
| Other                            |        |        |        |        |        |
| Subawards/Consortium/Contractual |        |        |        |        |        |

|                                        |          |          |          |          |          |
|----------------------------------------|----------|----------|----------|----------|----------|
| Costs                                  |          |          |          |          |          |
| Publication Costs                      | ████     | ████     | ████     | ████     | ████     |
| Equipment or Facility Rental/User Fees | ████     | ████     | ████     | ████     | ████     |
| TOTAL FEDERAL DC                       | ████████ | ████████ | ████████ | ████████ | ████████ |
| TOTAL FEDERAL F&A                      |          |          |          |          |          |
| TOTAL COST                             | ████████ | ████████ | ████████ | ████████ | ████████ |

| Facilities and Administrative Costs | Year 1   | Year 2   | Year 3   | Year 4   | Year 5   |
|-------------------------------------|----------|----------|----------|----------|----------|
| F&A Cost Rate 1                     | ████     | ████     | ████     | ████     | ████     |
| F&A Cost Base 1                     | ████████ | ████████ | ████████ | ████████ | ████████ |
| F&A Costs 1                         | ████████ | ████████ | ████████ | ████████ | ████████ |

## 1R01AI139092-year 3 subaward

---

From: Anne Mockovak <a-mock@umn.edu>  
To: Ng, Crystal <CNg@nybc.org>  
Cc: Lesley Schmidt Sindberg <schm1421@umn.edu>, carls234@umn.edu,  
lifang@umn.edu, Han, Jeffrey <KHan@nybc.org>, Du, Lanying  
<LDu@nybc.org>, Mathis, Kenneth <KMathis@nybc.org>, Ross, Deborah  
<DRoss2@nybc.org>  
Sent: August 6, 2020 1:01:02 PM CDT  
Received: August 6, 2020 1:01:15 PM CDT

Crystal,

Please let me know ASAP when we can expect the year 3 subaward for 1R01AI139092. It renewed on May 1 so we are now three months into the new year.

-Anne

Anne Mockovak  
Finance Manager  
Department of Veterinary and  
Biomedical Sciences

*"Never let a serious crisis go to waste." - Rahm Emanuel*

## RE: 1R01AI139092-year 3 subaward

---

From: Ng, Crystal <CNg@nybc.org>  
To: Anne Mockovak <a-mock@umn.edu>  
Cc: Lesley Schmidt Sindberg <schm1421@umn.edu>, carls234@umn.edu, lifang@umn.edu, Han, Jeffrey <KHan@nybc.org>, Du, Lanying <LDu@nybc.org>, Mathis, Kenneth <KMathis@nybc.org>, Ross, Deborah <DRoss2@nybc.org>  
Sent: August 6, 2020 1:24:46 PM CDT  
Received: August 6, 2020 1:24:54 PM CDT  
Attachments: Attachment 3B.pdf

Good afternoon Anne,

University of Minnesota's budget for Year 3 of Grant #: R01AI139092, titled, "Structure-based design of coronavirus subunit vaccines" is **\$192,197 Total Cost (Includes \$7,597 Carryover)**. Please send back the following documents by **Friday, August 14<sup>th</sup>**:

- Budget
- Budget Justification
- Scope of Work
- Attachment 3B

Thank you

Best,

Crystal Ng

Financial Grants Analyst | New York Blood Center, Inc.

Phone: 212.570.3150

Website: [www.nybloodcenter.org](http://www.nybloodcenter.org)

---

**From:** Anne Mockovak <a-mock@umn.edu>

**Sent:** Thursday, August 6, 2020 2:01 PM

**To:** Ng, Crystal <CNg@nybc.org>

**Cc:** Lesley Schmidt Sindberg <schm1421@umn.edu>; carls234@umn.edu; lifang@umn.edu; Han, Jeffrey <KHan@nybc.org>; Du, Lanying <LDu@nybc.org>; Mathis, Kenneth <KMathis@nybc.org>; Ross, Deborah <DRoss2@nybc.org>

**Subject:** 1R01AI139092-year 3 subaward

Crystal,

Please let me know ASAP when we can expect the year 3 subaward for 1R01AI139092. It renewed on May 1 so we are now three months into the new year.

-Anne

Anne Mockovak  
Finance Manager  
Department of Veterinary and  
Biomedical Sciences

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**1. Attachment 3B.pdf**

Type: application/pdf  
Size: 728 KB (745,555 bytes)

**Attachment 3B**  
Research Subaward Agreement  
Subrecipient Contacts

Subaward Number:

**Subrecipient Information for [FFATA](#)**

reporting Entity's UEI/DUNS Name:

EIN No.:  Institution Type:

UEI / DUNS:  Currently registered in SAM.gov:  Yes  No  
Exempt from reporting executive compensation:  Yes  No (if no, complete 3Bpg2)

Parent UEI / DUNS:  *This section for U.S. Entities:* Zip Code [Look-up](#)  
Congressional District:  Zip Code+4:

**Place of Performance Address**

**Subrecipient Contacts**

Central Email:   
Website:

Principal Investigator Name:

Email:  Telephone Number:

Administrative Contact Name:

Email:  Telephone Number:

Financial Contact Name:

Email:  Telephone Number:

Invoice Email:

Authorized Official Name:

Email:  Telephone Number:

**Legal Address:**

**Administrative Address:**

**Payment Address:**

## Re: 1R01AI139092-year 3 subaward

---

From: Anne Mockovak <a-mock@umn.edu>  
To: Ng, Crystal <CNg@nybc.org>  
Cc: Lesley Schmidt Sindberg <schm1421@umn.edu>, carls234@umn.edu, lifang@umn.edu, Han, Jeffrey <KHan@nybc.org>, Du, Lanying <LDu@nybc.org>, Mathis, Kenneth <KMathis@nybc.org>, Ross, Deborah <DRoss2@nybc.org>  
Sent: August 6, 2020 3:46:21 PM CDT  
Received: August 6, 2020 3:46:42 PM CDT  
Attachments: 00067384 Year 3 budget.pdf, SOW - U of MN.pdf, R01-budget-justification-Li-Year 3.pdf, Attachment 3B - completed Fang Li.pdf

All are attached.

-Anne

Anne Mockovak  
Finance Manager  
Department of Veterinary and  
Biomedical Sciences

*"Never let a serious crisis go to waste." - Rahm Emanuel*

On Thu, Aug 6, 2020 at 1:24 PM Ng, Crystal <[CNg@nybc.org](mailto:CNg@nybc.org)> wrote:

Good afternoon Anne,

University of Minnesota's budget for Year 3 of Grant #: R01AI139092, titled, "Structure-based design of coronavirus subunit vaccines" is **\$192,197 Total Cost (Includes \$7,597 Carryover)**. Please send back the following documents by **Friday, August 14<sup>th</sup>**:

- Budget
- Budget Justification
- Scope of Work
- Attachment 3B

Thank you

Best,

Crystal Ng

Financial Grants Analyst | New York Blood Center, Inc.

Phone: 212.570.3150

Website: [www.nybloodcenter.org](http://www.nybloodcenter.org)

---

**From:** Anne Mockovak <[a-mock@umn.edu](mailto:a-mock@umn.edu)>

**Sent:** Thursday, August 6, 2020 2:01 PM

**To:** Ng, Crystal <[CNg@nybc.org](mailto:CNg@nybc.org)>

**Cc:** Lesley Schmidt Sindberg <[schm1421@umn.edu](mailto:schm1421@umn.edu)>; [carls234@umn.edu](mailto:carls234@umn.edu); [lifang@umn.edu](mailto:lifang@umn.edu); Han, Jeffrey <[KHan@nybc.org](mailto:KHan@nybc.org)>; Du, Lanying <[LDu@nybc.org](mailto:LDu@nybc.org)>; Mathis, Kenneth <[KMathis@nybc.org](mailto:KMathis@nybc.org)>; Ross, Deborah <[DRoss2@nybc.org](mailto:DRoss2@nybc.org)>

**Subject:** 1R01AI139092-year 3 subaward



Crystal,

Please let me know ASAP when we can expect the year 3 subaward for 1R01AI139092. It renewed on May 1 so we are now three months into the new year.

-Anne

Anne Mockovak

Finance Manager

Department of Veterinary and  
Biomedical Sciences

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**1. 00067384 Year 3 budget.pdf**

Type: application/pdf  
Size: 92 KB (94,905 bytes)

**2. SOW - U of MN.pdf**

Type: application/pdf  
Size: 83 KB (85,290 bytes)

**3. R01-budget-justification-Li-Year 3.pdf**

Type: application/pdf  
Size: 37 KB (38,073 bytes)

**4. Attachment 3B - completed Fang Li.pdf**

Type: application/pdf  
Size: 627 KB (642,273 bytes)

**NYBC (NIH Prime)**

**PI: F. Li**

**Start: 05/01/2020**

**End: 04/30/2021**

| PERSONNEL                             | YEAR 3 |            |             |                |
|---------------------------------------|--------|------------|-------------|----------------|
|                                       | Effort | Cal months | Base Salary | Amount         |
| Fang Li, PI                           | 10%    | 1.20       | \$186,627   | 18,663         |
| TBD, Post doc                         | 125%   | 15.00      | \$50,000    | 62,500         |
| (Name) Grad RA                        | 0%     | 0.00       | \$0         | 0              |
| Researcher 6                          | 0%     | 0.00       | \$80,000    | 0              |
| <b>Total Salary</b>                   |        |            |             | <b>81,163</b>  |
| <b>FRINGE</b>                         |        |            | <b>Rate</b> |                |
| Faculty Name, PI                      |        |            | 36.50%      | 6,812          |
| (Name) Post doc                       |        |            | 25.40%      | 15,875         |
| (Name) Grad RA                        |        |            | 78.30%      | 0              |
| Researcher 6                          |        |            | 36.50%      | 0              |
| <b>Total Fringe</b>                   |        |            |             | <b>22,687</b>  |
| <b>TOTAL PERSONNEL</b>                |        |            |             | <b>103,850</b> |
| <b>TRAVEL</b>                         |        |            |             |                |
| Destination #1                        |        |            |             | 2,000          |
| Destination #2                        |        |            |             | 0              |
| <b>Total Travel</b>                   |        |            |             | <b>2,000</b>   |
| <b>MATERIALS &amp; SUPPLIES</b>       |        |            |             |                |
| Material and fees                     |        |            |             | 0              |
| Item #2                               |        |            |             | 13,953         |
| Item #3                               |        |            |             | 0              |
| <b>Total Materials &amp; Supplies</b> |        |            |             | <b>13,953</b>  |
| <b>OTHER DIRECT COSTS</b>             |        |            |             |                |
| Publications                          |        |            |             | 2,000          |
| Equipment Maintenance                 |        |            |             | 3,000          |
| Item #3                               |        |            |             | 0              |
| <b>Total Other Direct Costs</b>       |        |            |             | <b>5,000</b>   |
| <b>TOTAL DIRECT COSTS</b>             |        |            |             | <b>124,803</b> |
| <i>IDC BASE</i>                       |        |            |             | <i>124,803</i> |
| <b>INDIRECT COSTS (54% MTDC)</b>      |        |            | <b>54%</b>  | <b>67,394</b>  |
| <b>TOTAL</b>                          |        |            |             | <b>192,197</b> |

### **SCOPE OF WORK- University of Minnesota**

#### *Structure-based design of coronavirus subunit vaccines*

Dr. Fang Li's group will be responsible for designing novel RBD-based subunit vaccines against MERS-CoV and SARS-CoV. The innovative strategies that we will use include: (i) identify, characterize, and overcome intrinsic limitations of viral subunit vaccines; (ii) develop and apply a novel concept of “neutralizing antigenicity index” for evaluation of the contribution of RBD epitopes to eliciting neutralizing immune responses; (iii) to use the above concepts to design highly effective RBD vaccines against highly pathogenic coronaviruses.

## **Budget justification**

### **Personnel Justification**

Fang Li, PhD, Principal Investigator (1.2 calendar months), 0.10 FTE, will be responsible for laboratory management and supervision of the projects, including experimental design, execution, data analysis, and write-up.

Two Postdoctoral Scientists (To be named) (15.00 calendar months), 1.25 FTE, will be responsible for the designs, preparations, and biochemical and structural studies of coronavirus RBD vaccines (wild type or mutants).

### **Research Supplies Justification**

Research supplies will include reagents for molecular biology, insect and mammalian cell culture, protein expression and purification, protein-protein binding assays, pseudovirus entry assays, and protein crystallography. More specifically, these reagents will include cloning enzymes, restriction enzymes, plasmid purification kits, DNA retraction kits, DNA transfection reagents, insect cells, insect cell culture media, mammalian cells, mammalian cell culture media, protein purification columns, Biacore chips, crystallization kits and plates, and crystal freezing tools.

### **Travel**

For the PI and the postdoctoral scientist, on average there will be two trips to National synchrotron laboratories for X-ray data collection, and one trip to a national conference per year.

### **Publication**

On average three publications will be expected per year.

### **Communications**

Fax, long distance phone call, and shipping of experimental materials to collaborators.

### **Equipment maintenance**

Purchase of service contracts for equipments such as AKTA purification system, centrifuges, plate readers, and insect cell shaker/incubators.

### **Lab service fees**

Use of services from several on-campus labs, such as the electron microscopy lab, robot crystallization lab, mass spectrometry lab, and protein sequencing lab.

**Attachment 3B****Research Subaward Agreement  
Subrecipient Contacts**

Subaward Number:

**Subrecipient Information for [FFATA](#)**

reporting Entity's UEI/DUNS Name: Regents of the University of Minnesota

EIN No.: 416007513 Institution Type: Public/State Controlled Inst. of Higher Ed.

UEI / DUNS: 555917996 Currently registered in SAM.gov:  Yes  No  
Exempt from reporting executive compensation:  Yes  No (if no, complete 3Bpg2)Parent UEI / DUNS: This section for U.S. Entities: Zip Code [Look-up](#)  
Congressional District: MN-04 Zip Code+4: 55108-6009**Place of Performance Address**1988 Fitch Ave  
AnSci/VetMed Bldg.  
Saint Paul, MN 55108-6009**Subrecipient Contacts**

Central Email: awards@umn.edu

Website: https://research.umn.edu/units/spa

Principal Investigator Name: Fang Li

Email: lifang@umn.edu Telephone Number: 612-625-6149

Administrative Contact Name: Brett Carlson

Email: carls234@umn.edu Telephone Number: 612-626-7441

Financial Contact Name: Nicole Pilman

Email: npilman@umn.edu Telephone Number: 612-624-3848

Invoice Email:

Authorized Official Name: Brett Carlson, A. Coon, K. McKoskey, P. Webb, A. Rollinger, A. Skog

Email: awards@umn.edu Telephone Number: 612-624-5599

**Legal Address:**University of Minnesota  
Office of Sponsored Projects Administration  
450 McNamara Alumni Center  
200 Oak Street SE, Minneapolis, MN 55455-2070**Administrative Address:**University of Minnesota  
Office of Sponsored Projects Administration  
450 McNamara Alumni Center  
200 Oak Street SE, Minneapolis, MN 55455-2070**Payment Address:**Regents of the University of Minnesota  
NW 5957  
P.O. Box 1450  
Minneapolis, Minnesota 55485-5957

**Re: FW: Grant Number: 2R01AI110700 - 06 PI Name: Baric, Ralph S**

---

From: Graham, Rachel <rlgraham@ad.unc.edu>  
To: Baric, Ralph S <rbaric@email.unc.edu>  
Cc: lifang@umn.edu, Caldwell, Chandra <ccaldwel@email.unc.edu>, Moore, Victoria L <victoria\_moore@unc.edu>  
Sent: August 22, 2020 1:44:36 PM CDT  
Received: August 22, 2020 1:44:45 PM CDT  
Attachments: IACUC 20-166.pdf

Here is the IACUC approval.

~~~~~  
Rachel Graham, Ph.D.

Assistant Professor
Baric Lab | UNC-Chapel Hill
(919) 966-4689

On Aug 22, 2020, 2:37 PM -0400, Baric, Ralph S <rbaric@email.unc.edu>, wrote:

Hi Rachel, see below. My recollection is that you already took care of the vertebrate animal sections. Fang, we will need current other support for you key personnel. Thought this wasn't supposed to start until Dec. Ralph

From: Wolcott, Roberta (NIH/NIAID) [E] <wolcottr@niaid.nih.gov>
Sent: Friday, August 21, 2020 10:40 PM
To: Baric, Ralph S <rbaric@email.unc.edu>; Stemmy, Erik (NIH/NIAID) [E] <erik.stemmy@nih.gov>; Mina, Alexie Christine <amina93@live.unc.edu>
Subject: Grant Number: 2R01AI110700 - 06 PI Name: Baric, Ralph S
Importance: High

Dear Dr. Baric:

The above referenced application is being considered for funding by the National Institute of Allergy and Infectious Diseases.

Please note that this request is not a guarantee of funding. Official notification of funding is only made by issuance of a Notice of Award (NoA).

The following Just-In-Time information (JIT) identified is requested:

 X

Current Other Support - Provide active and pending support information for ALL individuals designated in an application as key personnel.

There is no form page for providing other support, although a sample format page is available at <https://grants.nih.gov/grants/forms/othersupport.htm>

****Please be sure that the total effort for all active grants does not exceed NIH policy limits of 12.0 cm, including the effort for this pending award.***

X

IACUC approval date (*NIH does not require a copy of the IACUC certification/approval*). Pending or out-of-date approvals are not acceptable.

If IACUC has not met, provide anticipated meeting date.

*Information regarding IACUCs can be found at <http://grants.nih.gov/grants/olaw/faqs.htm> * Please provide the applicable IACUC approval date for this grant application.*

 X

Other

1. Confirm institution's Entity Identification Number (EIN) is **1566001393A1**.
2. Confirm the latest F&A agreement is dated **11/23/2016** and the F&A rate is **55.5%**. **If this is not correct, send a copy of your latest F&A rate agreement with your JIT response.**
3. Please provide a copy of the most current F&A Agreement for the University of Minnesota.

The requested Just In Time (JIT) information must be submitted via eRA Commons ([NIH Guide Notice NOT-OD-12-101](#)) by **cob, Tuesday, August 25, 2020**. If unable to submit the requested information through eRA Commons, please contact your Grants Management Specialist. Timely submission of the above information will enable us to expedite the issuance of an award should the application be identified for funding.

Sincerely,

Roberta

Roberta Dunlap Wolcott

Grants Management Specialist
DHHS/NIH/NIAID/DEA/GMP
5601 Fishers Lane, Room 4E38, MSC 9824

Rockville, MD 20892-9830 (Fed Ex ZIP 20852)

☎ : 240-669-2964

✉: wolcottr@niaid.nih.gov

Fax: 301-493-0597

Reminder: NIH closeout policy requires final reports to be submitted in a timely manner to avoid unilateral closeout, (see [NOT-OD-14-084](#)). Failure to submit accurate final reports could result in enforcement actions such as revisions to NOA funding levels, or delay in future funding. NIH closeout

documentation policy has changed (see [NOT-OD-17-022](#)). NIH is no longer accepting Final Progress Reports (FPR). Grantees must now report final project outcomes using the new F-RPPR. For instructions on how to submit the new F-RPPR please see instructions on the [NIH RPPR Page](#).

Important: You must use updated grant application forms and instructions (FORMS-E) for due dates on or after January 25, 2018 to be eligible for funding consideration. Learn more.

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please consider the environment before printing this e-mail.

1. IACUC 20-166.pdf

Type: application/pdf
Size: 125 KB (128,044 bytes)


Application to Use Live Vertebrate Animals

PI: Ralph S Baric
Dept: Epidemiology Operations
IACUC ID: 20-166.0 Web ID: 81634

Page: 1 of 1

| | | | | |
|---|---|--|------------------------------------|--|
| Title: Cell entry, cross-species transmission and pathogenesis of SARS-CoV-2 | | | IACUC Use Only | |
| Species: Mouse (Transgenic) | | | IACUC ID: 20-166.0-A | |
| Application Type: New Application | | | Renewal Date: 07/31/2021 | |
| Multiple Species: No | | | Expiration Date: 07/31/2023 | |
| Total Animal Number: 2706 (DCM) | Core Facility/Service Provider: No | | | |

| | |
|--|---|
| IACUC Use Only | |
| <input checked="" type="checkbox"/> Approved 8/17/2020 | This application has been reviewed and approved by the University of North Carolina - Chapel Hill Institutional Animal Care and Use Committee. |

| | |
|--|--------------------|
| IACUC Signature | |
|  | |
| _____ Signature of Authorizing IACUC Personnel | 08/17/2020 Date |

| | | | |
|-------------------------|-------------------------|------------------------|----------------------|
| Funding Source : | Agency Deadline: | Funding Period: | Grant Number: |
|-------------------------|-------------------------|------------------------|----------------------|

Re: FW: Grant Number: 2R01AI110700 - 06 PI Name: Baric, Ralph S

From : Fang Li <lifang@umn.edu>
To: Baric, Ralph S <rbaric@email.unc.edu>, Lesley Schmidt Sindberg <schm1421@umn.edu>, Anne Mockovak <a-mock@umn.edu>
Cc: Graham, Rachel <rgraham@ad.unc.edu>, Caldwell, Chandra <ccaldwel@email.unc.edu>, Moore, Victoria L <victoria_moore@unc.edu>
Sent: August 22, 2020 6:47:07 PM CDT

Hi Ralph,

Thanks for the update and good news. I am copying my grant managers Lesley and Anne who will take care of this.

Best,
Fang

On Sat, Aug 22, 2020 at 1:37 PM Baric, Ralph S <rbaric@email.unc.edu> wrote:

Hi Rachel, see below. My recollection is that you already took care of the vertebrate animal sections. Fang, we will need current other support for you key personnel. Thought this wasn't supposed to start until Dec. Ralph

From: Wolcott, Roberta (NIH/NIAID) [E] <wolcottr@niaid.nih.gov>
Sent: Friday, August 21, 2020 10:40 PM
To: Baric, Ralph S <rbaric@email.unc.edu>; Stemmy, Erik (NIH/NIAID) [E] <erik.stemmy@nih.gov>; Mina, Alexie Christine <amina93@live.unc.edu>
Subject: Grant Number: 2R01AI110700 - 06 PI Name: Baric, Ralph S
Importance: High

Dear Dr. Baric:

The above referenced application is being considered for funding by the National Institute of Allergy and Infectious Diseases.

Please note that this request is not a guarantee of funding. Official notification of funding is only made by issuance of a Notice of Award (NoA).

The following Just-In-Time information (JIT) identified is requested:

 X Current Other Support - Provide active and pending support information for ALL individuals designated in an application as key personnel.

There is no form page for providing other support, although a sample format page is available at <https://grants.nih.gov/grants/forms/othersupport.htm>

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 X Other

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Sincerely,

Roberta

Roberta Dunlap Welcott

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DHHS/NIH/NIAID/DEA/GMP
5601 Fishers Lane, Room 4E38, MSC 9824

Rockville, MD 20892-9830 (Fed Ex ZIP 20852)
☎ : 240-669-2964

✉: wolcott@niaid.nih.gov
Fax: 301-493-0597

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please consider the environment before printing this e-mail.

--

Fang Li, Ph.D.
Professor
Department of Veterinary and Biomedical Sciences
University of Minnesota
612-625-6149, lifang@umn.edu
<http://www.msi.umn.edu/~lifang>

pdf

From: Efthimia Mina Tsagris <tsagris@uoc.gr>
To: LDu@nybc.org, lifang@umn.edu
Cc: tsagris@uoc.gr
Sent: August 24, 2020 10:12:45 AM CDT
Received: August 24, 2020 10:40:21 AM CDT

Dear Dr.

If possible, please send me the pdf mentioned below.

Thank you very much for your help

Efthimia (Mina) Tsagris

tsagris@uoc.gr

Molecular Mechanism for Antibody-Dependent Enhancement of Coronavirus Entry
Yushun Wan, Jian Shang, Shihui Sun, Wanbo Tai, Jing Chen, Qibin Geng, Lei He, Yuehong
DOI: 10.1128/JVI.02015-19
LDu@nybc.org, lifang@umn.edu

--

Dr.Efthimia Mina Tsagris
Assis. Prof. University of Crete
Dep. of Biology
FloorII Room 215, 211(lab)
Voutes University Campus
Heraklion Crete
Greece
tel +30 2810 394367
mob +30 6948466810
fax +30 2810 394404
NEW e-mail: tsagris@uoc.gr
www.biology.uoc.gr

Re: FW: Grant Number: 2R01AI110700 - 06 PI Name: Baric, Ralph S

From: lifang University of Minnesota <lifang@umn.edu>
To: Baric, Ralph S <rbaric@email.unc.edu>
Sent: September 25, 2020 12:04:49 PM CDT

Hi Ralph,

I saw in eRA that the status of our grant is pending. It seems that the funding will come soon.

Best,
Fang

On Mon, Sep 21, 2020 at 3:16 PM Baric, Ralph S <rbaric@email.unc.edu> wrote:

Hi Vicki and Chandra, Has anyone heard about the status of this JIT renewal RO1 grant? Vicki, should we have someone send Wolcott, Roberta an email determining the status of this award? Thanks, Ralph

From: Graham, Rachel <rlgraham@ad.unc.edu>
Sent: Saturday, August 22, 2020 2:45 PM
To: Baric, Ralph S <rbaric@email.unc.edu>
Cc: lifang@umn.edu; Caldwell, Chandra <ccaldwel@email.unc.edu>; Moore, Victoria L <victoria_moore@unc.edu>
Subject: Re: FW: Grant Number: 2R01AI110700 - 06 PI Name: Baric, Ralph S

Here is the IACUC approval.

~~~~~  
**Rachel Graham, Ph.D.**  
Assistant Professor  
Baric Lab | UNC-Chapel Hill

(919) 966-4689

On Aug 22, 2020, 2:37 PM -0400, Baric, Ralph S <[rbaric@email.unc.edu](mailto:rbaric@email.unc.edu)>, wrote:

Hi Rachel, see below. My recollection is that you already took care of the vertebrate animal sections. Fang, we will need current other support for you key personnel. Thought this wasn't supposed to start until Dec. Ralph

---

**From:** Wolcott, Roberta (NIH/NIAID) [E] <[wolcott@niaid.nih.gov](mailto:wolcott@niaid.nih.gov)>  
**Sent:** Friday, August 21, 2020 10:40 PM  
**To:** Baric, Ralph S <[rbaric@email.unc.edu](mailto:rbaric@email.unc.edu)>; Stemmy, Erik (NIH/NIAID) [E] <[erik.stemmy@nih.gov](mailto:erik.stemmy@nih.gov)>; Mina, Alexie Christine <[amina93@live.unc.edu](mailto:amina93@live.unc.edu)>  
**Subject:** Grant Number: 2R01AI110700 - 06 PI Name: Baric, Ralph S  
**Importance:** High



Dear Dr. Baric:

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*\*Please be sure that the total effort for all active grants does not exceed NIH policy limits of 12.0 cm, including the effort for this pending award.*

    X     IACUC approval date (*NIH does not require a copy of the IACUC certification/approval*). Pending or out-of-date approvals are not acceptable.

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    X     Other

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submission of the above information will enable us to expedite the issuance of an award should the application be identified for funding.

Sincerely,

Roberta

*Roberta Dunlap Wolcott*

Grants Management Specialist  
DHHS/NIH/NIAID/DEA/GMP  
5601 Fishers Lane, Room 4E38, MSC 9824

Rockville, MD 20892-9830 (Fed Ex ZIP 20852)

☎ : 240-669-2964

✉: [wolcottr@niaid.nih.gov](mailto:wolcottr@niaid.nih.gov)

Fax: 301-493-0597

**Reminder:** NIH closeout policy requires final reports to be submitted in a timely manner to avoid unilateral closeout, (see [NOT-OD-14-084](#)). Failure to submit accurate final reports could result in enforcement actions such as revisions to NOA funding levels, or delay in future funding. NIH closeout documentation policy has changed (see [NOT-OD-17-022](#)). NIH is no longer accepting Final Progress Reports (FPR). Grantees must now report final project outcomes using the new F-RPPR. For instructions on how to submit the new F-RPPR please see instructions on the [NIH RPPR Page](#).

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\*\*\*\*\*

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--  
\*\*\*\*\*

Fang Li, Ph.D.  
Professor  
Department of Veterinary and Biomedical Sciences

University of Minnesota

\*\*\*\*\*

## **RE: Univ of MN Subaward N005402801 Amendment 3, Prime Award: R01AI089728**

From: Farrell, Ronda Lee <farrelrl@email.unc.edu>  
To: Brett Carlson <carls234@umn.edu>  
Cc: Anne M Mockovak-1 <a-mock@umn.edu>, Fang Li-5 <lifang@umn.edu>, Baric, Ralph S <rbaric@email.unc.edu>, Moore, Victoria L <victoria\_moore@unc.edu>  
Sent: September 28, 2020 9:27:58 PM CDT  
Received: September 28, 2020 9:28:05 PM CDT  
Attachments: Partial\_Exe\_N005402801Am4.pdf

Good Evening,

On behalf of the University of North Carolina at Chapel Hill and Dr. Baric, please see the attached partially executed amendment # 3, subaward #N005402801. Please return a copy of the fully executed to my attention at [farrelrl@email.unc.edu](mailto:farrelrl@email.unc.edu).

Kind regards,  
Ronda

Ronda Farrell

Sponsored Project Specialist  
Office of Sponsored Research  
The University of North Carolina at Chapel Hill  
104 Airport Drive, CB#1350, Chapel Hill, NC 27599-1350  
Phone: 919-962-4396  
Fax: 919-962-5011  
[farrelrl@email.unc.edu](mailto:farrelrl@email.unc.edu)

---

**From:** Brett Carlson <carls234@umn.edu>  
**Sent:** Thursday, June 27, 2019 11:16 AM  
**To:** OSR Research Admin <resadminosr@unc.edu>; Farrell, Ronda Lee <farrelrl@email.unc.edu>  
**Cc:** Anne M Mockovak-1 <a-mock@umn.edu>; Fang Li-5 <lifang@umn.edu>  
**Subject:** Univ of MN Subaward N005402801 Amendment 3, Prime Award: R01AI089728

University of Minnesota PI:Fang Li  
UNC PI: Ralph Baric  
PO#: N005402801

Hello:

Attached is an amendment to subaward N005402801 between the University of Minnesota and University of North Carolina - Chapel Hill. Please have the amendment administratively reviewed and endorsed on behalf of your organization. A half-executed copy of the amendment should be returned to me via e-mail. I will return a fully-signed copy to you once final signature is obtained.

If at any time you have questions, please feel free to contact me at (612)-626-7441 or [carls234@umn.edu](mailto:carls234@umn.edu). Questions regarding programmatic or scientific matters should be directed to the Principal Investigator, as indicated in Attachment 3A of the agreement.

Sincerely,

Brett

--

Brett Carlson  
Sr. Grant & Contract Administrator  
University of Minnesota  
Office of Sponsored Projects Administration  
450 McNamara Alumni Center  
200 Oak Street SE  
Minneapolis, MN 55455  
Phone: 612-626-7441  
Fax: 612-624-4843

**1. Partial\_Exe\_N005402801Am4.pdf**

Type: application/pdf  
Size: 439 KB (450,448 bytes)

**FDP Research Subaward Agreement  
Amendment (Number  )**

UMN CON #: 58289

**Pass-Through Entity (PTE)**

**Subrecipient**

|                                                                     |                        |                                                                         |
|---------------------------------------------------------------------|------------------------|-------------------------------------------------------------------------|
| <input type="text" value="Regents of the University of Minnesota"/> | Entity Name            | <input type="text" value="University of North Carolina - Chapel Hill"/> |
| <input type="text" value="awards@umn.edu"/>                         | Email Address          | <input type="text" value="resadminosr@unc.edu"/>                        |
| <input type="text" value="Fang Li"/>                                | Principal Investigator | <input type="text" value="Ralph Baric"/>                                |

Project Title:

|                                                                   |                                                                      |
|-------------------------------------------------------------------|----------------------------------------------------------------------|
| PTE Federal Award No:<br><input type="text" value="R01AI089728"/> | Federal Awarding Agency:<br><input type="text" value="NIH / NIAID"/> |
|-------------------------------------------------------------------|----------------------------------------------------------------------|

|                                                                          |                                                                                                |                                                                                    |                                                                                       |
|--------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| <b>Subaward Period of Performance:</b>                                   |                                                                                                | Amount Funded This Action:                                                         | Subaward No:                                                                          |
| Start Date: <input type="text" value="June 1, 2017"/>                    | End Date: <input type="text" value="May 31, 2021"/>                                            | <input type="text" value="\$ 120,384.00"/>                                         | <input type="text" value="N005402801"/>                                               |
| Effective Date of Amendment:<br><input type="text" value="Jun 1, 2020"/> | Total Amount of Federal Funds Obligated to Date:<br><input type="text" value="\$ 601,920.00"/> | Subject to FFATA:<br><input type="radio"/> Yes <input checked="" type="radio"/> No | Automatic Carryover:<br><input checked="" type="radio"/> Yes <input type="radio"/> No |

**Amendment(s) to Original Terms and Conditions**

This Amendment revises the above-referenced Research Subaward Agreement as follows:

Amendment 4 awards \$120,384 for the period of 6/1/20-5/31/21 as shown in Exhibit A-3. The total cumulative award amount is now \$601,920. All other terms and conditions remain unchanged.

*For clarity: all amounts stated in this amendment are in United States Dollars.*

**All other terms and conditions of this Subaward Agreement remain in full force and effect.**

|                                                                            |                      |                                                                                                     |                                                                          |
|----------------------------------------------------------------------------|----------------------|-----------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------|
| By an Authorized Official of PTE:                                          |                      | By an Authorized Official of Subrecipient:                                                          |                                                                          |
| <input type="text" value="Brett Carlson"/>                                 | <input type="text"/> | <b>JoAnne E. Shanklin</b>                                                                           | <input type="text"/>                                                     |
| Name:                                                                      | Date                 | <small>Digitally signed by<br/>JoAnne E. Shanklin<br/>Date: 2020.09.24<br/>12:32:49 -04'00'</small> | Date 09/24/2020                                                          |
| Title: <input type="text" value="Sr. Grant &amp; Contract Administrator"/> |                      | Title: <input type="text" value="on behalf of Terry Magnuson"/>                                     | Title: <input type="text" value="Vice Chancellor for Research, UNC-CH"/> |

**RESEARCH & RELATED BUDGET - Budget Period 1**

OMB Number: 4040-0001  
Expiration Date: 12/31/2022

ORGANIZATIONAL DUNS:  Enter name of Organization:

Budget Type:  Project  Subaward/Consortium Budget Period: 1 Start Date:  End Date:

**A. Senior/Key Person**

| Prefix                                                   | First | Middle | Last  | Suffix | Base Salary (\$) | Months |       |      | Requested Salary (\$) | Fringe Benefits (\$) | Funds Requested (\$) |
|----------------------------------------------------------|-------|--------|-------|--------|------------------|--------|-------|------|-----------------------|----------------------|----------------------|
|                                                          |       |        |       |        |                  | Cal.   | Acad. | Sum. |                       |                      |                      |
|                                                          | Ralph | S      | Baric | PhD    | 197,300.00       | 0.36   |       |      | 5,919.00              | 1,661.00             | 7,580.00             |
| Project Role: <input type="text" value="Consortium PI"/> |       |        |       |        |                  |        |       |      |                       |                      |                      |

Additional Senior Key Persons:     Total Funds requested for all Senior Key Persons in the attached file

Total Senior/Key Person

**B. Other Personnel**

| Number of Personnel | Project Role                        | Months |       |      | Requested Salary (\$)                                | Fringe Benefits (\$)         | Funds Requested (\$)                   |
|---------------------|-------------------------------------|--------|-------|------|------------------------------------------------------|------------------------------|----------------------------------------|
|                     |                                     | Cal.   | Acad. | Sum. |                                                      |                              |                                        |
| 1                   | Post Doctoral Associates            | 3.60   |       |      | 17,237.00                                            | 2,930.00                     | 20,167.00                              |
|                     | Graduate Students                   |        |       |      |                                                      |                              |                                        |
|                     | Undergraduate Students              |        |       |      |                                                      |                              |                                        |
|                     | Secretarial/Clerical                |        |       |      |                                                      |                              |                                        |
| 1                   | Research Tech                       | 3.60   |       |      | 13,339.00                                            | 5,208.00                     | 18,547.00                              |
| 2                   | <b>Total Number Other Personnel</b> |        |       |      |                                                      |                              |                                        |
|                     |                                     |        |       |      |                                                      | <b>Total Other Personnel</b> | <input type="text" value="38,714.00"/> |
|                     |                                     |        |       |      | <b>Total Salary, Wages and Fringe Benefits (A+B)</b> |                              | <input type="text" value="46,294.00"/> |



**C. Equipment Description**

List items and dollar amount for each item exceeding \$5,000

| Equipment item       | Funds Requested (\$) |
|----------------------|----------------------|
| <input type="text"/> | <input type="text"/> |

Additional Equipment:

Total funds requested for all equipment listed in the attached file

Total Equipment

**D. Travel**

Funds Requested (\$)

|                                                                       |                                       |
|-----------------------------------------------------------------------|---------------------------------------|
| 1. Domestic Travel Costs ( Incl. Canada, Mexico and U.S. Possessions) | <input type="text" value="1,500.00"/> |
| 2. Foreign Travel Costs                                               | <input type="text"/>                  |
| Total Travel Cost                                                     | <input type="text" value="1,500.00"/> |

**E. Participant/Trainee Support Costs**

Funds Requested (\$)

|                                                      |                      |
|------------------------------------------------------|----------------------|
| 1. Tuition/Fees/Health Insurance                     | <input type="text"/> |
| 2. Stipends                                          | <input type="text"/> |
| 3. Travel                                            | <input type="text"/> |
| 4. Subsistence                                       | <input type="text"/> |
| 5. Other <input type="text"/>                        | <input type="text"/> |
| <input type="text"/> Number of Participants/Trainees | <input type="text"/> |
| Total Participant/Trainee Support Costs              | <input type="text"/> |

| <b>F. Other Direct Costs</b>              |  | <b>Funds Requested (\$)</b> |
|-------------------------------------------|--|-----------------------------|
| 1. Materials and Supplies                 |  | 24,906.00                   |
| 2. Publication Costs                      |  | 2,500.00                    |
| 3. Consultant Services                    |  |                             |
| 4. ADP/Computer Services                  |  |                             |
| 5. Subawards/Consortium/Contractual Costs |  |                             |
| 6. Equipment or Facility Rental/User Fees |  |                             |
| 7. Alterations and Renovations            |  |                             |
| 8. Maintenance Contracts                  |  | 4,000.00                    |
| 9.                                        |  |                             |
| 10.                                       |  |                             |
| <b>Total Other Direct Costs</b>           |  | <b>31,406.00</b>            |

| <b>G. Direct Costs</b>               | <b>Funds Requested (\$)</b> |
|--------------------------------------|-----------------------------|
| <b>Total Direct Costs (A thru F)</b> | <b>79,200.00</b>            |

| <b>H. Indirect Costs</b>    |                        |                         |                      |
|-----------------------------|------------------------|-------------------------|----------------------|
| Indirect Cost Type          | Indirect Cost Rate (%) | Indirect Cost Base (\$) | Funds Requested (\$) |
| MTDC                        | 52.00                  | 79,200.00               | 41,184.00            |
| <b>Total Indirect Costs</b> |                        |                         | <b>41,184.00</b>     |

Cognizant Federal Agency  
 (Agency Name, POC Name, and POC Phone Number)

| <b>I. Total Direct and Indirect Costs</b>                    | <b>Funds Requested (\$)</b> |
|--------------------------------------------------------------|-----------------------------|
| <b>Total Direct and Indirect Institutional Costs (G + H)</b> | <b>120,384.00</b>           |

| <b>J. Fee</b> | <b>Funds Requested (\$)</b> |
|---------------|-----------------------------|
|               |                             |

| <b>K. Total Costs and Fee</b>      | <b>Funds Requested (\$)</b> |
|------------------------------------|-----------------------------|
| <b>Total Costs and Fee (I + J)</b> | <b>120,384.00</b>           |

**L. Budget Justification**

(Only attach one file.)

Add Attachment

Delete Attachment

View Attachment

**RESEARCH & RELATED BUDGET - Cumulative Budget**

|                                                           | <b>Totals (\$)</b> |            |
|-----------------------------------------------------------|--------------------|------------|
| <b>Section A, Senior/Key Person</b>                       |                    | 7,580.00   |
| <b>Section B, Other Personnel</b>                         |                    | 38,714.00  |
| Total Number Other Personnel                              | 2                  |            |
| <b>Total Salary, Wages and Fringe Benefits (A+B)</b>      |                    | 46,294.00  |
| <b>Section C, Equipment</b>                               |                    |            |
| <b>Section D, Travel</b>                                  |                    | 1,500.00   |
| 1. Domestic                                               | 1,500.00           |            |
| 2. Foreign                                                |                    |            |
| <b>Section E, Participant/Trainee Support Costs</b>       |                    |            |
| 1. Tuition/Fees/Health Insurance                          |                    |            |
| 2. Stipends                                               |                    |            |
| 3. Travel                                                 |                    |            |
| 4. Subsistence                                            |                    |            |
| 5. Other                                                  |                    |            |
| 6. Number of Participants/Trainees                        |                    |            |
| <b>Section F, Other Direct Costs</b>                      |                    | 31,406.00  |
| 1. Materials and Supplies                                 | 24,906.00          |            |
| 2. Publication Costs                                      | 2,500.00           |            |
| 3. Consultant Services                                    |                    |            |
| 4. ADP/Computer Services                                  |                    |            |
| 5. Subawards/Consortium/Contractual Costs                 |                    |            |
| 6. Equipment or Facility Rental/User Fees                 |                    |            |
| 7. Alterations and Renovations                            |                    |            |
| 8. Other 1                                                | 4,000.00           |            |
| 9. Other 2                                                |                    |            |
| 10. Other 3                                               |                    |            |
| <b>Section G, Direct Costs (A thru F)</b>                 |                    | 79,200.00  |
| <b>Section H, Indirect Costs</b>                          |                    | 41,184.00  |
| <b>Section I, Total Direct and Indirect Costs (G + H)</b> |                    | 120,384.00 |
| <b>Section J, Fee</b>                                     |                    |            |
| <b>Section K, Total Costs and Fee (I + J)</b>             |                    | 120,384.00 |



**RESEARCH**  
Department of Health and Human Services  
National Institutes of Health

Notice of Award

**Federal Award Date:** 05/29/2020



NATIONAL INSTITUTE OF ALLERGY AND INFECTIOUS DISEASES

**Grant Number:** 5R01AI089728-10

**FAIN:** R01AI089728

**Principal Investigator(s):**

Fang Li, PHD

**Project Title:** Receptor recognition and cell entry of coronaviruses

Brett Carlson  
Grant Administrator  
450 McNamara Alumni Center  
200 Oak Street SE  
Minneapolis, MN 554552070

**Award e-mailed to:** awards@umn.edu

**Period Of Performance:**

**Budget Period:** 06/01/2020 – 05/31/2021

**Project Period:** 05/15/2010 – 05/31/2021

Dear Business Official:

The National Institutes of Health hereby awards a grant in the amount of \$455,796 (see “Award Calculation” in Section I and “Terms and Conditions” in Section III) to UNIVERSITY OF MINNESOTA in support of the above referenced project. This award is pursuant to the authority of 42 USC 241 42 CFR 52 and is subject to the requirements of this statute and regulation and of other referenced, incorporated or attached terms and conditions.

Acceptance of this award including the “Terms and Conditions” is acknowledged by the grantee when funds are drawn down or otherwise obtained from the grant payment system.

Each publication, press release, or other document about research supported by an NIH award must include an acknowledgment of NIH award support and a disclaimer such as “Research reported in this publication was supported by the National Institute Of Allergy And Infectious Diseases of the National Institutes of Health under Award Number R01AI089728. The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health.” Prior to issuing a press release concerning the outcome of this research, please notify the NIH awarding IC in advance to allow for coordination.

Award recipients must promote objectivity in research by establishing standards that provide a reasonable expectation that the design, conduct and reporting of research funded under NIH awards will be free from bias resulting from an Investigator’s Financial Conflict of Interest (FCOI), in accordance with the 2011 revised regulation at 42 CFR Part 50 Subpart F. The Institution shall submit all FCOI reports to the NIH through the eRA Commons FCOI Module. The regulation does not apply to Phase I Small Business Innovative Research (SBIR) and Small Business Technology Transfer (STTR) awards. Consult the NIH website <http://grants.nih.gov/grants/policy/coi/> for a link to the regulation and additional important information.

If you have any questions about this award, please contact the individual(s) referenced in Section IV.

Sincerely yours,

Regina E. Kitsoulis  
Grants Management Officer  
NATIONAL INSTITUTE OF ALLERGY AND INFECTIOUS DISEASES

Additional information follows

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**SECTION I – AWARD DATA – 5R01AI089728-10****Award Calculation (U.S. Dollars)**

|                                        |           |
|----------------------------------------|-----------|
| Salaries and Wages                     | \$116,853 |
| Fringe Benefits                        | \$30,547  |
| Personnel Costs (Subtotal)             | \$147,400 |
| Materials & Supplies                   | \$60,005  |
| Travel                                 | \$2,970   |
| Other                                  | \$5,247   |
| Subawards/Consortium/Contractual Costs | \$120,384 |
| Publication Costs                      | \$2,178   |

|                                                         |                  |
|---------------------------------------------------------|------------------|
| Federal Direct Costs                                    | \$338,184        |
| Federal F&A Costs                                       | \$117,612        |
| Approved Budget                                         | \$455,796        |
| Total Amount of Federal Funds Obligated (Federal Share) | \$455,796        |
| <b>TOTAL FEDERAL AWARD AMOUNT</b>                       | <b>\$455,796</b> |

**AMOUNT OF THIS ACTION (FEDERAL SHARE)** \$455,796

| SUMMARY TOTALS FOR ALL YEARS |            |                   |
|------------------------------|------------|-------------------|
| YR                           | THIS AWARD | CUMULATIVE TOTALS |
| 10                           | \$455,796  | \$455,796         |

**Fiscal Information:**

**CFDA Name:** Allergy and Infectious Diseases Research  
**CFDA Number:** 93.855  
**EIN:** 1416007513A1  
**Document Number:** RAI089728B  
**PMS Account Type:** P (Subaccount)  
**Fiscal Year:** 2020

|    |         |           |
|----|---------|-----------|
| IC | CAN     | 2020      |
| AI | 8472364 | \$455,796 |

**NIH Administrative Data:**

**PCC:** M51C B / **OC:** 41025 / **Released:** KITSOULISR 05/27/2020

**Award Processed:** 05/29/2020 12:14:54 AM

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**SECTION II – PAYMENT/HOTLINE INFORMATION – 5R01AI089728-10**

For payment and HHS Office of Inspector General Hotline information, see the NIH Home Page at <http://grants.nih.gov/grants/policy/awardconditions.htm>

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**SECTION III – TERMS AND CONDITIONS – 5R01AI089728-10**

This award is based on the application submitted to, and as approved by, NIH on the above-titled project and is subject to the terms and conditions incorporated either directly or by reference in the following:

- The grant program legislation and program regulation cited in this Notice of Award.
- Conditions on activities and expenditure of funds in other statutory requirements, such as those included in appropriations acts.
- 45 CFR Part 75.
- National Policy Requirements and all other requirements described in the NIH Grants Policy Statement, including addenda in effect as of the beginning date of the budget period.
- Federal Award Performance Goals: As required by the periodic report in the RPPR or in the final progress report when applicable.

f. This award notice, INCLUDING THE TERMS AND CONDITIONS CITED BELOW.

(See NIH Home Page at <http://grants.nih.gov/grants/policy/awardconditions.htm> for certain references cited above.)

**Research and Development (R&D):** All awards issued by the National Institutes of Health (NIH) meet the definition of “Research and Development” at 45 CFR Part§ 75.2. As such, auditees should identify NIH awards as part of the R&D cluster on the Schedule of Expenditures of Federal Awards (SEFA). The auditor should test NIH awards for compliance as instructed in Part V, Clusters of Programs. NIH recognizes that some awards may have another classification for purposes of indirect costs. The auditor is not required to report the disconnect (i.e., the award is classified as R&D for Federal Audit Requirement purposes but non-research for indirect cost rate purposes), unless the auditee is charging indirect costs at a rate other than the rate(s) specified in the award document(s).

This institution is a signatory to the Federal Demonstration Partnership (FDP) Phase VI Agreement which requires active institutional participation in new or ongoing FDP demonstrations and pilots.

An unobligated balance may be carried over into the next budget period without Grants Management Officer prior approval.

This grant is subject to Streamlined Noncompeting Award Procedures (SNAP).

This award is subject to the requirements of 2 CFR Part 25 for institutions to receive a Dun & Bradstreet Universal Numbering System (DUNS) number and maintain an active registration in the System for Award Management (SAM). Should a consortium/subaward be issued under this award, a DUNS requirement must be included. See <http://grants.nih.gov/grants/policy/awardconditions.htm> for the full NIH award term implementing this requirement and other additional information.

This award has been assigned the Federal Award Identification Number (FAIN) R01AI089728. Recipients must document the assigned FAIN on each consortium/subaward issued under this award.

This award is not subject to the Transparency Act subaward and executive compensation reporting requirement of 2 CFR Part 170.

In accordance with P.L. 110-161, compliance with the NIH Public Access Policy is now mandatory. For more information, see NOT-OD-08-033 and the Public Access website: <http://publicaccess.nih.gov/>.

This award represents the final year of the competitive segment for this grant. See the NIH Grants Policy Statement Section 8.6 Closeout for complete closeout requirements at: <http://grants.nih.gov/grants/policy/policy.htm#gps>.

A final expenditure Federal Financial Report (FFR) (SF 425) must be submitted through the eRA Commons (Commons) within 120 days of the period of performance end date; see the NIH Grants Policy Statement Section 8.6.1 Financial Reports, <http://grants.nih.gov/grants/policy/policy.htm#gps>, for additional information on this submission requirement. The final FFR must indicate the exact balance of unobligated funds and may not reflect any unliquidated obligations. There must be no discrepancies between the final FFR expenditure data and the Payment Management System's (PMS) quarterly cash transaction data. A final quarterly federal cash transaction report is not required for awards in PMS B subaccounts (i.e., awards to foreign entities and to Federal agencies). NIH will close the awards using the last recorded cash drawdown level in PMS for awards that do not require a final FFR on expenditures or quarterly federal cash transaction reporting. It is important to note that for financial closeout, if a grantee fails to submit a required final expenditure FFR, NIH will close the grant using the last recorded cash drawdown level. If the grantee submits a final expenditure FFR but does not reconcile any discrepancies between expenditures reported on the final expenditure FFR and the

last cash report to PMS, NIH will close the award at the lower amount. This could be considered a debt or result in disallowed costs.

A Final Invention Statement and Certification form (HHS 568), (not applicable to training, construction, conference or cancer education grants) must be submitted within 120 days of the expiration date. The HHS 568 form may be downloaded at: <http://grants.nih.gov/grants/forms.htm>. This paragraph does not apply to Training grants, Fellowships, and certain other programs—i.e., activity codes C06, D42, D43, D71, DP7, G07, G08, G11, K12, K16, K30, P09, P40, P41, P51, R13, R25, R28, R30, R90, RL5, RL9, S10, S14, S15, U13, U14, U41, U42, U45, UC6, UC7, UR2, X01, X02.

Unless an application for competitive renewal is submitted, a Final Research Performance Progress Report (Final RPPR) must also be submitted within 120 days of the period of performance end date. If a competitive renewal application is submitted prior to that date, then an Interim RPPR must be submitted by that date as well. Instructions for preparing an Interim or Final RPPR are at: [https://grants.nih.gov/grants/rppr/rppr\\_instruction\\_guide.pdf](https://grants.nih.gov/grants/rppr/rppr_instruction_guide.pdf). Any other specific requirements set forth in the terms and conditions of the award must also be addressed in the Interim or Final RPPR. *Note that data reported within Section I of the Interim and Final RPPR forms will be made public and should be written for a lay person audience.*

NIH strongly encourages electronic submission of the final invention statement through the Closeout feature in the Commons, but will accept an email or hard copy submission as indicated below.

Email: The final invention statement may be e-mailed as PDF attachments to: [NIHCloseoutCenter@mail.nih.gov](mailto:NIHCloseoutCenter@mail.nih.gov).

Hard copy: Paper submissions of the final invention statement may be faxed to the NIH Division of Central Grants Processing, Grants Closeout Center, at 301-480-2304, or mailed to:

National Institutes of Health  
Office of Extramural Research  
Division of Central Grants Processing  
Grants Closeout Center  
6705 Rockledge Drive  
Suite 5016, MSC 7986  
Bethesda, MD 20892-7986 (for regular or U.S. Postal Service Express mail)  
Bethesda, MD 20817 (for other courier/express deliveries only)

NOTE: If this is the final year of a competitive segment due to the transfer of the grant to another institution, then a Final RPPR is not required. However, a final expenditure FFR is required and should be submitted electronically as noted above. If not already submitted, the Final Invention Statement is required and should be sent directly to the assigned Grants Management Specialist.

In accordance with the regulatory requirements provided at 45 CFR 75.113 and Appendix XII to 45 CFR Part 75, recipients that have currently active Federal grants, cooperative agreements, and procurement contracts with cumulative total value greater than \$10,000,000 must report and maintain information in the System for Award Management (SAM) about civil, criminal, and administrative proceedings in connection with the award or performance of a Federal award that reached final disposition within the most recent five-year period. The recipient must also make semiannual disclosures regarding such proceedings. Proceedings information will be made publicly available in the designated integrity and performance system (currently the Federal Awardee Performance and Integrity Information System (FAPIIS)). Full reporting requirements and procedures are found in Appendix XII to 45 CFR Part 75. This term does not apply to NIH fellowships.

**Treatment of Program Income:**  
Additional Costs

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#### **SECTION IV – AI Special Terms and Conditions – 5R01AI089728-10**

Clinical Trial Indicator: No

This award does not support any NIH-defined Clinical Trials. See the NIH Grants Policy Statement



If any experiments proposed in this award results in a virus with enhanced growth by more than 1 log compared to wild type strains, you must notify your NIAID Program Officer and Grants Management Specialist immediately. Further research involving the resulting virus (es) may require review by the Department of Health and Human Services in accordance with the [Framework for Guiding Funding Decisions about Proposed Research Involving Enhanced Potential Pandemic Pathogens](#)

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This Notice of Award (NoA) includes funds for activity with **The University of North Carolina - Chapel Hill**.

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**Select Agents:**

Awardee of a project that at any time involves a restricted experiment with a select agent, is responsible for notifying and receiving prior approval from the NIAID. Please be advised that changes in the use of a Select Agent will be considered a change in scope and require NIH awarding office prior approval. The approval is necessary for new select agent experiments as well as changes in on-going experiments that would require change in the biosafety plan and/or biosafety containment level. An approval to conduct a restricted experiment granted to an individual cannot be assumed an approval to other individuals who conduct the same restricted experiment as defined in the Select Agents Regulation 42 CFR Part 73, Section 13.b (<http://www.selectagents.gov/Regulations.html>).

**Highly Pathogenic Agent:**

NIAID defines a Highly Pathogenic Agent as an infectious Agent or Toxin that may warrant a biocontainment safety level of BSL3 or higher according to the current edition of the CDC/NIH Biosafety in Microbiological and Biomedical Laboratories (BMBL) (<http://www.cdc.gov/OD/ohs/biosfty/bmb15/bmb15toc.htm>). Research funded under this grant must adhere to the BMBL, including using the BMBL-recommended biocontainment level at a minimum. If your Institutional Biosafety Committee (or equivalent body) or designated institutional biosafety official recommend a higher biocontainment level, the highest recommended containment level must be used.

When submitting future Progress Reports indicate at the beginning of the report:

If no research with a Highly Pathogenic Agent or Select Agent has been performed or is planned to be performed under this grant.

If your IBC or equivalent body or official has determined, for example, by conducting a risk assessment, that the work being planned or performed under this grant may be conducted at a biocontainment safety level that is lower than BSL3.

If the work involves Select Agents and/or Highly Pathogenic Agents, also address the following points:

Any changes in the use of the Agent(s) or Toxin(s) including its restricted experiments that have resulted in a change in the required biocontainment level, and any resultant change in location, if applicable, as determined by your IBC or equivalent body or official.

If work with a new or additional Agent(s)/Toxin(s) is proposed in the upcoming project period, provide:

- o A list of the new and/or additional Agent(s) that will be studied;
- o A description of the work that will be done with the Agent(s), and whether or not the work is a restricted experiment;
- o The title and location for each biocontainment resource/facility, including the name of the organization that operates the facility, and the biocontainment level at which the work will be conducted, with

documentation of approval by your IBC or equivalent body or official. It is important to note if the work is being done in a new location.

**STAFF CONTACTS**

The Grants Management Specialist is responsible for the negotiation, award and administration of this project and for interpretation of Grants Administration policies and provisions. The Program Official is responsible for the scientific, programmatic and technical aspects of this project. These individuals work together in overall project administration. Prior approval requests (signed by an Authorized Organizational Representative) should be submitted in writing to the Grants Management Specialist. Requests may be made via e-mail.

**Grants Management Specialist:** Caleb Daniel Waller  
**Email:** caleb.waller@nih.gov **Phone:** 301-761-6643 **Fax:** 301-493-0597

**Program Official:** Erik J. Stemmy  
**Email:** erik.stemmy@nih.gov **Phone:** 240-627-3380

**SPREADSHEET SUMMARY**

**GRANT NUMBER:** 5R01AI089728-10

**INSTITUTION:** UNIVERSITY OF MINNESOTA

| Budget                                 | Year 10   |
|----------------------------------------|-----------|
| Salaries and Wages                     | \$116,853 |
| Fringe Benefits                        | \$30,547  |
| Personnel Costs (Subtotal)             | \$147,400 |
| Materials & Supplies                   | \$60,005  |
| Travel                                 | \$2,970   |
| Other                                  | \$5,247   |
| Subawards/Consortium/Contractual Costs | \$120,384 |
| Publication Costs                      | \$2,178   |
| TOTAL FEDERAL DC                       | \$338,184 |
| TOTAL FEDERAL F&A                      | \$117,612 |
| TOTAL COST                             | \$455,796 |

| Facilities and Administrative Costs | Year 10   |
|-------------------------------------|-----------|
| F&A Cost Rate 1                     | 54%       |
| F&A Cost Base 1                     | \$217,800 |
| F&A Costs 1                         | \$117,612 |