utmb Health

Institutional Biosafety Committee
301 University Blvd.
Galveston, TX 77555-1111
O 409.772.1781

MINUTES
January 6, 2023

The Institutional Biosafety Committee met virtually on Friday, January 6, 2023 using Microsoft Teams. The meeting was called to order at 2:01 PM and was chaired by [redacted]

MEMBERS PRESENT

[redacted]

MEMBERS ABSENT

[redacted]

CONSULTANTS

[redacted]

GUESTS

[redacted]

I. APPROVAL OF MINUTES

The minutes of the December 2, 2022 meeting were approved.

II. NEW BUSINESS

Inactivation SOPs – approved by the Inactivation Review Subcommittee

Vineet Menachery, PhD

Family/Genus: Coronaviridae

Inactivation Method(s): Inactivation SOP Using a Commercial Cell Lysis Buffer, Ver 1.0 (Protocol #5)
Sample Matrix: Liquid culture, cell monolayer

Inactivation Method(s): Inactivation SOP Using 10% SDS + 1000 units Benzonase, Ver 1.0 (Protocol #6)
Sample Matrix: Liquid culture, cell monolayer

Human and Nonhuman Primate Products NOUs approved administratively

Nisha Jain Garg, PhD

Dr. Garg submitted a renewal NOU for Human and Nonhuman Primate Products to work at BSL2 with **human blood, body fluids, and primary, established, or commercial cell lines (cardiomyocyte, HEK293, HEP G2, macrophages, THP-1, iPSC).**

Jose Salazar, PhD

Dr. Salazar submitted a renewal NOU for Human and Nonhuman Primate Products to work at BSL2 with **human blood, serum, and body fluids.**

Michael Sheetz, PhD

Dr. Sheetz submitted a new NOU for Human and Nonhuman Primate Products to work at BSL2 with **human commercial cells (epidermal melanocytes, IMR90, CD4 T, MCF7, skin fibroblast, epithelial, MSC from bone marrow, MSC from umbilical cord, HeLa, MCF10A, MDA-MB-231, SK-BR-3, MDA-MB-361, HFF, HCT-116, U2OS, U-87) and NHP commercial cells (Vero).**

Amendment: Human and Nonhuman Primate Products NOUs approved administratively

Balaji Krishnan, PhD

Dr. Krishnan submitted an amendment to his Human and Nonhuman Primate Products NOU **to add work with human induced pluripotent stem cells (iPSCs).**

Amendment: BSL3/4 CDC/USDA Regulated Agents NOUs approved administratively

Tian Wang, PhD

Dr. Wang submitted an amendment to her work with SARS-CoV-2, respiratory syncytial virus, and human metapneumovirus **to add work with hamsters.**

Biological Agents and rDNA/RNA NOUs for review

Noelle Anastasio, PhD

Dr. Anastasio submitted a renewal NOU for Biological Agents and rDNA/RNA to work at BSL2 with **adeno-associated viral vectors (serotypes 2, 5, 6, 8, 9); NIH Guidelines: D2, D3, D4.** This NOU was **approved with the following conditions:**

- Permit Process Questions, provide a title for the project.
- Section I.6, remove name of collaborator.
- Section I.8.a.i, if AAV vectors may be packaged in HEK cells, also clearly list here, e.g., "2 mL in tube (commercial source or collaborator); 10 mL in a plate (cell culture)".
- Section I.8.a.ii, if AAV vectors may be packaged in HEK cells, also clearly list here, e.g., "2 tubes (commercial source or collaborator); 5 plates (cell culture)".
- Section I.8.c.ii, provide susceptibility to decontamination using heat, including inactivation time.
- Section I.A.2.a, answer Yes.
- Section I.A.2.b.ii, delete text and list only "HEK cells".
- I.B.5, expand on type of homogenizer (e.g., glass or disposable, and if hand-held or machinery).
- Section II.3, remove name of collaborator.
- Section V.1.B, under Years of Experience, specify the biosafety level at which experience was obtained (e.g., "10 years BSL1, 8 years BSL2").

1 abstained.

W. Sam Fagg, PhD

Dr. Fagg submitted a new NOU for Biological Agents and rDNA/RNA to work at BSL2 with **lentiviral vectors (3rd generation); NIH Guidelines: D2, D3.** This NOU was **approved with the following conditions:**

- Permit Process Questions, provide a title for the project instead of the agent.
- Section I.5, expand to describe the broader goal of the project related to RNA splicing.
- Section I.8.f, delete text and state "Does not cause disease, but may induce an immune response."

The IBC would like PIs to be provided some generic language about infectiousness and pathogenicity of viral vectors.

Nisha Jain Garg, PhD

Dr. Garg submitted a renewal NOU for Biological Agents and rDNA/RNA to work at BSL2 with ***Trypanosoma cruzi*** **and lentiviral vectors; NIH Guidelines: D1, D2, D4.** This NOU was **approved with the following conditions:**

- Section I.3, for lentivirus, select Risk Group 2.
- Section I.6, expand to describe work with lentiviral vector.
- Section I.8.c.ii, delete "70% ethanol".
- Section I.8.c.ii, delete "Excellent" or expand to full sentence.
- Section I.8.d, select Other and in text box, list "ocular".
- Section I.8.f, delete text from "I am not aware …" through "due to poor lab practices."
- Section I.8.h, delete text and clearly state infectious dose from relevant animal studies.
- Section II.3, clearly state if lentiviral vectors will be used in whole animals or in cell culture.
- Section II.16.a, answer No.
- Section III.6.a, delete "These procedures result in minute, transient discomfort only."
- Section V.1.b, under Animal & Arthropod Experience, provide only the experience personnel have with animals and arthropods.
- Homogenization SOP, work must be performed in a biosafety cabinet or other primary containment instead of in a laminar flow hood. Correct this and upload an updated SOP.

1 abstained.

Gary Kobinger, PhD

Dr. Kobinger submitted a new NOU for Biological Agents and rDNA/RNA to work at BSL2 with **adenoviral vector (serotype 5); NIH Guidelines: D1, D3, D4.** This NOU was **approved with the following conditions:**

- Section I.8.b, answer No.
- Section II.13.b.i, confirm that CCHF glycoprotein is replacing the Ad5 glycoprotein, as pseudotyping is not typically performed in Ad5 vaccine vectors.
- Section II.15, answer Yes and answer subsequent questions, as DNA from adenovirus (risk group 2) and CCHF (risk group 4) will be transferred into eukaryotic cells.
- Section II.31, answer No.
- Section III.4, clarify if dose of 5 grams refers to viral vector or to vaccine bread feed.
- Section III.5, clearly state that the vaccine bread feed will be transferred into the animal cage within a biosafety cabinet.
- Section III.5, expand on how animals will be dosed with vaccine bread feed.
- Section III.5, clarify whether a cage change will be performed after the 24 hours of vaccination feeding time.
- Section III.5, expand on the procedures for disposal of the potentially contaminated bedding and cage.

Nikos Vasilakis, PhD

Dr. Vasilakis submitted a new NOU for Biological Agents and rDNA/RNA to work at BSL2 with **Bussuquara virus; NIH Guidelines: D2, D3, D4.** This NOU was **approved.**

David Walker, MD

Dr. Walker submitted a renewal NOU for Biological Agents and rDNA/RNA to work at BSL2 with ***Anaplasma* spp., *Ehrlichia* ssp., *Rickettsia amblyommatis*, *R. bellii*, *R. canadensis*, *R. massiliae*, *R. montanensis*, *R. parkeri*, and *R. rhipicephali*; NIH Guidelines: D2.** This NOU was **approved with the following conditions:**

- Permit Process Questions, provide a title for the project instead of listing the agents.
- Section I.3, delete row describing *E. coli*, as laboratory strains of *E. coli* do not need to be listed as an agent in this NOU.
- Section I.3, add *Rickettsia massiliae* to the table.
- Section I.7.b, uncheck No.
- Section I.7.c.i, uncheck No and delete explanation.
- Section I.7.c.ii, uncheck No and delete explanation.
- Section I.8.a.i through vi, remove information related to *E. coli*.
- Section I.8.a.iii and vi, provide concentration using the same units (e.g., organisms).
- Section I.8.c.i, remove information related to *E. coli*.
- Section I.8.e, delete "ATCC" from text box.
- Section I.8.g, move information on infectious dose in animal models to Section I.8.h.
- Section I.8.h, answer No, and list here the information on infectious dose in animal models from Section I.8.g.
- Section II.16, answer No.

Amendment: BSL3/4 CDC/USDA Regulated Agents NOUs for review

Patricia Aguilar, PhD

Dr. Aguilar submitted an amendment to her work with severe fever with thrombocytopenia syndrome virus (SFTSV) and Heartland virus (HRTV) **to add work with unanesthetized mice and infection via intracranial route; NIH Guidelines: D1, D2, D3, D4.** This NOU was **approved with the following conditions:**

- Section I.8.d, select Animal bite and Sharps instead of listing in the text box.
- Section I.9.a-d, please upload the approval letter(s) for Inactivation SOPs.
- Section II.26, answer No.
- Section II.31, answer No.
- Section III.5, expand to describe work with suckling mice.

Roberto Garofalo, MD and Slobodan Paessler, DVM, PhD

Dr. Garofalo submitted an amendment to his work with respiratory syncytial virus (RSV) and human metapneumovirus **to add aerosolization of and work with RSV in BSL3; NIH Guidelines: N/A.** This NOU was **approved with the following conditions:**

- **No material may be removed from containment until inactivation SOPs have been approved by the Inactivation SOP Subcommittee.**
- Co-PI Cover Page, Select Agents, answer No.
- Section I.6, delete last paragraph that begins "SOPs for inactivated material …".
- Section I.8.a.i, confirm that when culturing, the flask will contain only 2 mL.
- Section I.8.c.ii, delete the first sentence ("Without host, will be uninfectious within hours in room temperature").
- Section I.8.c.ii, provide inactivation time for the methods listed.
- Section I.8.g, reword last sentence to read "All the experiments will be conducted in a biosafety cabinet."
- Section I.9.a, answer Yes and the subsequent questions.

- Section I.B.3, delete "PPEs are gear designed to safeguard the health of laboratory personnel by minimizing the exposure to a biological agent" and instead explain when surgical masks are worn in BSL2.
- Section III.7, remove a Lung Homogenization SOP to clarify which will be used.

The IBC would like to update the IBC NOU Policy to clarify that PIs may not describe work with a single agent at different biosafety levels on one NOU. Further, the IBC would like to explore how Co-PIs can remain informed on the status of an NOU when it is amended. The scope of which NOUs require this and which amendments will require Co-PI notification will be further discussed.

III. OLD BUSINESS

Biological Agents and rDNA/RNA NOUs – Conditions Met

Patricia Aguilar, PhD – Oropouche virus; NIH Guidelines: N/A (#2022137)

Vineet Menachery, PhD – Human coronavirus (HCoV-NL63, HCoV-OC43, HCoV-HKU1, HCoV-229E, CCoV-HuPn-2018); NIH Guidelines: D1, D2, D3 (#2022122)

BSL3/4 CDC/USDA Regulated Agents NOUs – Conditions Met

Gary Kobinger, PhD and Dennis Bente, PhD – Mpox, SARS-CoV-2, HIV genes (*vif*, *vpr*, *vpu*, *tat*, *nef*, *rev*); NIH Guidelines: D2 (#2022131)

Vineet Menachery, PhD – Group 2B coronaviruses (SHC014-CoV, WIV1-CoV, WIV16-CoV, BANAL52CoV, BANAL103-CoV, BANAL236-CoV, BANAL247-CoV, Pangolin CoV MP789), SARS-CoV (Urbani and MA15 strains), and SARS-CoV-2 (WA1 and variants); NIH Guidelines: D1, D2, D3, D4 (#2022102)

NOU Inactivation

Karl Anderson, MD – Human and NHP Products (#2017140) (expired)
Mark Emmett, PhD – Human and NHP Products (#2017135) (expired)
Jonathan Hommel, PhD – Rabies virus (attenuated) (#2017138) (expired)
Kangling Zhang, PhD – Human and NHP Products (#2018007) (expired)

IV. DISCUSSION

ABSL3 Incident

Two incidents occurred in the ABSL3 in December. Neither resulted in an occupational exposure.

In the first incident, personnel were working in a biosafety cabinet with a closed animal cage containing infected animals, when the BSC shut down. Personnel were wearing the appropriate PPE, including PAPRs, and they decontaminated their PPE. Personnel waited 5 minutes to ensure the BSC was working again, then restarted the experiment. The BSC shut down again during the experiment, this time with an open animal cage. They waited 5 minutes to ensure the BSC was working again, then resumed the experiment. The BSC shut down a third time, at a time when no cages were open. At that time, they reported the BSC failures to the PI and Department of Biosafety. Department of Biosafety spoke with the personnel, and they have been retrained on protocols regarding when to notify their PI and Department of Biosafety about failures of equipment.

In the second incident, a laboratorian was collecting serum samples in tubes. A cap on a tube popped off and fell to the floor. No liquid visibly fell. The laboratorian decontaminated the area following spill procedures as though there were a liquid spill.

May add clarification on procedures regarding BSC failures to both training and facility manuals. The shutdown of BSCs can occur when there are high voltage drops.

Subcommittee meeting
A subcommittee that pre-reviews NOU applications that may involve gain-of-function research met and discussed an application.

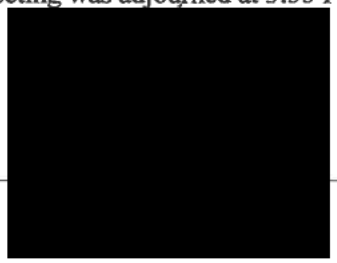
Work that falls under III-D and III-F
An IACUC protocol using mRNA vaccines was flagged by the Department of Biosafety as possibly needing an NOU. Further clarification from National Institutes of Health Office of Science Policy on whether the work is exempt is being sought.

Upon discussion, if the work is exempt from the NIH Guidelines, the IBC does not see the need to require an NOU. The results of those discussions will be provided to the IBC at the next meeting.

SARS-CoV-2 funding restrictions
Based on informal discussions with NIH program officers, there may be heavy restrictions on funding for future work with SARS-CoV-2. This may be restricted to mutations that have not occurred in nature.

V. ADJOURNMENT

The meeting was adjourned at 3:55 PM.



Institutional Biosafety Committee
301 University Blvd.
Galveston, TX 77555-1111
O 409.772.1781

MINUTES
February 3, 2023

The Institutional Biosafety Committee met virtually on Friday, February 3, 2023 using Microsoft Teams. The meeting was called to order at 2:00 PM and was chaired by [redacted]

MEMBERS PRESENT

[redacted]

MEMBERS ABSENT

[redacted]

CONSULTANTS

[redacted]

GUESTS

[redacted]

I. APPROVAL OF MINUTES

The minutes of the January 6, 2023 meeting were approved.

II. NEW BUSINESS

Inactivation SOPs – approved by the Inactivation Review Subcommittee

Jason Comer, PhD

Family/Genus: Arenaviridae

Inactivation Method(s): 4020 - Formalin Inactivation of Tissue Culture plates or chamber slides in BSL4
Sample Matrix: Cell monolayers

Inactivation Method(s): 4024 - Formalin Fixation of Animal Tissue
Sample Matrix: Tissue

Family/Genus: Filoviridae

Inactivation Method(s): 4020 - Formalin Inactivation of Tissue Culture plates or chamber slides in BSL4
Sample Matrix: Cell monolayers

Inactivation Method(s): 4024 - Formalin Fixation of Animal Tissue
Sample Matrix: Tissue

Thomas Geisbert, PhD

Family/Genus: Arenaviridae

Inactivation Method(s): Inactivation of plaque assay and PCR negative immune sera using Gamma Irradiation
Sample Matrix: Serum

Family/Genus: Filoviridae

Inactivation Method(s): Inactivation of plaque assay and PCR negative immune sera using Gamma Irradiation
Sample Matrix: Serum

Family/Genus: Paramyxoviridae

Inactivation Method(s): Inactivation of plaque assay and PCR negative immune sera using Gamma Irradiation
Sample Matrix: Serum

Brendan Prideaux, PhD

Family/Genus: Mycobacterium

Inactivation Method(s): Inactivation of Mycobacterium tuberculosis infected tissue samples by irradiation
Sample Matrix: Tissue
Maximum Titer: 1.7 x 10^8 CFU/g

Vaccine Clinical Trial NOUs – approved by eVote

Richard Rupp, MD

Dr. Rupp submitted a new NOU for Vaccine Clinical Trial to work with **SARS-CoV-2 vaccine (Bivalent BNT162b2, Original/Omi BA4/BA.5) (doses up to 60 mcg); quadrivalent influenza virus vaccine (qIRV) (doses up to 60 mcg); (total combination doses of up to 90 mcg); NIH Guidelines: C1.** Protocol Title: A Phase 1 Randomized Study to Evaluate the Safety, Tolerability, and Immunogenicity of Combined Modified RNA Vaccine Candidates Against COVID-19 and Influenza in Healthy Individuals (C5261001) (Protocol Date 09DEC2022).

Human and Nonhuman Primate Products NOUs approved administratively

Yashoda Hosakote, PhD

Dr. Hosakote submitted a renewal NOU for Human and Nonhuman Primate Products to work at BSL2 with **human primary cells (monocytes, macrophages, PBMCs, dendritic cells), commercial or established cells (THP-1, HEP G2, SAE, A549, A549-ACE2), and NHP commercial cells (LLC-MK2).**

Amendment: Human and Nonhuman Primate Products NOUs approved administratively

Ramkumar Menon, PhD

Dr. Menon submitted an amendment to his Human and Nonhuman Primate Products NOU **to add work with NHP tissue and body fluids.**

Tracy Toliver-Kinsky, PhD

Dr. Toliver-Kinsky submitted an amendment to her Human and Nonhuman Primate Products NOU **to add work with human umbilical cord blood stem cells and with mice.**

Biological Agents and rDNA/RNA NOUs for review

W. Sam Fagg, PhD

Dr. Fagg submitted a renewal NOU for Biological Agents and rDNA/RNA to work at BSL2 with **murine leukemia virus (MuLV); NIH Guidelines: D2, D3.** This NOU was **approved with the following conditions:**

- Section I.7.b, answer Yes.
- Section I.7.c, answer Abortive.
- Section I.8.f, provide additional information on pathogenicity, as the agent can infect humans.
- Section I.8.g, provide additional information on infectious dose, as the agent can infect humans.

Alfredo Torres, PhD

Dr. Torres submitted a renewal NOU for Biological Agents and rDNA/RNA to work at BSL2 with ***Escherichia coli*** **(enterohemorrhagic [EHEC], enteropathogenic [EPEC], enteroinvasive [EIEC], enteroaggregative [EAEC], enterotoxigenic [ETEC], adherent-invasive [AIEC]),** ***Shigella*** **spp.,** ***Salmonella*** **spp.; NIH Guidelines: D1, D2.** This NOU was **approved with the following conditions:**

- Section I.7.c.i, uncheck No and delete explanation, as *Citrobacter rodentium* and non-pathogenic *E. coli* are no longer listed on this NOU.
- Section I.7.c.ii, uncheck No and delete explanation, as *Citrobacter rodentium* and non-pathogenic *E. coli* are no longer listed on this NOU.
- Section I.8.c.i, for EHEC, use carats to denote use of scientific notation (e.g., 10^8 cfu/ml).
- Section I.8.f, for EAEC, use carats to denote use of scientific notation (e.g., 10^10 cfu).
- Section I.8.f, remove duplicate descriptions of ETEC, EAEC, EPEC, and EHEC pathogenicity.
- Section I.8.g, for EAEC, use carats to denote use of scientific notation (e.g., 10^10 cfu).
- Section I.8.h, remove information related to *Citrobacter rodentium*.
- Section I.9.d.ii, provide inactivation SOPs (validation data is not required), as these are reviewed by the IBC.
- Section II.7.a, expand on the mutagenesis techniques that will be used to inactivate, disrupt, or delete genes.
- Section II.17, if mutated bacteria or any recombinant or synthetic nucleic acids will be administered to animals, answer Yes.
- Section III.7, Homogenization SOP, specify if homogenization occurs within a biosafety cabinet or other primary containment.

BSL3/4 CDC/USDA Regulated Agents NOUs for review

Vineet Menachery, PhD

Dr. Menachery submitted a new NOU for BSL3/4 CDC/USDA Regulated Agents to work at BSL3 with **SARS-CoV-2 delORF3678; NIH Guidelines: D1, D2, D3.**

The IBC reviewed the possibility of Dual Use Research of Concern for this protocol.

- The agent listed (SARS-CoV-2) is not one of the fifteen agents covered under DURC.
- The researcher checked Yes to Section I.A.1.c.i (Is it likely that resistance to useful prophylactic or therapeutic interventions be conferred to the agent?). Based on the description of the proposed experiment, that is accurate.
- The IBC considered the benefits of completing the experiments (as described in the NOU) and the measures of safety proposed (using an attenuated strain of SARS-CoV-2 approved for work at BSL2 as the backbone and working at BSL3).

This NOU was **approved with the following conditions:**

- Section I.4, upload FDA's *Guidance for Industry: Antiviral Product Development – Conducting and Submitting Virology Studies to the Agency.*
- Section II.26, answer No.
- Section II.29, answer No.

1 abstained

Amendment: Biological Agents and rDNA/RNA NOUs for review

David Beasley, PhD

Dr. Beasley submitted an amendment to his work with West Nile virus **to add working with the ViroCyt in BSL4; NIH Guidelines: D1, D2, D3, D4.** This NOU was **approved with the following conditions:**

- Section I.B.1 also select BSL4 PPE.
- Section I.B.4, for BSL4 laboratories, list lab/room as "BSL4" instead of "2nd floor".
- Section I.B.5, also select Other and list ViroCyt.
- Section I.B.6, also select BSL4 waste.

Additional Items for review

Disinfection for different life stages of *Cryptosporidium* spp.

Two PIs hold NOUs for *Cryptosporidium* spp. (Dr. Castellanos-Gonzalez, #2018011; Dr. Dann Grice, #2019053). The Department of Biosafety is requesting the IBC review acceptable disinfectants for surface decontamination and spills for these agents. The materials to be decontaminated include cultured agent(s) and biological material from animals infected with the agent(s).

The committee discussed the following:

- This review was prompted by an ABSL2 incident (see Discussion below).
- The NOUs listed CaviCide, bleach, and 6% hydrogen peroxide for use as decontaminants. Only hydrogen peroxide is supported in the literature as being an effective disinfectant for oocytes.
- There is a lack of contact time listed in the NOU.
- The user should follow the instructions listed by the manufacturer for any disinfectant.
- One of the NOUs has more than one agent listed on the NOU. The PI was supposed to identify which disinfectant was meant to be used for each agent.

The IBC motioned and approved the following:

- The PIs need to update their NOUs to list appropriate disinfectants for *Cryptosporidium*, specifically 6% hydrogen peroxide for a 20-minute contact time.

Recommended language for NOU applications (Section I.8.f and I.8.g) for replication-incompetent viral vectors

The IBC requested recommended language be developed to answer these questions for replication-incompetent viral vectors. These answers may be provided to PIs within the application, within the IBC's Viral Vector Guidance Document, or via another method. The questions as written currently are:

- Section I.8.f. Describe pathogenicity for each agent, including disease incidence and severity in humans.
- Section I.8.g. What is the infectious dose for each agent in humans? Provide reference. (If unknown, state whether or not the dose being used can be expected to cause infection and provide an explanation.)

The committee discussed the following:

- Each viral vector may need to have its own answers.

- For lentivirus (and other integrating viruses), the information should be more thorough, including the low risk of insertional mutagenesis; the infectious dose could be listed as unknown infectious dose, but replication-incompetent.
- For non-integrating vectors, a statement that the agent is non-pathogenic as it is replication-incompetent would be appropriate.
- For infectious viral vectors (like VSV), the applicant needs to thoroughly answer the questions.

The IBC determined that a small group will work on this and propose appropriate language at a later meeting.

III. OLD BUSINESS

Biological Agents and rDNA/RNA NOUs – Conditions Met

David Beasley, PhD – Chimerivax St. Louis encephalitis virus and Chimerivax West Nile virus; NIH Guidelines: D1, D3, E1 (#2022070)

W. Sam Fagg, PhD – Lentiviral vector (3rd generation); NIH Guidelines: D2, D3 (#2023005)

Rong Fang, MD, PhD – BSL2 *Rickettsia* (*Rickettsia parkeri*, *R. montanensis*); NIH Guidelines: D4 (#2022121)

Thomas Geisbert, PhD – Lentiviral vectors; NIH Guidelines: D1, D2, D3 (#2022139)

Yashoda Hosakote, PhD – Respiratory syncytial virus (RSV) and human metapneumovirus (hMPV); NIH Guidelines: D1, D2 (#2022140)

Petr Leiman, PhD – Pathogenic *Escherichia coli*; NIH Guidelines: N/A (#2022141)

David Walker, MD – *Anaplasma* spp., *Ehrlichia* ssp., *Rickettsia amblyommatis*, *R. bellii*, *R. canadensis*, *R. massiliae*, *R. montanensis*, *R. rhipicephali*, and *R. parkeri*; NIH Guidelines: D2 (#2023009)

BSL3/4 CDC/USDA Regulated Agents NOUs – Conditions Met

David Beasley, PhD – Koutango virus (KOUV) and West Nile virus; NIH Guidelines: D1, D2, D3, D4, E1 (#2022076)

David Walker, MD – *Rickettsia prowazekii* and *Coxiella burnetii*; NIH Guidelines: D1, D2 (#2022005)

Scott Weaver, PhD – SARS-CoV-1 and recombinant SARS-CoV-2 vaccines; NIH Guidelines: D2, D3, D4 (#2022143)

Amendment: Biological Agents and rDNA/RNA NOUs – Conditions Met

David Beasley, PhD – West Nile virus; NIH Guidelines: D1, D2, D3, D4 (#2021063)

Gregory Gray, MD, MPH – Risk group 2 respiratory viruses (influenza A [H1-H18 and N1-N11], B, C, and D viruses, coronavirus, adenovirus, respiratory syncytial virus, pneumovirus, enterovirus, and paramyxovirus); NIH Guidelines: N/A (#2022030)

Amendment: BSL3/4 CDC/USDA Regulated Agents NOUs – Conditions Met

Patricia Aguilar, PhD – Severe fever with thrombocytopenia syndrome virus (SFTSV) and Heartland virus (HRTV); NIH Guidelines: D1, D2, D3, D4 (#2021019)

Roberto Garofalo, MD and Slobodan Paessler, DVM, PhD – Respiratory syncytial virus (RSV) and human metapneumovirus (hMPV); NIH Guidelines: N/A (#2022039)

Thomas Geisbert, PhD – Ebola virus; NIH Guidelines: D1, D2, D3, D4 (#2020061)

Thomas Geisbert, PhD – Nipah virus; NIH Guidelines: D1, D2, D3, D4 (#2020065)

IV. DISCUSSION

New IBC Member

[redacted] is joining the IBC as a member. She is a member of Microbiology and Immunology, specializing in *Mycobacterium tuberculosis*.

ABSL2 Incident

In January, mice that were infected with *Cryptosporidium* escaped their cages at ABSL2. They chewed through the filter on their cage and chewed through the filters on other mouse cages. All animals were located and accounted for. When determining how to disinfect the room and surfaces, the NOUs for these agents were consulted, and DOB flagged that the disinfectants listed for these agents did not appear appropriate. The room and surfaces were decontaminated with ionized hydrogen peroxide. The cages are disposable and incinerated after use; in the past, these cages have only been chewed through when there are dimples, and ARC staff are trained to spot these. The placement of the food hopper or water bottle may have put enough pressure on the filter to allow the mice to chew through the filter.

DOB asked that the IBC review the two NOUs for *Cryptosporidium* spp. to ensure that appropriate disinfectants are listed for use in vitro and by ARC. Fortunate that a trained person was available to be quickly deployed to use IHP to decontaminate the surfaces and room. If 6% hydrogen peroxide will be used by ARC staff, DOB will work with staff to train them on the use of a liquid disinfectant (the fumes and corrosiveness are a concern).

mRNA vaccines, NIH Guidelines, and responses from OSP

During the review of an IACUC protocol, DOB flagged a recombinant or synthetic nucleic acid (an mRNA vaccine) that appeared to require an NOU. DOB asked the PI of the IACUC protocol to submit an NOU describing the work. A conversation followed between the PI, DOB, and the IBC Chair about the nature of the nucleic acid molecule and whether it was exempt from the NIH Guidelines (specifically under Section III-F-1). To resolve the question, it was determined that guidance from Dr. Kathryn Harris from NIH Office of Science Policy would be sought.

DOB emailed Dr. Harris an inquiry about mRNA vaccines, their administration to animals, and how these experiments fall within the NIH Guidelines. DOB received a response via phone: mRNA vaccines are not exempt from the NIH Guidelines under III-F-1 because they are recombinant and not synthetic, and administration of mRNA vaccines to animals falls within Section III-D-4. Therefore, the work requires registration with the IBC before it can commence.

The PI was informed of Dr. Harris' guidance and was asked to submit an NOU; the PI stated that they would contact Dr. Harris to clarify specific details.

This morning, DOB found out from the IACUC office that two animal protocols held by the PI (and that had been flagged as using mRNA vaccines) had been approved. Based on the numbering system used by IACUC, they were approved in late 2022. Whether any animal work has occurred is unknown.

The IBC discussed the following:

- It is understandable that the PI interpreted the Guidelines has they did. They are unclear on this point. We now have a definitive answer from NIH OSP that the work is not exempt. The PI certainly needs an NOU.
- Do we have written guidance on this interpretation, or only a phone call? This afternoon, as the IBC meeting started, DOB received an email from Dr. Harris indicating that the PI had contacted her regarding the proposed experiments. Dr. Harris provided DOB with written clarification on NIH OSP's interpretation of the NIH Guidelines regarding mRNA vaccines: that they are not exempt and that their use in animals falls under the NIH Guidelines.
- Would this interpretation also cover the Moderna and Pfizer mRNA vaccines? Yes, working with these vaccines would also need to be approved by the IBC.
    - During the phone call with Dr. Harris, DOB inquired specifically about the Moderna and Pfizer COVID-19 mRNA vaccines. Dr. Harris' answer was the same: that the

vaccines are recombinant and their administration to animals requires approval by the IBC.

- Does the PI have to stop working with the material while the NOU is being submitted and reviewed?
    - Work that falls under III-D of the NIH Guidelines requires approval by the IBC before initiation of the experiment. Therefore, the PI does need to stop working until the NOU is approved.
    - The IBC could quickly turn around the NOU application of the PI in question by performing an expedited review when it comes in.
- If the PI has initiated experiments, the IBC will need to notify the NIH of a violation of the NIH Guidelines.
    - We need to establish whether the PI has already started animal work. That will inform us on whether a violation of the NIH Guidelines has occurred, and thus whether NIH needs to be informed. The IBC Chair will speak with the PI.
- Has there been any active communication from NIH about this classification for researchers? Nothing from NIH as far as we're aware, but the NIH Guidelines don't change much and lack clarity. That we've received written guidance from Dr. Harris is surprising. Hopefully, NIH OSP is receiving feedback from multiple companies, as this type of guidance would be very beneficial.
- We should communicate to PIs on campus about NIH's interpretation. There may be multiple PIs who work with RNA that will need to amend their NOUs. This may be a systemic problem where PIs have not interpreted the NIH Guidelines in the same way as NIH.
    - This may be another example of what the IBC encountered a year or so ago regarding downgrading biosafety level and the requirement that NIH approves the downgrading.
    - We need to assess how much mRNA work is performed and ensure it is properly registered and approved. IACUC may have additional information on animal studies that involve administration of mRNA, but it is unlikely that they have an easy way to search for that work in a protocol.
    - A communication needs to go out to all PIs, especially for infectious and vaccine work. Focus on educating the community.
    - We could communicate with IACUC and ask them to send out information about this interpretation to PIs with animal protocols.
    - There are two other PIs with NOUs that specifically identify mRNA vaccines as a recombinant agent; a third PI has an NOU for developing mRNA vaccines.
    - When DOB is asked by PIs about this kind of work, they are told to get an NOU.
- Plan to send a blast email to all PIs, add this topic to the annual training for laboratorians, and ask IACUC to flag mRNA administration in animal protocols.
    - The BSO and DOB will start drafting the communication to go out to the UTMB community.

As the IBC is not yet certain that there has been a violation of the NIH Guidelines, the IBC will take no immediate action. Additional information will be sought from the PI about whether the animal studies have commenced. Communicating with the research community will be the next priority.

IBC NOU Policy updates

DOB presented proposed updates to the IBC NOU Policy, including:

- Clearly stating that all NOUs (including for single agents) should be submitted for work at a single biosafety level
- Clarify that Co-PIs will be notified about amendments to an NOU
- Incorporate changes approved by the IBC in December 2021 regarding review of NOUs for transgenic and knock-out rodents where the work falls under Section III-E-3 of the NIH Guidelines

The tracked-changes version of the policy will be sent to the IBC for review and comment, to be voted on at a subsequent IBC meeting.

Coronavirus research updates

A couple of weeks ago, the IBC Chair was notified by [redacted] regarding work performed in his lab. He is approved to make chimeras of SARS-CoV-2 Washington strain with the spike protein of circulating variants, to examine sera of infected or vaccinated individuals. [redacted] observed an unexpected phenotype in his chimeras, and appropriately stopped work and informed the IBC Chair.

In a Syrian Golden hamster model, these chimeric viruses were attenuated. However, in a K18-hACE2 mouse model, the chimeric viruses were more virulent. Given the contrasting results of the two models, it is unclear if these chimeras are gain-of-function. In addition, in the mouse model, infection with chimeric viruses presented with neurological symptoms more so than respiratory symptoms, a known limitation of this model.

A subcommittee of the IBC met to discuss these results. There are similarities to the widely publicized work that was performed at Boston University. The subcommittee came up with several recommendations that they informally presented to the PI to mitigate the risk. These recommendations included using an attenuated version of the virus as the backbone and to secure and inventory the chimeras that have been generated.

The IBC discussed the following:

- This work was supported by a combination of CDC and NIH funds. The CDC program officer was informed and appeared unconcerned.
- The K18 mouse model is less than ideal for studying these viruses. Even with wild-type SARS-CoV-2, the symptoms are neurological.
- When the IBC decides about the future of this work, we will send that information to the NIH and ask them to acknowledge that they received it.
- The goal of the research performed by [redacted] was to obtain mouse antiserum to the chimeras.
- The question before the IBC today is to decide if [redacted] s proposed approach is acceptable or unacceptable, or if the IBC would like the subcommittee to perform an initial review and make recommendations, to be reviewed by the full IBC.

The IBC motioned and approved the following:

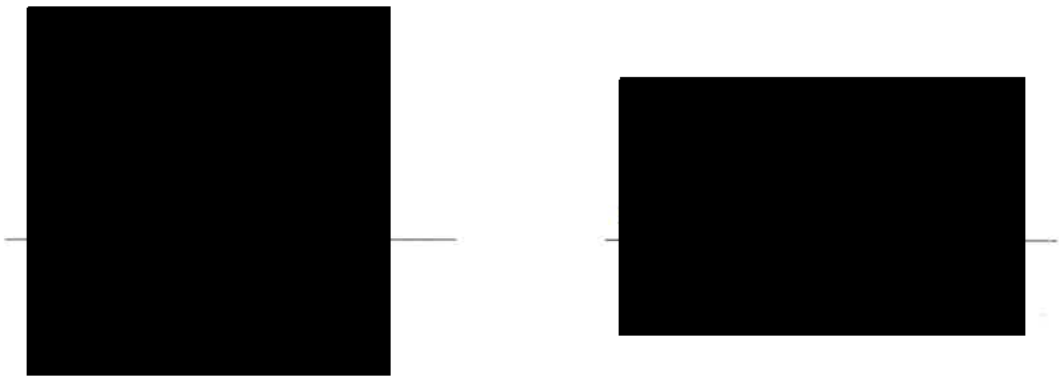
- Ask [redacted] to continue the research pause.
- The subcommittee will review [redacted] s proposed approach and make recommendations to the IBC regarding that approach.

NSABB Updates

Last week, the National Scientific Advisory Board for Biosecurity meet and approved a draft framework for Dual Use Research of Concern (DURC) and Potential Pandemic Pathogens of Concern Oversight (P3CO). The draft guidance will be sent to the IBC members. The NOU form already asks PIs to answer questions related to dual use for all agents, not just the 15 agents listed in DURC, so these changes may have minimal effect on NOU applications.

V. ADJOURNMENT

The meeting was adjourned at 4:20 PM.



Institutional Biosafety Committee
301 University Blvd.
Galveston, TX 77555-1111
O 409.772.1781

MINUTES
March 3, 2023

The Institutional Biosafety Committee met virtually on Friday, March 3, 2023 using Microsoft Teams. The meeting was called to order at 2:02 PM and was chaired by [redacted]

MEMBERS PRESENT

[redacted]

MEMBERS ABSENT

[redacted]

CONSULTANTS

[redacted]

GUESTS

[redacted]

I. APPROVAL OF MINUTES

The minutes of the February 3, 2023 meeting were approved.
2 abstained.

II. NEW BUSINESS

Inactivation SOPs – approved by the Inactivation Review Subcommittee

Donald Bouyer, PhD
Family/Genus: Rickettsiaceae
Inactivation Method(s): 15002 – Karnovsky's Fixation for Cell Monolayers Infected with Rickettsiaceae
Sample Matrix: Cell monolayers

Alexander Bukreyev, PhD
Family/Genus: Phenuiviridae
Inactivation Method(s): 15002 – Formalin fixation of tissue culture plates infected with Rift Valley Fever virus
Sample Matrix: Cell monolayers

Inactivation Method(s): 15003 - Inactivation of Rift Valley Fever virus Using TRIzol®, TRI-Reagent®, or TriPure® Reagent in liquids
Sample Matrix: Liquid culture

Inactivation Method(s): 4019F – SOP37TGK Inactivation of Rift Valley Fever Virus by gamma irradiation
Sample Matrix: Liquid culture

Gregory Gray, MD, MPH
Family/Genus: Orthomyxoviridae
Inactivation Method(s): SOP.A10002.1 **Influenza Virus Inactivation_TRIzol LS**
Sample Matrix: Liquid culture

Tetsuro Ikegami, PhD
Family/Genus: Peribunyaviridae
Inactivation Method(s): Virus inactivation of Tissue Cultures using Laemmli Sample Buffer for Protein Analysis
Sample Matrix: Liquid culture

Inactivation Method(s): Virus Inactivation of Tissue Cultures using TRIzol, TRI-Reagent, or TriPure Reagent for Total RNA Isolation
Sample Matrix: Liquid culture

Inactivation Method(s): Virus Inactivation of Tissue Cultures using TRIzol, TRI-Reagent, or TriPure Reagent for Total RNA Isolation
Sample Matrix: Cell monolayers

Family/Genus: Phenuiviridae
Inactivation Method(s): Virus inactivation of Tissue Cultures using Laemmli Sample Buffer for Protein Analysis
Sample Matrix: Liquid culture

Slobodan Paessler, DVM, PhD
Family/Genus: Arenaviridae
Inactivation Method(s): 4027 Inactivation of arenaviruses and arenavirus-infected cell culture material for RNA extraction with phenol/guanidine isothiocyanate reagents
Sample Matrix: Cell monolayers

Inactivation Method(s): SOP# 31 Virus Inactivation of Liquids Using TRIzol® TRI-Reagent® or TriPure® Reagent for Total RNA isolation
Sample Matrix: Liquid culture

Biological Agents and rDNA/RNA NOUs approved by eVote
Alexander Bukreyev, PhD
Dr. Bukreyev submitted a new NOU for Biological Agents and rDNA/RNA to work at BSL2 with **RNA vaccines; NIH Guidelines: D2, D4.**

Miguel Cabada, MD
Dr. Cabada submitted a new NOU for Biological Agents and rDNA/RNA to work at BSL2 with ***Fasciola hepatica*; NIH Guidelines: N/A.**

Human and Nonhuman Primate Products NOUs approved administratively

Alejandro Castellanos

Dr. Castellanos submitted a new NOU for Human and Nonhuman Primate Products to work at BSL2 with **human commercial cells (HCT-8, Caco2).**

Pablo Valdes Quevedo, MD, PhD

Dr. Valdes Quevedo submitted a new NOU for Human and Nonhuman Primate Products to work at BSL2 with **human commercial cells (glioma stem cells [U87]).**

Amendment: Biological Agents and rDNA/RNA NOUs approved administratively

Ashok Chopra, PhD

Dr. Chopra submitted an amendment to his work with *Escherichia coli* (enterohemorrhagic, enteroinvasive, enterotoxigenic, enteropathogenic), *Pseudomonas* spp., *Aeromonas* spp., *Salmonella enterica* Typhimurium, *Yersinia enterocolitica*, *Yersinia pseudotuberculosis*, *Yersinia pestis* (exempt strains), *Vibrio* spp. **to add work with rats; NIH Guidelines: D1, D2, D4.**

Biological Agents and rDNA/RNA NOUs for review

Patricia Aguilar, PhD

Dr. Aguilar submitted a new NOU for Biological Agents and rDNA/RNA to work at BSL2 with **Mayaro virus; NIH Guidelines: D1, D2, D3, D4.** This NOU was **approved with conditions:**

- Section I.8.c.i, expand on agent stability using information from other alphaviruses.
- Section I.8.c.ii, provide contact time for chemical disinfectants and heat.
- Section I.8.d, also select aerosol.
- Section I.A.2.b.iii, correct NOU# to 2019056.
- Section II.3, expand on how mutants to be made will be chosen (e.g., natural variation, scanning mutagenesis).
- Section II.3, expand on how mutants will be selected for additional study.
- Section II.3, state that if the mutants exhibit an unexpected phenotype, the IBC will be notified.
- Section III.8, delete the first sentence, "Animals will be anesthetized …" and the three sentences from "A syringe will be filled …" through "Blood will be collected."
- Section IV.6, uncheck Animal feeding as an infection method, or describe in Section IV.3.
- Section V.1.B, under Years of Experience, specify biosafety level at which experience was obtained.

Alejandro Castellanos, PhD

Dr. Castellanos submitted a renewal NOU for Biological Agents and rDNA/RNA to work at BSL2 with ***Cryptosporidium parvum*** **and** ***C. hominis*****; NIH Guidelines: D1, D2, D4.** This NOU was **approved with conditions:**

- Section I.6, use oocyst instead of oocyte and euthanized instead of sacrificed.
- Section I.8.a.iv through vi, clarify whether the agent will be concentrated above the listed maximum concentration that will be cultured (1 x 10^6 parasites/mL).
- Section I.8.d, also select aerosol.
- Section I.8.g, use oocyst instead of oocyte.
- Section I.A.2.b.i, delete reference to chicken eggs, as *C. baileyi* is not on this NOU.
- Section III.2, provide approval date for IACUC protocol.
- Section III.5, use euthanized instead of sacrificed.
- Section III.7, Homogenization protocol, upload a written SOP for homogenization, and specify which steps are performed in a biosafety cabinet or other primary containment, how surfaces are decontaminated, and how waste is disposed.

Victor Reyes, PhD

Dr. Reyes submitted a renewal NOU for Biological Agents and rDNA/RNA to work at BSL2 with ***Helicobacter pylori*; NIH Guidelines: N/A.** This NOU was **approved with conditions:**

- Section I.8.a.i, delete text and state "50 mL of culture".

BSL3/4 CDC/USDA Regulated Agents NOUs for review

Alexander Bukreyev, PhD

Dr. Bukreyev submitted a new NOU for BSL3/4 CDC/USDA Regulated Agents to work at BSL3 with **Rift Valley fever virus; NIH Guidelines: D4.** This NOU was **tabled with conditions:**

- The scope and location of work was unclear throughout the NOU application. Please consult with Laboratory Directors and Department of Biosafety to determine where work will occur, then resubmit this NOU application.
- If work is proposed at BSL3, this may not commence until approval from FSAP has been secured.
- Section I.6, clarify the circumstances in which agent would be moved from BSL3 to BSL4.
- Section I.7.e, answer Yes.
- Section I.7.e.ii, also list formalin inactivated RVF vaccine TSI-GSD-200.
- Section I.A.2.b.iv, if propagation of agent using *E. coli* relates only to RNA vaccines covered under NOU #2023015, delete here.
- Section I.B.1, if all work at the open bench is covered under NOU #2023015, uncheck Open Bench PPE.
- Section I.B.1, uncheck either BSL3 PPE or BSL4 PPE, depending on where work will occur.
- Section I.B.1, delete text related to bench work for RNA vaccines, as this work is covered under NOU #2023015.
- Section I.B.4, delete either BSL3 or BSL4 laboratories, depending on where work will occur.
- Section I.B.4, if no animal work is proposed, delete ABSL4 laboratories.
- Section I.B.5, confirm that only a homogenizer located in BSL4 will be utilized.
- Section I.B.6, if all work at BSL2 is covered by NOU #2023015, uncheck BSL2 disposal of biohazardous waste.
- Section I.B.6, uncheck either BSL3 or BSL4 disposal of biohazardous waste, depending on where work will occur.
- Section I.B.7, if Cavicide will be used for decontamination, also select here.
- Section II.1, if all recombinant work relates to RNA vaccines covered under NOU #2023015, answer No. If other recombinant work is proposed, describe in this section.
- Section III.1, if the scope of animal work is known, answer Yes and complete this section. Otherwise, amend this NOU later to describe.
- Section V.1.A, Personnel Table, specify the biosafety level at which experience was obtained.

Amendment: Biological Agents and rDNA/RNA NOUs for review

Alison Coady, PhD

Dr. Coady submitted an amendment to her work with *Candida albicans* **to add work with *C. auris*, *C. glabrata*, *C. parapsilosis*, *C. tropicalis*, and *C. krusei*, and intravaginal administration; NIH Guidelines: D1, D2, D4.** This NOU was **approved with conditions:**

- Section I.6, expand to describe the work that will be performed with the newly added species of *Candida*.

Amendment: BSL3/4 CDC/USDA Regulated Agents NOUs for review

Janice Endsley, PhD

Dr. Endsley submitted an amendment to her work with *Mycobacterium tuberculosis* **to add work with *Mycobacterium bovis*; NIH Guidelines: N/A.** This NOU was **approved with conditions:**

- Section I.3, under Strains or Generation, specify the strains of *M. bovis* that will be used.
- Section I.6, delete specific laboratories.
- Section V.1.B, confirm that [redacted] remains in the laboratory.

Janice Endsley, PhD and Mark Endsley, PhD

Dr. Endsley submitted an amendment to her work with SARS-CoV-2 **to expand the scope of work; NIH Guidelines: N/A.** This NOU was **approved with conditions:**

- Permit Process Questions, Comments regarding this amendment, delete name of collaborator and simply state "collaborator".
- Section I.6, specify if samples received from collaborator are already inactivated or will be inactivated.
- Section I.6, specify the biosafety level at which the samples will be analyzed using the BioPlex.

The IBC determined that Dr. Janice Endsley has the experience to perform this work without a Co-PI.

Tetsuro Ikegami, PhD

Dr. Ikegami submitted an amendment to his work with Risk Group 2 Bunyaviruses (Rift Valley fever virus [MP-12 strain and delNSs-delNSm-ZH501 strain], Punta Toro virus [Adames strain and Balliet strain], Toscana virus, Sandfly fever Sicilian virus, Icoaraci virus, Frijoles virus, Arumowot virus, Bunyamvera virus, La Crosse virus, Lone Star virus, Prospect Hill virus, Oropouche virus, Iquitos virus, Alenquer virus, Oriximina virus) **to add removal of Oropouche virus samples from a collaborator's BSL3 laboratory; NIH Guidelines: D1, D2, D3, D4** This NOU was **approved with conditions:**

- Have a member of Department of Biosafety witness transfer of sample from BSL3 to BSL2.
- Section I.4, upload a copy of witnessed transfer form.
- Section I.4, upload a copy of the NGS report that includes the strain that was sequenced, the date of preparation, and the date it was provided to the NGS laboratory.
- Section I.6, expand to describe how samples were sequenced.
- Section I.6, expand to describe how samples will be moved from BSL3 to BSL2.

The IBC would like additional information on how transfers from BSL3 to BSL2 are typically performed.

Chien-Te (Kent) Tseng, PhD (previously tabled at December 2022 meeting)

Dr. Tseng submitted an amendment to his work with SARS-CoV-2 **to add challenge via intracerebroventricular route; NIH Guidelines: D3, D4.** This NOU was **approved with conditions:**

- ICV SOP, remove hair while animal is in the BSC, or provide justification for performing this manipulation outside of primary containment.
- ICV SOP, recommend transporting anesthetized animal from BSC to ICV instrument using a container to avoid dropping animal.

Response to Conditions: Biological Agents and rDNA/RNA NOUs for review

Petr Leiman, PhD

Dr. Leiman submitted a response to conditions to his work with *Pseudomonas aeruginosa*, **which clarified that the project entails recombinant work and is now described for IBC review; NIH Guidelines: D2.** This NOU was **approved.**

III. OLD BUSINESS

Vaccine Clinical Trial NOUs – Conditions Met

Richard Rupp, MD – SARS-CoV-2 vaccine (Bivalent BNT162b2, Original/Omi BA4/BA.5) (doses up to 60 mcg); quadrivalent influenza virus vaccine (qIRV) (doses up to 60 mcg); (total combination doses of up to 90 mcg); NIH Guidelines: C1 (#2023010)

Biological Agents and rDNA/RNA NOUs – Conditions Met

Noelle Anastasio, PhD – Adeno-associated viral vectors (AAV, serotypes 2, 5, 6, 8, 9); NIH Guidelines: D2, D3, D4 (#2023004)

W. Sam Fagg, PhD – Murine leukemia virus (MuLV); NIH Guidelines: D2, D3 (#2023012)

Nisha Jain Garg, PhD – *Trypanosoma cruzi* and lentiviral vectors; NIH Guidelines: D1, D2, D4 (#2023006)

Gary Kobinger, PhD – Adenoviral vector (serotype 5); NIH Guidelines: D1, D3, D4 (#2023007)

Alfredo Torres, PhD – *Escherichia coli* (enterohemorrhagic [EHEC], enteropathogenic [EPEC], enteroinvasive [EIEC], entero-aggregative [EAEC], enterotoxigenic [ETEC], adherent-invasive [AIEC]), *Shigella* spp., *Salmonella* spp.; NIH Guidelines: D1, D2 (#2023013)

BSL3/4 CDC/USDA Regulated Agents NOUs – Conditions Met

Vineet Menachery, PhD – SARS-CoV-2 delORF3678; NIH Guidelines: D1, D2, D3 (#2023014)

Amendment: BSL3/4 CDC/USDA Regulated Agents NOUs – Conditions Met

Gregory Gray, MD, MPH and Dennis Bente, PhD – Risk group 3 respiratory viruses (influenza A [H1-H18 and N1-N11], influenza A [HPAI], influenza B, C, and D, SARS-CoV-2, coronavirus, enterovirus, adenovirus, respiratory syncytial virus, pneumovirus, paramyxovirus [excluding Nipah and Hendra virus]); NIH Guidelines: N/A (#2022021)

NOU Inactivation

Kyung (Kay) Choi, PhD – Non-pathogenic *Escherichia coli* expressing DNA plasmids encoded with animal virus proteins (bovine viral diarrhea, classical swine fever, and atypical porcine pestivirus); NIH Guidelines: D2 (#2018054) (PI left UTMB)

Kyung (Kay) Choi, PhD – DNA plasmid encoding flavivirus polymerase (West Nile virus RNA sequence in non-pathogenic *E. coli*, Zika virus RNA sequence in non-pathogenic *E. coli*, and Dengue virus 1, 2, 3, 4 RNA sequence in non-pathogenic *E. coli*); NIH Guidelines: D1, D2 (#2020079) (PI left UTMB)

Kyung (Kay) Choi, PhD – Recombinant West Nile virus replicon; NIH Guidelines: D1, D2, D3 (#2022085) (PI left UTMB)

IV. DISCUSSION

BSL2 Incident

In February, a researcher was working with mosquitoes infected with Zika virus (day 4 post infection). The researcher was dissecting the mosquitoes to harvest the midgut. Dissection procedures included using an insulin needle to hold the mosquito and to transfer dissected material to a collection tube. In this incident, the researcher held the collection tube in one hand and while screwing the cap onto the tube, stuck themselves with the needle held in the other hand. The researcher performed first aid and reported appropriately to their PI; DOB was informed, and the researcher was told to report to Employee Health for post-exposure protocols and recommendations.

The mosquito was PCR tested and was negative for Zika virus. At that stage of infection, virus would have been found in the midgut, which is the part of the mosquito that was tested. The incident was reported to the ACL Directors. DOB and the BSL3 Director met with the researcher to provide recommendations to mitigate future incidents. The laboratory will update their SOPs to document changes. The main recommendations were to remove the sharp from the process of closing the tube, including using a tube rack that can securely hold the tube so it can be screwed closed with one hand, and putting down the needle while closing the tube.

Inactivation SOP Subcommittee Policies and Procedures and updates to IBC website

DOB has assembled information on Inactivation SOPs. These include:

- Inactivation Subcommittee Policy
- Inactivation Subcommittee Submission SOP
- PI Inactivation Submission Guidance

The information and documents have been added to the IBC website. If the IBC has comments or questions, input would be appreciated.

The IBC recommended that the example SOPs be provided as Word documents to encourage PIs to use them as templates.

IBC NOU Policy Updates
A tracked changes version of the IBC NOU Policy was provided to the IBC with the other documents for this meeting. No objections were made to the changes.

Incident Reported to NIH
During the February meeting, the IBC discussed the clarification from NIH that RNA vaccines are recombinant material that require approval of the IBC before work commenced. At the time, it was unclear if a PI had administered the recombinant material to animals. The PI has clarified that this had occurred. The PI was told to submit an NOU describing the work as soon as possible. The NOU has since been submitted, reviewed, and approved.

The BSO reported the incident to NIH earlier this week. No response has been received yet.

V. ADJOURNMENT

The meeting was adjourned at 3:45 PM.

Institutional Biosafety Committee
301 University Blvd.
Galveston, TX 77555-1111
O 409.772.1781

MINUTES
April 7, 2023

The Institutional Biosafety Committee met virtually on Friday, April 7, 2023 using Microsoft Teams. The meeting was called to order at 2:01 PM and was chaired by [redacted]

MEMBERS PRESENT

[redacted]

MEMBERS ABSENT

[redacted]

CONSULTANTS

[redacted]

GUESTS

[redacted]

I. APPROVAL OF MINUTES

The minutes of the March 3, 2023 meeting were approved.

II. NEW BUSINESS

Inactivation SOPs – approved by the Inactivation Review Subcommittee

Jason Comer, PhD

Family/Genus: Filoviridae

Inactivation Method(s): Formalin Fixation of Animal Tissue - 21 Day Large Tissues

Sample Matrix: Tissue

Vaccine Clinical Trial NOUs approved by eVote

Richard Rupp, MD

Dr. Rupp submitted a new NOU for Vaccine Clinical Trial to work with **BNT162b2 RNA-Based COVID-19 Vaccine (Omicron BA.4/BA.5); NIH Guidelines: C1.**

Human and Nonhuman Primate Products NOUs approved administratively

Mark Emmett, PhD

Dr. Emmett submitted a renewal NOU for Human and Nonhuman Primate Products to work at BSL2 with **human blood.**

Alfredo Torres, PhD

Dr. Torres submitted a renewal NOU for Human and Nonhuman Primate Products to work at BSL2 and BSL3 with **human commercial cells (HeLa, HEP G2, Caco-2, T-84, HT-29, A549, Raji B, THP-1, U937, primary human monocytes).**

Amendment: Human and Nonhuman Primate Products NOUs approved administratively

Scott Weaver, PhD

Dr. Weaver submitted an amendment to his work with Human and Nonhuman Primate Products to add work with **additional established human cells (Huh-7, U937, U937-DC+SIGN, K562).**

Human Products and Nonhuman Primate Products NOU transfer approved administratively

V.M Sadagopa Ramanujam, PhD, to Lance Hallberg, PhD

Dr. Ramanujam submitted a request to transfer his work with **human and NHP tissue, blood, and body fluids** to Dr. Hallberg.

NOU Transfers for review

Shelly Buffington, PhD, to Nisha Garg, PhD

- *Trypanosoma cruzi* (#2022095)

The IBC discussed the following:

- There is no proposed change in the scope of work.
- Dr. Garg is experienced in working with this agent and these animals.
- The personnel on the NOUs need to be updated.

This NOU transfer was **approved with the following conditions:**

- Section V.1.B, update the personnel table.

Pei-Yong Shi, PhD, to Xuping Xie, PhD

- Yellow fever 17D live attenuated vaccine strain (#2019041)
- Japanese encephalitis 14-14-2 vaccine strain (#2019042)
- SARS-CoV-2, Flavivirus vaccine and replicon, Alphavirus vaccine and replicon (#2020012)
- rSARS-CoV-2, lentivirus (#2020149)
- SARS-CoV-2 delORF3678 (#2022086)

The IBC discussed the following:

- All of these NOUs are for work at BSL2.
- There is no proposed change to the scope of work.
- The personnel on the NOUs need to be updated.
- The work described in NOU #2020012 included the possibility of adaptation occurring in vitro, and therefore some of the questions in Section I.A are answered Yes.
- Animal work is described in NOUs #2020012 and 2022086.
- While Dr. Shi is the PI of the protocols, Dr. Xie has been performing the work on these protocols. The transfer of the NOUs will have no effect on the expertise of the team leading these protocols. Dr. Xie is eminently qualified to be the PI of these protocols.
- Both Dr. Shi and Dr. Xie are listed on the approval from NIH-Office of Science Policy (dated 22JUN2021) to work with the single-cycle replicable SARS-CoV-2 construct (NOU# 2020149).

This NOU transfer was **approved with the following conditions:**

- Update personnel listed on these NOUs.

Assessments of whether work needs to be registered with the IBC for review

Jose (Eddie) Salazar, PhD

Dr. Salazar submitted two renewal NOUs for risk group 2 bacteria and risk group 2 fungi for teaching labs. Department of Biosafety is requesting that the IBC consider whether this work falls within the parameters of the IBC's NOU Policy (to register **research** involving risk group 2 agents) and therefore whether these NOUs are required. The IBC discussed the following:

- The group is a clinical laboratory growing small amounts of bacteria in broth or on plate. Clinical lab students then identify the organisms. There is no research or other manipulation. The students and personnel wear appropriate PPE and dispose of the agents appropriately. The laboratory is inspected annually. No animal work or recombinant work is proposed.
- An NOU does not seem to be needed. Instead, some sort of annual declaration that includes the agents (strains and species) would be appropriate. If the group decides to perform activities beyond identification of agents, perhaps an NOU would then be required.
- Is the laboratory performing any analysis to ensure that the agents (especially the fungi) are what they expect? A PCR assay (if they propagate the agents) or a certificate of analysis (if they purchase from a vendor) would be appropriate. The analysis or COA should be kept on record.
- Important to keep a record of what teaching laboratories are working with, but this should be less burdensome than an NOU.
- There was a case where *Salmonella* was taken home from a teaching laboratory about 5-10 years ago. We do not want that to occur.

The IBC determined that:

- This work does not require an NOU.
- Instead, Department of Biosafety will develop documentation that the group will submit annually to notify the IBC of the agents that will be utilized.
- When this documentation is submitted, it can be administratively approved by DOB.
- The laboratory should elaborate on any record-keeping (or implement record-keeping) that confirms the identity of the bacterial and fungal agents.

Biological Agents and rDNA/RNA NOUs for review

Bo Chen, PhD

Dr. Chen submitted a new NOU for Biological Agents and rDNA/RNA to work at BSL1 with **adeno-associated virus (AAV) serotypes 2 and 5; NIH Guidelines: D4.** This NOU was **approved with the following conditions:**

- **Animals must be housed at ABSL2 for 72 hours post AAV administration.**
- Contact Information, add Office Building.
- Section I.3, under Select Agent, select No.
- Section I.6, delete "We will use a specific promoter which makes it only infect a specific type of cells. Then, it cannot infect humans even with direct contact with skin, mouth, eyes, or other body parts."
- Section I.6, expand on the purpose of the work.
- Section I.6, describe or list genes that will be manipulated.
- Section I.7.b, answer Yes.
- Section I.7.c, answer Abortive.
- Section I.7.c.i through I.7.e, delete responses.
- Section I.8.c.ii, specify 10% bleach.
- Section I.8.d, select mucous membrane, inhalation, needle stick, and delete text from text box.
- Section I.B.6, select BSL2.
- Section I.B.6, unselect Other and delete text in box.
- Section II.7.h, delete text and instead describe the function of the genes being modified or silenced.

- Section III.3, select both ABSL1 and ABLS2.
- Section III.4, under Dose per Animal, Maximum Concentration, provide units of concentration.
- Section III.5, state that ABSL2 practices and procedures will be observed for 72 hours post administration.
- Section III.8, clarify if perfusion will be performed with formalin. If perfusion will be performed with PBS instead, clearly state the collected body fluids will be chemically inactivated before disposal.
- **Department of Biosafety will ensure that the PI is aware that the animals need to be held at ABSL2 for 72 hours post AAV administration and understands what Select Agents are.**

Alison Coady, PhD

Dr. Coady submitted a new NOU for Biological Agents and rDNA/RNA to work at BSL2 with ***Escherichia coli*** **(enterohemorrhagic and uropathogenic strains),** ***Klebsiella pneumoniae*****,** ***Pseudomonas aeruginosa*****,** ***Salmonella typhimurium*****, and** ***Streptococcus agalactiae*****; NIH Guidelines: D4.** This NOU was **approved with the following conditions:**

- Section I.5, clearly state that the co-infection studies are to examine the interaction between pathogenic bacteria and fungi (as opposed to the interaction between commensal bacteria and fungi).
- Section I.8.a.vii, if agents are concentrated in order to infect cells, delete text and instead state "to infect cells".
- Section I.8.g, please add references for infectious doses.
- Section III.2, answer Yes to whether the animal is a human exposure risk.
- Section III.6.a, move final sentence to immediately after the sentence that starts "Anesthesia is not a no-risk procedure …"

Mark Endsley, PhD

Dr. Endsley submitted a new NOU for Biological Agents and rDNA/RNA to work at BSL2 with **human coronaviruses (OC43, 229E); NIH Guidelines: N/A.** This NOU was **approved with the following conditions:**

- Section I.4, if sucrose gradient centrifugation requires ultracentrifugation, please upload an SOP describing this procedure.
- Section I.5, list NOU # for SARS-CoV-2 or remove reference to SARS-CoV-2.
- Section I.6, expand on the lipid agents that will be used (e.g., commercially purchased, obtained from collaborators).
- Section I.8.c.ii, expand on susceptibility of the agent to heat, including inactivation time.
- Section I.8.c.ii, if CaviCide will be used to decontaminate surfaces, list here and provide inactivation time.
- Section I.9, confirm that no agents will be inactivated, even for Western blot and electron microscopy. If agents will be inactivated, answer Yes and answer subsequent questions.
- Section I.B.7, confirm that CaviCide will not be used to decontaminate surfaces.
- Section V.1.B, under Years of Experience, specify biosafety level at which experience was obtained.
- Section V.1.B, under Experience with Agents, also list SARS-CoV-2.

Maureen Laroche, PhD

Dr. Laroche submitted a new NOU for Biological Agents and rDNA/RNA to work at BSL2 with ***Yersinia pestis*** **(KIM D27); NIH Guidelines: N/A.** This NOU was **approved with the following conditions:**

- Contact Information, add Office Building.

- Section I.6, clarify the size and type of flasks that are used during centrifugation to infect *Ixodes scapularis* cell lines.
- Section I.8.a.ii, specify the type of flasks that is listed (tissue culture, Erlenmeyer, etc.).
- Section I.8.f, also describe ability of KIM D27 strain to infect persons with hemochromatosis.
- Section I.8.g, also provide infectious dose for WT *Yersinia pestis*.
- Section I.8.g, delete information unrelated to infectious dose of the agent.

Ramkumar Menon, PhD

Dr. Menon submitted a new NOU for Biological Agents and rDNA/RNA to work at BSL2 with **lentiviral vectors; NIH Guidelines: D2.** This NOU was **tabled with the following conditions:**

- Section I.4, under Bioagent Name, delete "plasmid" and list "particle".
- Section I.6, summarize the project descriptions.
- Section I.6, describe CCR2 transduction.
- Section I.6, throughout, use "transduction" instead of "transfection".
- Section I.6, in last sentence, replace "lentiviral vectors" with "lentiviral particles".
- Section I.7.b, answer Yes.
- Section I.8.a.ii (Is agent abortive?), answer Yes.
- Section I.8.c.i, provide more information on stability.
- Section I.A.2.b.ii, also list HEK293 cells.
- Section I.B.8, if flow cytometry will be done with the Flow Cytometry Core, delete text in box.
- Section II.2, throughout, use "transduce" instead of "transfect".
- Section II.3, throughout, use "transduction" instead of "transfection".
- Section V.1.B, under Experience with Agents, be more specific about the experience that personnel have.

Scott Weaver, PhD and Kenneth Plante, PhD

Dr. Weaver submitted a new NOU for Biological Agents and rDNA/RNA to work at BSL2 with **Risk Group 2 flaviviruses (Alfuy, Apoi, Aroa, Bagaza, Banzi, Batu Cave, Bouboui, Bukalasa Bat, Bussuquara, Cacipacore, Carey Island, Cowbone Ridge, Dakar Bat, Dengue virus [serotypes 1, 2, 3, and 4], Edge Hill, Entebbe Bat, Gadgets Gully, Iguape, Ilheus, Japanese Encephalitis [SA 14-14-2 vaccine strain], Jugra, Jutiapa, Kadam, Karshi, Kedougou, Kokobera, Kunjin, Langat, Meaban, Modoc, Montana Myotis Leukoencephalitis, Naranjal, Ntaya, Phnom Penh Bat, Potiskum, Rio Bravo, Royal Farm, Saboya, Sal Vieja, San Perlita, Saumarez Reef, Sepik, Sokoluk, Spondweni, St. Louis Encephalitis, Stratford, Tembusu, Tyuleniy, Uganda S, Usutu, West Nile, Yaounde, Yellow Fever [17-D vaccine strain], Yokose, Zika viruses); NIH Guidelines: D4.** This NOU was **approved with the following conditions:**

- Section I.6, clarify where the West Nile virus and St. Louis encephalitis virus stocks are coming from. If WNV and SLEV will be removed from BSL3, state the removal method that will be used (e.g., deep sequencing, plaque purification and Sanger sequencing, or from a collaborator's BSL2 laboratory).
- Section I.9.c, if agents will be inactivated to perform Western blots, ELISA, or HI, please also provide inactivation SOPs.

BSL3/4 CDC/USDA Regulated Agents NOUs for review

Alexander Bukreyev, PhD (previously tabled at March 2023 IBC meeting)

Dr. Bukreyev submitted a new NOU for BSL3/4 CDC/USDA Regulated Agents to work at BSL3 with **Rift Valley fever virus; NIH Guidelines: N/A.** This NOU was **approved with the following conditions:**

- **Work at BSL3 may not commence until approval from FSAP is secured.**
- Section I.6, also describe animal studies.

- Section I.6, clarify the biosafety level of existing stocks of Rift Valley fever virus.
- Section III.7, Homogenization SOP, homogenization at BSL3 must be performed in a biosafety cabinet. Clearly state this and re-upload SOP.

Junki Maruyama, PhD

Dr. Maruyama submitted a new NOU for BSL3/4 CDC/USDA Regulated Agents to work at BSL4 with **highly pathogenic avian influenza virus (HPAIV) (H5 and H7 subtypes); NIH Guidelines: N/A.** This NOU was **tabled with the following conditions:**

- **A Co-Principal Investigator is required. Upload a signed Co-PI cover page in the Contact Information section.**
- **Work may not commence until approval from FSAP is secured.**
- **Confirm with the Laboratory Directors that work will occur at BSL4. Note that if work with HPAIV is instead performed at BSL3 or BSL3E, a quarantine policy must be implemented.**
- **Seasonal influenza vaccination is recommended for all individuals who will work with this agent.**
- Section I.6, add justification for why this work is proposed at BSL4.
- Section I.6, for project described in #4, specify animal species.
- Section I.6, for project described in #5, delete reference to specific inactivation SOP.
- Section I.A.2.b.iii, delete 2020002 and instead state Pending.
- Section III.2, under Routes of Exposure, also list blood, urine, and feces.
- Section III.5, expand project description, including treatment, blood collection, histopathology, and other downstream assays that will be performed.
- Section V.1.B, for [redacted], under Years of Experience, also list any BSL4 experience.

Chien-Te K. Tseng, PhD

Dr. Tseng submitted a renewal NOU for BSL3/4 CDC/USDA Regulated Agents to work at BSL3 with **MERS-CoV; NIH Guidelines: N/A.** This NOU was **approved with the following conditions:**

- Section I.3, under Bioagent Name, delete "human coronavirus" and instead list "MERS-CoV".
- Section I.5, delete "newly emerged" as description for MERS-CoV.
- Section I.6, expand on the downstream assays that will be performed.
- Section I.8.c.ii, also provide information on susceptibility to heat, including inactivation time.
- Section I.8.h, since the infectious dose in humans is stated as unknown in Section I.8.g, answer No here and provide information on infectious dose in relevant animal models.
- Section I.9.c.ii, also upload approval letter for Formaldehyde Fixation of Virus Infected Tissue.
- Section I.A.2.b.i and ii, specify the other mammalian cells that will be used.
- Section I.B.2, answer No.
- Section I.B.7, uncheck Other and delete text about ethanol. Ethanol is not an accepted primary disinfectant at UTMB.

Amendment: Biological Agents and rDNA/RNA NOUs for review

Alexander Bukreyev, PhD

Dr. Bukreyev submitted an amendment to his work at BSL2 with Measles virus (Edmondston B strain) vaccine vector **to add development of Rift Valley fever virus vaccines and add work with mice; NIH Guidelines: D1, D2, D3, D4.** This NOU was **approved with the following conditions:**

- Section II.5, if any codon optimization will be performed by synthesis, answer Yes and answer the subsequent question.
- Section III.4, under Dose per Animal (Max. Volume), specify units.
- Section III.4, under Dose per Animal (Max. Concentration), provide units of concentration or clarify if the maximum is 10^5 PFU per dose, regardless of volume.

Amendment: BSL3/4 CDC/USDA Regulated Agents NOUs for review

Jason Comer, PhD

Dr. Comer submitted an amendment to his work at BSL4 with Lassa fever, Junin, Machupo, Lujo, Sabia, Guanarito, and Chapare viruses **to add work with ML29-Mopeia/Lassa reassortant virus; NIH Guidelines: D2, D3, D4.** This NOU was **approved with the following conditions:**

- Section I.6, where a pending NOU is referenced, provide the approved NOU # or confirm that the NOU is still pending.
- Section I.6, either delete the last sentence or provide NOU # for ML29 work at BSL2.
- Section I.8.c.i, provide agent stability for ML29.
- Section I.8.c.ii, provide susceptibility for ML29.
- Section I.8.f, provide pathogenicity for ML29.
- Section I.8.g, provide infectious dose for ML29.
- Section I.A.2.b.iii, list human and/or NHP NOU #.
- Section II.2, where a pending NOU is referenced, provide the approved NOU # or confirm that the NOU is still pending.
- Section II.3, where a pending NOU is referenced, provide the approved NOU # or confirm that the NOU is still pending.
- Section III.2, provide IACUC Protocol # or confirm that IACUC protocols are still pending.
- Section III.5, where a pending NOU is referenced, provide the approved NOU # or confirm that the NOU is still pending.

III. OLD BUSINESS

NOU Expiration Extensions

Xiaoyong Bao, PhD – Adenovirus, human metapneumovirus (hMPV), respiratory syncytial virus (RSV), and rhinovirus; NIH Guidelines: N/A (#2018056) (extended one month to 6/3/2023)

Alexander Bukreyev, PhD – Lentiviral vectors (2nd and 3rd generation); NIH Guidelines: D1, D2, D3 (#2018037) (extended one month to 6/3/2023)

Alexander Bukreyev, PhD – Filovirus mini-genomes; NIH Guidelines: D2 (#2018063) (extended one month to 6/31/2023)

Alexander Bukreyev, PhD – DNA copies of Lassa virus genomic RNA segments; NIH Guidelines: D1, D2 (#2018064) (extended one month to 6/31/2023)

Alexander Bukreyev, PhD – Lassa fever virus; NIH Guidelines: D1, D2, D3, D4 (#2018071) (extended one month to 10/6/2023)

Janice Endsley, PhD and Mark Endsley, PhD – *Mycobacterium bovis* BCG; NIH Guidelines: N/A (#2018065) (extended one month to 6/31/2023)

Jere McBride, PhD – *Ehrlichia canis*, *E. chaffeensis*, and *E. muris*; NIH Guidelines: D1, D2, D4 (#2018068) (extended one month to 6/31/2023)

Vladimir Motin, PhD – *Salmonella typhimurium*, *Yersinia enterocolitica*, *Y. pestis* (exempt strains), and Y. *pseudotuberculosis*; NIH Guidelines: D1, D2, D4 (#2018069) (extended 1 month to 6/31/2023)

Jose (Eddie) Salazar, PhD – Risk Group 2 bacteria (*Bacillus cereus*, *Campylobacter jejuni/C. coli*, *Citrobacter freundii*, *Edwardsiella tarda*, *Enterobacter aerogenes*, *Enterococcus faecalis*, *Haemophilus influenzae* [type b], *Klebsiella pneumoniae*, *Listeria monocytogenes*, *Micrococcus luteus*, *Neisseria gonorrhoeae*, *Neisseria meningitidis*, *Neisseria* spp., *Proteus vulgaris*, *Pseudomonas aeruginosa*, *Salmonella* spp., *Serratia marcesans*, *Shigella* spp., *Staphylococcus aureus*, *Staphylococcus epidermidis*, *Staphylococcus saprophyticus*, *Streptococcus agalactiae*, *Streptococcus pneumoniae*, *Streptococcus pyogenes*, *Vibrio cholerae* [0395-N1 Risk Group 1], *Vibrio parahaemolyticus*, *Yersinia enterocolitica*); NIH Guidelines: N/A (#2018013) (extended two months to 6/5/2023)

Jose (Eddie) Salazar, PhD – Risk Group 2 fungi (*Aspergillus niger*, *Aspergillus* spp., *Bipolaris* spp., *Candida albicans*, *Cryptococcus neoformans*, *Fusarium solani*, *Penicillium marneffei*, *Trichophyton* spp.); NIH Guidelines: N/A (#2018014) (extended two months to 6/5/2023)

Biological Agents and rDNA/RNA NOUs – Conditions Met
Alexander Bukreyev, PhD – RNA vaccines; NIH Guidelines: D2, D4 (#2023015)

Amendment: Biological Agents and rDNA/RNA NOUs – Conditions Met
David Beasley, PhD – West Nile virus; NIH Guidelines D1, D2, D3, D4 (#2021063)
Alison Coady, PhD – *Candida albicans*, *C. auris*, *C. glabrata*, *C. parapsilosis*, *C. tropicalis*, and *C. krusei*; NIH Guidelines: D1, D2, D4 (#2022106)

Amendment: BSL3/4 CDC/USDA Regulated Agents NOUs – Conditions Met
Janice Endsley, PhD and Mark Endsley, PhD – SARS-CoV-2; NIH Guidelines: N/A (#2020069)
Janice Endsley, PhD – *Mycobacterium tuberculosis* (H37Rv) and *M. bovis*; NIH Guidelines: N/A (#2021067)
Chien-Te Kent Tseng, PhD – SARS-CoV-2; NIH Guidelines: D3, D4 (#2020013)

NOU Inactivation
Janice Endsley, PhD – Human immunodeficiency virus; NIH Guidelines: N/A (#2018022)
Shinji Makino, DVM, PhD – Transmissible gastroenteritis virus; NIH Guidelines: N/A (#2018023)
Vineet Menachery, PhD – Sendai virus; NIH Guidelines: N/A (#2018024)
Vineet Menachery, PhD and Scott Weaver, PhD – Venezuelan equine encephalitis virus replicon; NIH Guidelines: D1, D2, D3, D4 (#2018025)
Bartosz Szczesny, PhD – Lentiviral vector; NIH Guidelines: D1, D3 (#2018015)

IV. DISCUSSION

Sequencing Parameters for Removing Samples from Containment
Laboratories are starting to send samples for sequencing to downgrade to a lower biosafety level. The IBC has policies on the types of samples that are acceptable and how to treat them before they are sequenced. However, the IBC has not discussed guidance to [redacted] and the sequencing core on the threshold for certifying that there are no other pathogens present in these samples, and therefore are safe to remove from containment.

The IBC discussed the following:

- The environment of the sequencing core (including the sequencing equipment) can contaminate a sequencing run. There are many SARS-CoV-2 amplicons in the laboratory, which are occasionally detected in sequencing runs of non-SARS-CoV-2 samples.
- [redacted] is requesting guidance on the required depth of sequencing, the permissible number of contaminating reads, and when to report contaminating sequences to the IBC.
- The history of a sample affects the risk assessment. A fully characterized sample is less risky than a 40-year-old sample that was designated as a specific virus based on serology.
- [redacted] has the expertise to recommend guidelines for these questions, which can then be discussed by the IBC.

[redacted] has some samples now that are about to be sequenced. He will proceed and bring the results to the next IBC meeting to discuss. It will include background information on NGS, including sensitivity of the assay and interpretation.

BSL2 Incident
A laboratorian was scratched by a mouse that may have been infected with *T. cruzi* while transferring the animal between a cage and behavioral equipment. There was uncertainty on whether the mouse was infected because it had been born to a *T. cruzi*-infected dam, and there is approximately 25% maternal-fetal transmission in this model. The laboratorian was wearing all appropriate PPE and was scratched through the yellow cover gown. They washed their arm under soap and water, and sprayed their arm with ethanol and CaviCide. The laboratorian notified their PI and called Employee Health, whose automated message directed them to obtain treatment at the UTMB Emergency Department, as it was a weekend.

At the ED, they were seen by a nurse who inquired about the injury, and the laboratorian disclosed that they were a student, had been working in a research laboratory, and had been working with a mouse that was born to a *T. cruzi*-infected dam. The ED informed the laboratorian of signs and symptoms of infection and took blood for a smear.

The following day (a weekday), the PI notified Department of Biosafety. DOB informed [redacted] to obtain her expertise. [redacted] noted that a scratch is not a typical route of transmission for this pathogen and consulted experts at CDC; all parties agreed this exposure was low risk and post-exposure treatment was not necessary, but the laboratorian was advised to check for local reaction at the site. Blood was obtained from the animal for a blood smear, which was negative for the agent.

A recommendation was made to transport animals from the common cage to the behavioral equipment using an empty clean cage. The BSO noted that the laboratorian followed appropriate procedures for reporting.

The IBC noted that the ED did not pass on the information to [redacted] or the on-call ID doctor for assessment. This is why we recommend that laboratorians call Department of Biosafety, who ensure that all parties are looped into communication following an incident. In addition, the ED directed the laboratorian to report to Student Health for follow up, which is not the recommendation that should have been made. DOB noted that sections of the UTMB Safety Manual are confusing on appropriate reporting, and DOB is working on getting this corrected. The ED has a binder that DOB helped to create years ago that includes B virus protocol, containment protocols, and general research post-exposure protocols. This binder may have been misplaced or is no longer being trained on.

The ED sees a lot of turn-over in staff and training them on these items is difficult. A card that can be carried by research personnel with instructions on who to notify in these incidents might be helpful. Further ideas to train on incident response will be brainstormed.

BSL3 Incident
In early March, members of a laboratory had entered the BSL3 to inoculate a culture of *M. tuberculosis*. All personnel were wearing appropriate PPE, manipulation was performed in a BSC, and centrifugation was performed in O-ring sealed buckets. At the completion of their work, they decontaminated the BSC and at that time noticed that the BSC was not on. They decontaminated their PPE, exited the laboratory, reported to their PI who reported the incident to the BSL3 laboratory director and DOB.

The laboratorians are experienced at BSL3. An electrical blip that affected the UTMB campus had also affected the motors on these BSCs. This situation was unique because all other parts of the BSC were functioning except for the fan motor: lights and outlets were working. The laboratorians should have checked that the BSCs were running before starting work. The PI retrained personnel the following day and implemented mitigation strategies.

A risk assessment determined that the risk of exposure was low. The BSCs have been repaired and are functioning. The laboratory is implementing their new procedures.

Annual Biosafety Training updates
DOB updated the IBC on upcoming implementation of annual biosafety training. Previously, there have been two separate trainings: one that covered biosafety and standard precautions and a second that covered r/sNA training. These have been combined into one training. DOB is determining what platform to implement this training, and expects to roll out this training next month, to be completed by the end of the fiscal year.

An inquiry was made about whether there was still overlapping information in the training. DOB is using this training as an opportunity to provide updates and policy changes that affect safety, and draw attention to areas with repeat incidents. For example, to remind personnel not to wear PPE outside of laboratories or animal facilities; refresh on incident response and reporting; and reminders that recombinant materials like viral vectors need to be registered with the IBC in an NOU. Standard precautions training will also be covered in this training.

NIH Response to Reported Incident
The BSO received a response from NIH-Office of Science Policy. This relates to the incident where a PI administered recombinant nucleic acid material to an animal without approval of the IBC. As of the March IBC meeting, the PI had submitted and received approval for an NOU describing these experiments. As of the March IBC meeting, the BSO had reported the incident to NIH-OSP.

In the time since the March IBC meeting, the BSO received as response from NIH-OSP, stating that OSP had no further questions about the incident.

September IBC meeting
This is a reminder that the September 2023 IBC meeting will not take place on the first Friday of the month, due to potential conflict with Labor Day. Instead, the meeting is scheduled for the second Friday of September. The IBC administrator will update the placeholder meeting invitation to reflect this.

Request for in-person get-together
An IBC member requested that the first meeting of every fiscal year be in-person and that lunch and drinks be provided as motivation to start the new year.

V. ADJOURNMENT
The meeting was adjourned at 4:50 PM.

Institutional Biosafety Committee
301 University Blvd.
Galveston, TX 77555-1111
O 409.772.1781

MINUTES
May 5, 2023

The Institutional Biosafety Committee met virtually on Friday, May 5, 2023 using Microsoft Teams. The meeting was called to order at 2:03 PM and was chaired by [redacted]

MEMBERS PRESENT

[redacted]

MEMBERS ABSENT

[redacted]

CONSULTANTS

[redacted]

GUESTS

[redacted]

I. APPROVAL OF MINUTES

The minutes of the April 7, 2023 meeting were approved.

II. NEW BUSINESS

Inactivation SOPs – approved by the Inactivation Review Subcommittee

Slobodan Paessler, DVM, PhD

Family/Genus: Arenaviridae

Inactivation Method(s): 4027 Inactivation of arenaviruses and arenavirus-infected cell culture material for RNA extraction with phenol/guanidine isothiocyanate reagents

Sample Matrix: Cell monolayer

Inactivation Method(s): SOP# 31 Virus Inactivation of Liquids Using TRIzol® TRI-Reagent® or TriPure® Reagent for Total RNA isolation
Sample Matrix: Liquid culture

Amendment: Human and Nonhuman Primate Products NOUs approved administratively
Alexander Bukreyev, PhD
Dr. Bukreyev submitted an amendment to his work with Human and Nonhuman Primate Products to add work with **additional established human cell lines (HEK293T).**

Biological Agents and rDNA/RNA NOUs for review
Xiaoyong Bao, PhD
Dr. Bao submitted a renewal NOU for Biological Agents and rDNA/RNA to work at BSL2 with **adenovirus, human metapneumovirus (hMPV), respiratory syncytial virus (RSV), and rhinovirus; NIH Guidelines: N/A.** This NOU was **approved with the following conditions:**

- Section I.3, two rows list human metapneumovirus. Please remove duplicative row.
- Section I.6, expand to describe the cell responses that will be compared.
- Section I.8.a.ii, answer No to "Is agent abortive?" and answer subsequent questions.
- Section I.9.c, answer No.
- Section I.9.d, answer Yes.
- Section I.9.d.i and ii, list title of inactivation SOP and upload inactivation SOP.
- Section I.9.d.ii, upload inactivation SOP adapted for use in your laboratory.
- Section I.B.4, add PI's laboratory where infected animals will be housed and/or procedure room.
- Section III.2, under Will Infected Animal Present a Human Health Risk, select Yes.
- Section III.4, under Dose per Animal (Max. Concentration), provide units of concentration or clarify if the maximum is 10^7 PFU per dose, regardless of volume.
- Section III.5, delete specific references to PI's laboratory number so that any changes to room number only need to be made in Section I.B.4.
- Section III.10, if animals will be transported by laboratory staff from the vivarium to the PI's satellite facility, answer Yes and answer subsequent questions.
- Section III.7, Homogenization SOP states homogenization will be performed in a cold room. Homogenization must occur within a biosafety cabinet or other primary containment device. Change SOP to perform homogenization in a biosafety cabinet and re-upload.

Alexander Bukreyev, PhD
Dr. Bukreyev submitted a renewal NOU for Biological Agents and rDNA/RNA to work at BSL2 with **filovirus mini-genomes; NIH Guidelines: D2.** This NOU was **approved with the following conditions:**

- Section I.3, change risk group of Ebola and Marburg viruses to 4.
- Section II.15.c, answer Yes.

Alexander Bukreyev, PhD
Dr. Bukreyev submitted a renewal NOU for Biological Agents and rDNA/RNA to work at BSL2 with **lentiviral vectors (2ND and 3RD generation); NIH Guidelines: D1, D2, D3.** This NOU was **approved with the following conditions:**

- Section I.A.2.b.i, specify the bat and mouse cell lines that will be used.
- Section II.15, answer Yes and answer the subsequent questions.

Alexander Bukreyev, PhD
Dr. Bukreyev submitted a renewal NOU for Biological Agents and rDNA/RNA to work at BSL2 with **ML29-Mopeia/Lassa reassortant virus; NIH Guidelines: N/A.**
The IBC discussed the following:

- Is there information on whether this virus can be worked with safely at BSL2? Lassa fever virus is risk group 4 (according to the NIH Guidelines and the BMBL) and Mopeia virus is risk group 3 in the US (according to the BMBL; it is risk group 2 in Europe). A risk group for this agent cannot be found quickly.
- The publication uploaded with the NOU application states that the characterization work with this agent was performed at BSL3.
- Previous and current NOUs for this agent have been approved at both BSL2 and BSL3. There was no discussion noted in the IBC meeting minutes that indicates this was discussed.
- Is NIH OSP approval required to downgrade this material? On a quick search, no records of NIH OSP approval can be found for any PIs at UTMB.

This NOU was **tabled** until the IBC determines the risk group of the agent, the biosafety level at which work can be safely performed, and whether work with the agent at BSL2 requires approval from NIH OSP. The NOU will be sent for expedited review once those determinations are made. Additional comments from the reviewers:

- Section I.A.1.b, answer Yes and provide a justification, as selection of escape mutants is proposed in Section I.6.

Janice Endsley, PhD and Mark Endsley, PhD

Dr. Endsley submitted a renewal NOU for Biological Agents and rDNA/RNA to work at BSL2 with ***Mycobacterium bovis*** **BCG; NIH Guidelines: N/A.** This NOU was **approved with the following conditions:**

- Section I.A.2.b.ii, specify the cell lines that will be used to propagate the agent.

Jere McBride, PhD

Dr. McBride submitted a renewal NOU for Biological Agents and rDNA/RNA to work at BSL2 with ***Ehrlichia canis, E. chaffeensis, and E. muris*****; NIH Guidelines: D1, D2, D4.** This NOU was **approved with the following conditions:**

- Section I.6, expand description to include work with the other cell lines listed in Section I.A.2.b.i (DH82, J774, L929, AAE2, ISE6) and I.A.2.b.ii (HEK293, RF6A, primary human monocytes).
- Section I.B.5 states a homogenizer will be used. If homogenization will be performed on infected animal tissues, answer Yes in Section III.7 and upload a homogenization SOP. If homogenization will be performed on a different sample type containing agent(s), instead upload a homogenization SOP to Section I.4.
- Section II.7.b, select BSL2 for rescue.

Vladimir Motin, PhD

Dr. Motin submitted a renewal NOU for Biological Agents and rDNA/RNA to work at BSL2 with ***Salmonella typhimurium, Yersinia enterocolitica, Y. pestis*** **(exempt strains), and** ***Y. pseudotuberculosis*****; NIH Guidelines: D1, D2, D4.** This NOU was **approved with the following conditions:**

- Section I.8.a.ii, also specify the type of container (6 flasks, 6 roller bottles, etc.)
- Section I.8.g, delete the sentence "These doses are hard to achieve during routine handling of the pathogens for the description of use in this NOU, unless a major spill occurs."
- Section II.9, please confirm that these experiments will involve transferring a drug resistant trait to a microorganism not known to acquire the trait naturally.
- Section III.2, under IACUC Approval Date, provide the date of approval.

BSL3/4 CDC/USDA Regulated Agents NOUs for review

Alexander Bukreyev, PhD

Dr. Bukreyev submitted a renewal NOU for BSL3/4 CDC/USDA Regulated Agents to work at BSL4 with **Lassa fever virus; NIH Guidelines: D1, D2, D3, D4.** This NOU was **approved with the following conditions:**

- Section I.6, clarify the goal of disabling viral epitopes.
- Section I.6, expand description to include experiments that will use a sonicator, as this is selected in Section I.B.5.
- Section V.1.A, under Years of Experience, update years/months of BSL4 experience.

Thomas Geisbert, PhD

Dr. Geisbert submitted a renewal NOU for BSL3/4 CDC/USDA Regulated Agents to work at BSL4 with **Cedar virus; NIH Guidelines: D3, D4.** This NOU was **approved with the following conditions:**

- Section I.6, add NOU# for Nipah and Hendra viruses.
- Section I.6, please confirm that all work with this agent is proposed at BSL4.
- Section I.8.b, answer No.

Amendment: Biological Agents and rDNA/RNA NOUs for review

Gary Kobinger, PhD

Dr. Kobinger submitted an amendment to his work at BSL2 with adenoviral vector (serotype 5) **to add construction of additional vaccines and intramuscular route of inoculation; NIH Guidelines: D1, D2, D3, D4.** This NOU was **approved with the following conditions:**

- Section I.6, expand to describe downstream assays that will be performed after vaccination.
- Section III.2, under IACUC Approval Date, add date of approval.
- Section V.1.B, under Training at UTMB, update information for [redacted] if relevant training has been obtained.

Gary Kobinger, PhD

Dr. Kobinger submitted an amendment to his work at BSL2 with Respiratory syncytial virus (RSV), human metapneumovirus (hMPV), vesicular stomatitis virus (VSV) (attenuated) and virus-like particles (VLPs) **to add work with guinea pigs; NIH Guidelines: D1, D3, D4.** This NOU was **approved with the following conditions:**

- Section II.2, expand goals to include cloning of RSV and hMPV therapeutic antibodies.
- Section III.4, under Sampling, confirm that submandibular bleed will be used with guinea pigs, as this is not common with this animal species.
- Section III.4, under Sampling, if splenocytes will be obtained from mouse, also select Organs.
- Section III.5, expand description of testing VSV vectors in mouse model, as this mentioned in Section I.6.
- Section III.9.b, answer Yes.
- Section III.7, separate out homogenization SOP from BSL4 inactivation SOP and re-upload. Ensure steps that will be performed in a biosafety cabinet are clearly indicated.

III. OLD BUSINESS

Biological Agents and rDNA/RNA NOUs – Conditions Met

Parimal Samir, PhD – Influenza A (PR8, WSN) and B viruses; NIH Guidelines: D3, D4, D7 (#2022051)

Parimal Samir, PhD – Lentiviral vectors; NIH Guidelines: D1, D2, D3, D4 (#2022052)

Scott Weaver, PhD – Risk Group 2 flaviviruses (Alfuy, Apoi, Aroa, Bagaza, Banzi, Batu Cave, Bouboui, Bukalasa Bat, Bussuquara, Cacipacore, Carey Island, Cowbone Ridge, Dakar Bat, Dengue virus [serotypes 1, 2, 3, and 4], Edge Hill, Entebbe Bat, Gadgets Gully, Iguape, Ilheus, Japanese Encephalitis [SA 14-14-2 vaccine strain], Jugra, Jutiapa, Kadam, Karshi, Kedougou, Kokobera, Kunjin, Langat,

Meaban, Modoc, Montana Myotis Leukoencephalitis, Naranjal, Ntaya, Phnom Penh Bat, Potiskum, Rio Bravo, Royal Farm, Saboya, Sal Vieja, San Perlita, Saumarez Reef, Sepik, Sokoluk, Spondweni, St. Louis Encephalitis, Stratford, Tembusu, Tyuleniy, Uganda S, Usutu, West Nile, Yaounde, Yellow Fever [17-D vaccine strain], Yokose, Zika viruses); NIH Guidelines: D4 (#2023031)

NOU Inactivation

Megan Berman, MD - SARS-CoV-2 vaccine (mRNA-1273): A Phase 3, Randomized, Double-blind, Placebo-controlled Study to Evaluate the Safety, Tolerability, and Immunogenicity of the Concomitant Administration of Either 23-Valent Pneumococcal Polysaccharide Vaccine or 15-Valent Pneumococcal Conjugate Vaccine with a Booster Dose of SARS CoV-2 mRNA Vaccine in Healthy Adults 50 Years of Age or Older.; NIH Guidelines: C1 (#2022007) – at PI's request

George Saade, MD – COVID Vaccine: SARS-CoV-2 RNA Vaccine Candidate (BNT162b2); NIH Guidelines: C1 (#2021020) – PI left UTMB

IV. DISCUSSION

New IBC Member

[redacted] is joining the IBC as a member. He is a member of Microbiology and Immunology, specializing in the study of human immunodeficiency virus and *Mycobacterium tuberculosis* co-infections and immunology.

Invitation to Appear at the IBC Meeting Regarding Inactivation SOPs

The Department of Biosafety provided a summary of how Inactivation SOPs for risk group 3 and 4 agents are reviewed and approved by the Inactivation Review Subcommittee. This process requires an inactivation SOP, a validation SOP, and in-house generated data for the validation. As with review of NOUs, DOB serves as the administrators between the subcommittee and the PI.

The inactivation SOP in question is from [redacted] for Rift Valley fever virus in the BSL3. One of the key parts of the SOP is the chaotrope reagent-to-sample ratio. If the SOP is approved using a specific ratio, it allows the laboratorian to scale up or scale down volumes without requiring a new SOP be reviewed and approved. In addition, the ratio may be increased as a measure of safety. For example, the validation may have been performed at a ratio of 1:3 sample:Trizol, but the subcommittee may ask that the inactivation be performed at a ratio of 1:5 sample:Trizol as a margin of safety.

[redacted] has been the contact for [redacted] for this inactivation SOP review process. When he submitted the inactivation SOP, the subcommittee asked that the volumes be provided as a ratio, or at least that volume quantities be specified so that the ratio could be calculated by the subcommittee members. After significant back-and-forth, he added the information, but wanted to address the IBC regarding the review process.

[redacted] *joined the IBC meeting.* [redacted] *statement:*

The inactivation SOP in question is two pages long but has taken three months so far to review. The most recent revision had two questions that I disagree with: 1. What is the amount of reagent that is pre-dispensed into cryovials? 2. What size of plate will be used in the protocol? Some of these questions were answered elsewhere in the SOP, or the question is irrelevant. This was a two-page protocol. Why does the amount of Trizol pre-dispensed in a tube matter? I have changed the SOP as much as possible, and do not know what else could be asked for clarification of these details. I don't see how the proposed amount of Trizol would not inactivate the small amount of cells at the bottom of the well. I hope the current SOP satisfies your requirements.

The IBC clarified that the size of the plate (e.g., 6-well or 24-well) is asked to allow the reviewers to calculate the ratio of chaotrope to sample. When ratios are written in SOPs, this allows researchers flexibility in scaling up and down from different sized plates.

The IBC asked the researcher to confirm they will not use any container other than a 12- or 24-well plate, as written in the SOP, and to confirm that they understand that with the SOP as written, it will need to be re-reviewed if the container changes. The researcher stated that he understood this, though the table provided with surface area and volume of fixative per container was unhelpful. DOB clarified that the table mistakenly included the third column with fixative volumes; the intention was that the column listing the surface area would assist in calculating the ratio of chaotrope for the SOP. The IBC will take that comment back to the subcommittee to make the table clearer.

[redacted] *left the IBC meeting. Additional discussion:*
An IBC member noted that they were displeased with the researcher's tone and how he was referring to the committee. The IBC's role is to look at safety; the IBC is not trying to make life difficult for researchers, as many on the committee are researchers. If someone is invited to speak to the committee, they should be respectful, as the members are serving the institution. The IBC member noted that they would prefer this researcher not address the committee again, and that instead the researcher's PI can bring further issues to the IBC.

DOB noted that there were several emails that were not very nice. While DOB tried to handle the situation, DOB felt they were getting nowhere and that it would be more productive for the researcher to simply address the IBC with their concerns.

Another IBC member noted that members volunteer to serve on this committee and the comments were disrespectful.

The IBC Chairs will discuss how to move forward with this issue.

Sequencing Parameters for Removing Samples from Containment
This item was pushed to a future IBC meeting.

Inactivation SOP Examples
As requested at the March 2023 IBC meeting, inactivation SOPs have been uploaded to the IBC website as Word documents. This was done to encourage researchers to adapt them for their own SOPs.

Emergency Procedures Signage and Biosafety Manual
The Department of Biosafety showed a sign they will ask researchers to post in BSL1 and BSL2 laboratories. The sign describes the procedures to follow after a potential exposure to infectious material in a research laboratory. An IBC member recommended that the sign make it clear that leaving a message on the Biosafety main line is not adequate, and that the person should contact a live human to report an incident. Another IBC member recommended that the sign be distributed to administrative offices of the departments to be posted on their primary bulletin board.

In addition, the Department of Biosafety is intending to remove the biosafety chapter from the UTMB Safety Manual, to make a stand-alone UTMB Biosafety Manual.

Minors in the Workplace Policy
This week, Department of Biosafety received an email from the Office of the Provost. An individual spearheading the new visitor's policy for minors in the workplace has asked for the minimum age limit to be in a biological laboratory. The BSO has pulled regulations from several federal and state entities and is

pulling together a document. The BSO would like to distribute this document to the IBC for review when it is complete. This review will likely need to be completed quickly, as the driver is for summer internships.

V. ADJOURNMENT

The meeting was adjourned at 3:56 PM.

Institutional Biosafety Committee
301 University Blvd.
Galveston, TX 77555-1111
O 409.772.1781

MINUTES
June 2, 2023

The Institutional Biosafety Committee met virtually on Friday, June 2, 2023 using Microsoft Teams. The meeting was called to order at 2:03 PM and was chaired by [redacted]

MEMBERS PRESENT

[redacted]

MEMBERS ABSENT

[redacted]

CONSULTANTS

[redacted]

GUESTS

[redacted]

I. APPROVAL OF MINUTES
The minutes of the May 5, 2023 meeting were approved.

II. NEW BUSINESS
Inactivation SOPs – approved by the Inactivation Review Subcommittee
Alexander Bukreyev, PhD

Family/Genus: Coronaviridae
Inactivation Method(s): Inactivation of SARS-CoV-2 by formaldehyde fixation and detergent treatment
Sample Matrix: Cell culture

Human and Nonhuman Primate Products NOUs approved administratively
Tapas Hazra, PhD

Dr. Hazra submitted a renewal NOU for Human and Nonhuman Primate Products to work at BSL2 with **human commercial cell lines (HEK293, HeLa, BEAS-2B, SH-SY5Y, HCT, AGS).**

Agenor Limon-Ruiz, PhD
Dr. Limon-Ruiz submitted a renewal NOU for Human and Nonhuman Primate Products to with at BSL2 with **human tissue.**

NOU Reactivation and Expiration Extension approved by IBC Chairs
Jun-Ho La, DVM, PhD
Dr. La's NOU for Biological Agents and rDNA/RNA to work at BSL1 with **adeno-associated viral vectors** was reactivated; **NIH Guidelines: D4.** The NOU expiration date was extended to **9/5/2023.**

Agent Risk Assessment
ML29 (Mopeia/Lassa reassortant)
This arose from an NOU reviewed at the May 2023 IBC meeting. Questions about whether the work could be safely performed at BSL2 were raised and the NOU was tabled until those questions could be answered. A risk assessment of ML29 was provided to the IBC by DOB, which included a summary of animal studies that have been performed with ML29. Administration of ML29 to healthy animal models (mouse, guinea pig, and marmoset) did not result in disease. Administration of ML29 to SIV-infected, immuno-compromised macaques also did not result in disease. The IBC was asked to:

- Recommend a risk group and biosafety level for ML29.
- Consider differences between wildtype (reassortant) ML29 and ML29 generated by recombinant methods.
- Consider if NIH-OSP approval should be sought to work with recombinant ML29 at BSL2.

The IBC discussed the following:

- Mopeia virus does not have a risk group assignment by NIH. The BMBL recommends BSL3 containment.
- Other PIs at UTMB have NOUs for ML29, some at BSL2 and some at BSL3. If any of the approved NOUs are for the recombinant ML29, a hold should be put on them until NIH-OSP has been consulted.
- Dr. Bukreyev's NOU proposes serial passages of ML29 in the presence of monoclonal antibody. Is there any possibility that ML29 escape mutants be of increased risk? Should these specific experiments be performed at BSL3?
    - If the virus adapts and changes phenotype, the work should stop, and DOB/IBC should be immediately informed. However, the work should be allowed to be performed at BSL2.
    - Serial passaging *in vitro* is less concerning than passaging *in vivo*.
    - The monoclonal antibodies are not licensed for therapeutic use.
    - The reassortant ML29 is made up of genomic material from Lassa fever virus (a risk group 4 agent handled at BSL4) and Mopeia virus (no risk group but recommended to be handled at BSL3 by the BMBL). To allow a PI to generate escape mutants at BSL2 seems ill-advised.
    - Many arenavirus researchers consider ML29 to be a vaccine. It causes no disease in animal models. Generating escape mutants using a monoclonal antibody is of less risk since it is focused on one epitope.
- Passaging of the reassortant is concerning. It is possible that attenuation resulting from reassortment could change with serial passages. It is not likely, but it is possible, that after 10-12 passages, mutations that restore some virulence could occur.
    - This is one of the reasons ML29 hasn't taken off as a vaccine. There is the possibility that if administered in an area with endemic Lassa fever virus, it could revert to some level.
    - Repeated passaging of arenaviruses tends to be more attenuating.

    - With the recombinant version of ML29, there would be no reason to perform multiple passages. We should add a condition to NOUs that there is a limit of 4 passages of the non-recombinant virus.
- We should harmonize the risk group assigned to ML29 for all NOUs held by PIs on campus.
- The three other NOUs for ML29 approved at BSL2 were briefly examined. None of them describe passaging in the presence of antibody to generate escape mutants. Each describes working with recombinant ML29.

The IBC **approved the following:**

- Wildtype (reassortant) ML29 is assigned risk group 2 and may be handled at BSL2. Recombinant ML29 is assigned risk group 2 and may be handled at BSL2, but NIH-OSP will be consulted to determine whether working with recombinant ML29 at BSL2 requires NIH-OSP approval.
- Work with wildtype (reassortant) ML29 is limited to 4 passages of the agent.

1 abstained.

The IBC **approved the following:**

- All work at UTMB with the recombinant ML29 at BSL2 is suspended until NIH-OSP has been consulted.

1 abstained.

Alexander Bukreyev, PhD (tabled May 2023)

Dr. Bukreyev submitted a renewal NOU for Biological Agents and rDNA/RNA to work at BSL2 with ML29-Mopeia/Lassa reassortant virus; NIH Guidelines: N/A. This NOU was **approved with the following conditions:**

- **Work with recombinant ML29 at BSL2 may not be performed until NIH-OSP has been consulted. Work with wildtype (reassortant) ML29 at BSL2 may commence.**
- **Work with wildtype (reassortant) ML29 is limited to 4 passages of the agent.**
- Section I.6, add the following statement, "If an unanticipated phenotype is observed while handling ML29, the IBC will be notified immediately."
- Section I.8.d, please confirm that there are no known methods of lab transmission, including via sharps.
- Section I.A.1.b, answer Yes and provide justification, as escape mutants from monoclonal antibody may affect the effectiveness of an immunization agent.
- Section I.B.7, please confirm that only Microchem will be used for disinfection.

1 abstained.

Biological Agents and rDNA/RNA NOUs for review

Robert Kruse, MD, PhD

Dr. Kruse submitted a new NOU for Biological Agents and rDNA/RNA to work at BSL1 with **plasmid DNA; NIH Guidelines: D4.** This NOU was **approved with the following conditions:**

- Section I.6, incorporate information on goal, genes encoded, promoters, and downstream assays as a narrative.
- Section I.8.a.ii, answer Yes to "Is agent abortive?"
- Section I.8.c.ii, delete first two sentences ("Plasmid DNA can be cleaned with bleach. Avoid use of alcohols").
- Section II.3, also list promoters and genes encoded in plasmids here.
- Section II.6, delete text and instead describe any modifications made to the human genes.
- Section III.5, define ERCP.
- Section III.5, also state here that ERCP is performed by GI endoscopy.

Ramkumar Menon, PhD (previously tabled April 2023)
Dr. Menon resubmitted a new NOU for Biological Agents and rDNA/RNA to work at BSL2 with **lentiviral particles; NIH Guidelines: D2.** This NOU was **approved.** The PI is asked to make the following corrections administratively:

- Section I.5, change "transfect" to "transduce".
- Section II.3, change "lentiviral plasmid" to "lentiviral particle".

Ping Wu, PhD
Dr. Wu submitted a renewal NOU for Biological Agents and rDNA/RNA to work at BSL2 with **lentiviral vectors; NIH Guidelines: D2, D3.** This NOU was **approved with the following conditions:**

- Section II.3, expand on function or type of genes inserted in lentivirus.

BSL3/4 CDC/USDA Regulated Agents NOUs for review
Junki Maruyama, PhD and Slobodan Paessler, DVM, PhD (previously tabled April 2023)
Dr. Maruyama resubmitted a new NOU for BSL3/4 CDC/USDA Regulated Agents to work at BSL4 with **highly pathogenic avian influenza virus (HPAIV); NIH Guidelines: N/A.** This NOU was **approved with the following conditions:**

- **Work may not commence until approval from FSAP is secured.**
- **Work may not commence at BSL4 until approval from the BSL4 Laboratory Directors is secured.**
- Section V.1.B, add Dr. Paessler to the personnel table.

The IBC discussed the following:

- The samples Dr. Maruyama is going to study are currently in the BSL4 laboratory. During the H5N1 outbreak, virus samples were received and studied in the BSL4 laboratory, as UTMB didn't have a BSL3E laboratory at the time. This is one of the reasons the PI is proposing to perform the work at BSL4.
- For the next NOU, the HPAIV samples are coming from a collaborator where they have been handled in a BSL3 laboratory.

Chien-Te (Kent) Tseng, PhD
Dr. Tseng submitted a new NOU for BSL3/4 CDC/USDA Regulated Agents to work at BSL3E with **highly pathogenic avian influenza virus (HPAIV); NIH Guidelines: N/A.** This NOU was **approved with the following conditions:**

- **Work may not commence until approval from FSAP is secured.**
- **No material may be removed from containment until inactivation SOPs have been approved by the Inactivation SOP Review Subcommittee.**
- Section I.8.c.ii, delete "also susceptible to a number of commercially available disinfectants."
- Section I.9.d.ii, delete the coronavirus inactivation SOPs. When SOPs have been developed for HPAIV, please submit for review.
- Section I.A.2.b.i, specify the cell lines that will be used.

Amendment: Biological Agents and rDNA/RNA NOUs for review
Perenlei Enkhbaatar, PhD
Dr. Enkhbaatar submitted an amendment to his work at BSL2 with *Pseudomonas aeruginosa* and *Staphylococcus aureus* **to add work with mice; NIH Guidelines: N/A.** This NOU was **approved with the following conditions:**

- Section I.4, delete antibiotic sensitivity assay results.
- Section I.5, define ARDS on first use.
- Section I.8.c.ii, change listed susceptibility of agents to Cavicide from 30 minutes to 3 minutes.

- Section III.6.a states that all animal studies are performed without the animal under anesthesia, yet also that the smoke inhalation and instillation of bacteria are performed while animals are anesthetized. Please clearly delineate which manipulations are performed without anesthesia.
- Section V.1.B, expand on experience of personnel with *in vitro* laboratory techniques.

David Walker, MD

Dr. Walker submitted an amendment to his work at BSL2 with adenovirus vectors **to add work with mice; NIH Guidelines: D1, D2, D3, D4.** This NOU was **approved with the following conditions:**

- Section I.6 states that three vaccine candidates will be tested, but only describes two recombinant adenovirus vectors (containing *O. tsutsugamushi* ORFs ScaA and P56). Please clarify.
- Section I.6, also list NOU# for *O. tsutsugamushi* here.
- Section II.13.b.ii, if a third adenovirus-based vaccine candidate will be developed, list gene here.
- Section III.3, under recommended animal facility, unselect ABSL3 and select ABSL2.
- Section III.3, under PPE that will be worn, unselect PAPR and N95.
- Section III.4, under Dose per Animal, Maximum Volume, please confirm that up to 200 uL may be administered to the animal at one time. If up to 200 uL will be administered, please confirm in Section III.5 that this will be delivered in more than one injection site.
- Section III.4, under Dose per Animal, Maximum Concentration, please add units of concentration (e.g., PFU/mL) or clarify if you will use up to 1x10^7 PFU per dose.

1 abstained.

Response to Conditions: Amendment: Biological Agents and rDNA/RNA NOUs for review

Gary Kobinger, PhD

Dr. Kobinger submitted a response to conditions to the amendment to his work at BSL2 with respiratory syncytial virus (RSV), human metapneumovirus (hMPV), vesicular stomatitis virus (VSV) (attenuated) and virus-like particles (VLPs) to add work with guinea pigs. **The PI is asking to keep the homogenization and inactivation procedures together in the same SOP. NIH Guidelines: D1, D3, D4.** This response to conditions was **approved.**

Request to Move Live Samples from BSL4 to BSL3 Following NGS

Tetsuro Ikegami, PhD

Dr. Ikegami submitted an assurance to the IBC that Rift Valley fever virus (RVFV) stock vials that had been stored at BSL4 have been analyzed by Next Generation Sequencing and showed no detectable contaminations of other risk group 3 or 4 pathogens. The BMBL 6th ed. recommends BSL3 containment for RVFV. Dr. Ikegami proposed to transfer unopened aliquots of the NGS-confirmed stock vials to a BSL3 laboratory. If approved, a member of the Department of Biosafety will witness the transfer of samples, with a record in the witnessed transfer form. The assurance and NOU have been provided to the IBC for review. This request was **approved.**

III. OLD BUSINESS

Biological Agents and rDNA/RNA NOUs – Conditions Met

Patricia Aguilar, PhD – Mayaro virus; NIH Guidelines: D1, D2, D3, D4 (#2023019)

Xiaoyong Bao, PhD – Adenovirus, human metapneumovirus (hMPV), respiratory syncytial virus (RSV), and rhinovirus; NIH Guidelines: N/A (#2023034)

Alexander Bukreyev, PhD – Filovirus mini-genomes; NIH Guidelines: D2 (#2023035)

Alison Coady, PhD – *Escherichia coli* (enterohemorrhagic and uropathogenic strains), *Klebsiella pneumoniae*, *Pseudomonas aeruginosa*, *Salmonella typhimurium*, and *Streptococcus agalactiae*; NIH Guidelines: D4 (#2023027)

Janice Endsley, PhD, and Mark Endsley, PhD – *Mycobacterium bovis* BCG; NIH Guidelines: N/A (#2023038)
Vladimir Motin, PhD – *Salmonella typhimurium*, *Yersinia enterocolitica*, *Y. pestis* (exempt strains), and *Y. pseudotuberculosis*; NIH Guidelines: D1, D2, D4 (#2023040)

BSL3/4 CDC/USDA Regulated Agents NOUs – Conditions Met
Alexander Bukreyev, PhD – Rift Valley fever virus; NIH Guidelines: N/A (#2023022)
Alexander Bukreyev, PhD – Lassa fever virus; NIH Guidelines: D1, D2, D3, D4 (#2023041)
Chien-Te Kent Tseng, PhD – MERS-CoV; NIH Guidelines: N/A (#2023033)

Amendment: Biological Agents and rDNA/RNA NOUs – Conditions Met
Alexander Bukreyev, PhD – Measles virus (Edmondston B strain) vaccine vector; NIH Guidelines: D1, D2, D3, D4 (#2021002)

NOU Transfer: Biological Agents and rDNA/RNA NOUs – Conditions Met
Xuping Xie, PhD – SARS-CoV-2 delORF3678; NIH Guidelines: D1, D2, D3, D4 (#2022086)

NOU Inactivation
Hal Hawkins, MD – Human and NHP Products (#2018120) (at PI's request)
Bruno Travi, PhD – Human and NHP Products (#2020113) (at PI's request)

IV. DISCUSSION

Human Products NOUs for Clinical Diagnostics
This topic was postponed to allow DOB to gather more information.

Minors in the Workplace Policy
The Provost's Office has been receiving requests about minors. These requests are from people who have programs to bring minors into clinical diagnostic laboratories or research laboratories. In addition to involving stakeholders related to medical clearances, insurance, and liability, the Provost's Office reached out to the Department of Biosafety for a risk assessment related to the safety of these minors.

UTMB does not have an IHOP policy for how to handle minors (those under 18) participating in laboratory research. DOB had recommendations on what to restrict the minors from doing in a research laboratory, including:

- Will not work in a select agent or high containment laboratory.
- Will not perform work that would require them to wear a respirator.
- Will not work with live infectious materials.
    - Can work with risk group 2 agents if the agents have been inactivated.
- DOB will perform risk assessments for the proposed work and provide biosafety training.

In addition, DOB is working with Provost's Office and HR to develop a road map to ensure that minors, new hires, interns, students on a summer research program, etc., know the training and medical clearance requirements they will need to complete to enter a laboratory. The goal of the road map is to prevent delays in starting research programs.

An IBC member asked about students working with animals. IACUC has a policy that minors are not allowed to handle animals. That policy will be referenced in the new IHOP policy.

An IBC member wanted to ensure that the IHOP policy won't discourage medical students performing research in laboratories. The new IHOP policy will only affect individuals who are 17 or younger. It should not be applied to medical students.

DOB performed benchmarking with other institutions that have select agent programs, animal facilities, medical schools, or hospitals. The policies proposed here are in line with those institutions.

An IBC member offered that at another institution they were at, minors were allowed to handle uninfected animal tissue culture cells and inactivated material; materials that if there was an exposure would not require antibiotics or long-term testing.

The IHOP policy will go out to the entire campus for review. All IBC members are encouraged to read and comment.

Annual Biosafety Refresher Training
DOB is implementing this year's annual biosafety refresher training via webforms. The form has been tested with a small group of people. Members of the IBC are the next on the list for troubleshooting.

Requests to Move Live Samples to Lower Containment
Several more requests to move live samples to lower containment are expected in the coming months. Dr. Widen is going to work on a list of recommendations about standards and methods to expect from these sequencing runs.

DOB intends to update the SLEV and WNV guidelines to be broader than these two agents. Knowing chain of custody for these types of samples will be an important part of a risk assessment. For select agents, there is documentation for moving from one physical location to another and is documented in required inventory records. For non-select agents, there is likely less documentation of movement from one physical location to another or from one researcher to another, which makes knowing the chain of custody more difficult. The current guidelines require that the PI have an NOU at the lower containment level, propose to the IBC how they propose to remove the samples, and submit an assurance to the IBC that this has been completed.

V. ADJOURNMENT

The meeting was adjourned at 4:06 PM.

utmb Health

Institutional Biosafety Committee
301 University Blvd.
Galveston, TX 77555-1111
O 409.772.1781

MINUTES
July 7, 2023

The Institutional Biosafety Committee met virtually on Friday, July 7, 2023 using Microsoft Teams. The meeting was called to order at 2:00 PM and was chaired by [redacted]

MEMBERS PRESENT

[redacted]

MEMBERS ABSENT

[redacted]

CONSULTANTS

[redacted]

GUESTS

[redacted]

I. APPROVAL OF MINUTES

The minutes of the June 2, 2023 meeting were approved.

II. NEW BUSINESS

Inactivation SOPs – approved by the Inactivation Review Subcommittee

Alexander Bukreyev, PhD

Family/Genus: Nairoviridae

Inactivation Method(s): Inactivation of nairovirus infected cells for FACs Removal (formalin)
Sample Matrix: Cell monolayer

Family/Genus: Phenuiviridae

Inactivation Method(s): 15003 - Inactivation of Rift Valley Fever virus Using TRIzol®, TRI-Reagent®, or TriPure® Reagent in cell culture monolayer
Sample Matrix: Cell monolayer

Human and Nonhuman Primate Products NOUs approved administratively

Junki Maruyama, PhD

Dr. Maruyama submitted a new NOU for Human and Nonhuman Primate Products to work at BSL2, BSL3, BSL3E, and BSL4 with **human commercial (HEK293T, HEK293, Huh7, SW-13, Caco-2) and primary (primary lung epithelial and PBMC) cells, NHP commercial (Vero, Vero E6) cells.**

Jere McBride, PhD

Dr. McBride submitted a renewal NOU for Human and Nonhuman Primate Products to work at BSL2 with **human blood, serum, body fluids, macrophages, and established (HEK293, HeLa, THP-1, J774, HMC3) cells.**

Darpan Patel, PhD

Dr. Patel submitted a new NOU for Human and Nonhuman Primate Products to work at BSL2 with **human blood, serum, body fluids, and tissue.**

Heather Stevenson-Lerner, MD, PhD

Dr. Stevenson-Lerner submitted a renewal Human and Nonhuman Primate Products to work at BSL2 with **human blood, serum, and tissue.**

NOU Co-PI Removal approved by IBC Chairs

Xuping Xie, PhD and Pei-Yong Shi, PhD

Dr. Xuping Xie submitted a request to remove Dr. Pei-Yong Shi as Co-PI on his NOU for Biological Agents and rDNA/RNA to work at BSL2 with dengue virus (serotypes 1, 2, 3, 4); NIH Guidelines: D1, D2, D3, D4 (#2021080).

Xuping Xie, PhD and Pei-Yong Shi, PhD

Dr. Xuping Xie submitted a request to remove Dr. Pei-Yong Shi as Co-PI on his NOU for Biological Agents and rDNA/RNA to work at BSL2 with Zika virus; NIH Guidelines: D1, D2, D3, D4 (#2021081).

NOU Transfer for review

Gregg Milligan, PhD to Nigel Bourne, PhD

Dr. Milligan submitted a request to transfer the following NOUs to Dr. Bourne:

- Herpes simplex virus (HSV) type 1, HSV type 2, and attenuated HSV-2 strains (#2022018)
- Human and NHP products (#2022010)

This request was **approved with the following conditions:**

NOU #2022018

- Section I.8.c.i, specify agent stability in units of time (e.g., hours, days, weeks).
- Section I.A.2.b.iii, update human products NOU number to #2022010.
- Section I.B.4, confirm laboratories where these agents will be used.
- Section III.9.a, answer Yes.
- Section V.1.B, update personnel table.

NOU #2022010

- Section Locations, Equipment & PPE, confirm laboratories where these agents will be used.
- Section Personnel, update personnel table.

Biological Agents and rDNA/RNA NOUs for review

David Beasley, PhD

Dr. Beasley submitted a renewal NOU for Biological Agents and rDNA/RNA to work at BSL2 with **Japanese encephalitis virus vaccine strain (SA 14-14-2); NIH Guidelines: D1, D2.** This NOU was **approved with the following conditions:**

- Section I.8.d, also select ingestion and mucous membrane.

Irma Cisneros, PhD

Dr. Cisneros submitted a new NOU for Biological Agents and rDNA/RNA to work at BSL2 with **Venezuelan equine encephalitis virus (vaccine strain TC-83 and TC-83 luciferase); NIH Guidelines: D1, D2, D3, D4.** This NOU was **tabled with the following conditions:**

- Meet with Department of Biosafety to discuss the risks of working with TC-83.
- Section I.6, add "stocks" to the second sentence, to read "We will generate TC83 stocks using Vero cells …", or clarify what this sentence means.
- Section I.6, in the second sentence, replace "concentrations" with "titers", to read "… and calculate titers of TC83."
- Section I.7.c.i, delete all text, as both Yes and No were not selected.
- Section I.7.c.ii, select Yes and unselect No.
- Section I.8.a.i, confirm that up to 120 mL of agent will be grown in a single container.
- Section I.8.a.iii, confirm that agent will be grown only to listed concentration, as TC-83 grows to higher concentrations than 7 x 10^6 units/mL.
- Section I.8.c.i, expand on agent stability in the environment. If information on stability of TC-83 is difficult to find, provide information on stability of Venezuelan equine encephalitis virus in the environment.
- Section I.8.c.ii, change contact time with CaviCide to 10 minutes.
- Section I.8.f, rewrite as a narrative with citations as necessary. Include that upon vaccination with TC-83, sexual contact, including kissing, is contraindicated for 30 days due to teratogenic potential.
- Section I.8.g, rewrite as a narrative with citations as necessary.
- Section II.2, revise for clarity.
- Section II.3, if viral stocks will be provided by a collaborator, rewrite first sentence to state "VEEV TC83 luciferase stocks will be provided by a collaborator." If instead plasmids to generate virus will be provided by a collaborator, rewrite first sentence to state "Plasmids encoding VEEV TC83 luciferase will be provided by a collaborator" and describe viral rescue.
- Section II.3, if TC-83 luciferase will be propagated, describe here. If TC-83 luciferase will not be propagated, answer No to Section II.16.
- Section II.3, if luciferase will be cloned into TC-83, describe here. If luciferase is already cloned into TC-83 by a collaborator, answer No to Section II.14.
- Section II.5, if luciferase will be cloned into TC-83, answer Yes and provide an explanation. If luciferase will be cloned into TC-83 without using synthetic DNA, describe Section II.3.
- Section II.3, delete description of transgenic mice.
- Section III.5, delete first paragraph related to breeding mice.
- Section III.5, expand on the purpose and description of the study.
- Section III.5, clarify how long after infection with TC-83 the behavioral studies will occur and whether animals are expected to be infected with TC-83 during these studies.
- Section III.5, summarize the behavioral studies will be performed (1-2 sentences).
- Section III.6.a, remove attachment.
- Section V.1.B, [redacted] is listed as a supervisor. If he is a Co-PI on this NOU, sign and upload a Co-PI cover page.

The IBC discussed rewording the question in Section III.6. Further modifications will be discussed.

Will any manipulations be performed without the animal under anesthesia while the animal is expected to be shedding agent?

If yes, provide justification in the space below and upload SOP that describes steps taken to mitigate the risk of manipulating animal without anesthesia (e.g., any enhancements to engineering and PPE and any additional training personnel will undergo).

Kathryn Cunningham, PhD

Dr. Cunningham submitted a renewal NOU for Biological Agents and rDNA/RNA to work at BSL2 with **adeno-associated viral vectors (AAV); NIH Guidelines: D2, D3, D4.** This NOU was **approved with the following conditions:**

- Section I.8.d, also select Sharps and Animal bite.

Kathryn Cunningham, PhD

Dr. Cunningham submitted a renewal NOU for Biological Agents and rDNA/RNA to work at BSL2 with **canine adenovirus serotype 2 (CAV-2); NIH Guidelines: D4.** This NOU was **approved.**

Jun-Ho La, PhD, DVM

Dr. La submitted a renewal NOU for Biological Agents and rDNA/RNA to work at BSL2 with **adeno-associated serotypes 2 and 5 viral vectors (AAV-2 and AAV-5); NIH Guidelines: D4.** This NOU was **approved.**

Junki Maruyama, PhD

Dr. Maruyama submitted a new NOU for Biological Agents and rDNA/RNA to work at BSL2 with **pseudotyped vesicular stomatitis virus (VSV) (replication competent and incompetent); NIH Guidelines: D1, D3, D4.** This NOU was **approved with the following conditions:**

- Section I.8.c.i, expand on stability of the agent in the laboratory environment.
- Section I.8.c.ii, specify contact time for heat inactivation.
- Section I.8.c.ii, specify 10 minute contact time for decontamination with CaviCide.
- Section I.8.d, also select Sharps and unselect Arthropod bite.
- Section II.8.d, answer Yes and provide explanation.
- Section II.13.a, also list coronavirus.
- Section II.14, answer Yes and answer subsequent questions.
- Section II.15, answer Yes and answer subsequent questions.

Chien-Te Kent Tseng, PhD

Dr. Tseng submitted a new NOU for Biological Agents and rDNA/RNA to work at BSL2 with **canine-like coronavirus (CCoV-HuPn-2018); NIH Guidelines: N/A.** This NOU was **approved.**

Amendment: Biological Agents and rDNA/RNA NOUs for review

Alexander Bukreyev, PhD

Dr. Bukreyev submitted an amendment to his work at BSL2 with vesicular stomatitis virus (VSV) strain Indiana serotype I (non-exotic) vaccine vector expressing GP genes from Ebola virus, Marburg virus, and Lassa virus, and spike gene from SARS-CoV-2 **to add work with guinea pigs; NIH Guidelines: D1, D2, D3, D4.** This NOU was **approved with the following conditions:**

- Section III.4, under Sampling, uncheck submandibular bleeds for guinea pigs.
- Section III.10, if only ARC is transporting animals, answer No.
- Section III.10.b, if personnel other than ARC are transporting animals, confirm that only hamsters are transported.

The IBC discussed rewording Section III.10 to add "(excluding ARC staff)".

Linda Kenney, PhD

Dr. Kenney submitted an amendment to her work at BSL2 with *Salmonella enterica* serovar Typhi (strains H58, Ty2 and CT18) **to add work with zebrafish; NIH Guidelines: D1, D2, D4.** This NOU was **approved with the following conditions:**

- Section I.B.6, also select Other and in the text box, describe how water used for static immersion infection will be decontaminated. If there is not enough room in the text box, instead describe in Section III.5.
- Section III.5, expand description of static immersion infection, including the container(s) zebrafish are housed in during and after infection.
- Section V.I.B, under Animal & Arthropod Experience, specify years of experience for added personnel.

Amendment: BSL3/4 CDC/USDA Regulated Agents NOUs for review

Chien-Te Kent Tseng, PhD

Dr. Tseng submitted an amendment to his work at BSL3E with highly pathogenic avian influenza virus (HPAIV) (A/Whooper swan/Mongolia/244/2005, A/Cambodia/R0405050/2007 (H5N1), A/Thailand/676/2005 (H5N1)) **to add recombinant work; NIH Guidelines: D4, D7.** This NOU was **approved with the following conditions:**

- Section I.B.2, answer No, as PAPR is already standard PPE at BSL3E.
- Section II.3, expand on the nature of the LNA, including similarity to H5N1 influenza virus sequence.
- Section III.9.a, answer Yes.

Chien-Te Kent Tseng, PhD

Dr. Tseng submitted an amendment to his work at BSL3 with MERS-CoV **to add work with recombinant materials; NIH Guidelines: N/A.** This NOU was **approved with the following conditions:**

- Section I.8.a.iii, clarify units of concentration.
- Section II.3, delete last sentence.
- Section III.4, under Dose per Animal, Maximum Concentration, use units of concentration or clarify if 100 TCID50 is the maximum administered per dose.
- Section III.5, delete last sentence.

Request to Move Live Samples from BSL3 to BSL2 Following NGS

Tetsuro Ikegami, PhD

Dr. Ikegami submitted an assurance to the IBC that Oropouche virus (OROV) stock vials that had been stored at BSL3 have been analyzed by Next Generation Sequencing and showed no detectable contaminations of other risk group 3 or 4 pathogens. Dr. Ikegami is requesting approval to move these live samples from BSL3 to BSL2. The assurance and NOU have been provided to the IBC for review.

The IBC discussed the following:

- This process should be formalized and standardized. A form should be developed and completed by the PI.
- The process should be simplified with less back and forth.
- Develop a fill-in-the-blank form with all the information the PI needs to provide, include reads other than the agent, obtain approval of an IBC chair, and notify the IBC.

This request was **approved with the following conditions:**

- The transfer is approved.

- When the transfer has been completed, provide the information requested in the letter from the IBC dated 03MAR2023.

When the transfer has been completed and the information provided, DOB can review and administratively approve. The IBC will be notified.
1 abstained.

III. OLD BUSINESS

Biological Agents and rDNA/RNA NOUs – Conditions Met

Jere McBride, PhD – *Ehrlichia canis*, *E. chaffeensis*, and *E. muris*; NIH Guidelines: D1, D2, D4 (#2023039)
Ping Wu, MD, PhD – Lentiviral vectors; NIH Guidelines: D2, D3 (#2023046)

BSL3/4 CDC/USDA Regulated Agents NOUs – Conditions Met

Thomas Geisbert, PhD – Cedar virus; NIH Guidelines: D3, D4 (#2023042)
Junki Maruyama, PhD and Slobodan Paessler, DVM, PhD – Highly pathogenic avian influenza virus (HPAIV) (H5 and H7 subtypes); NIH Guidelines: N/A (#2023032)
Chien-Te Kent Tseng, PhD – Highly pathogenic avian influenza (HPAIV) (A/Whooper swan/Mongolia/ 244/2005, A/Cambodia/R0405050/2007 (H5N1), A/Thailand/676/2005 (H5N1)); NIH Guidelines: N/A (#2023047)

Amendment: Biological Agents and rDNA/RNA NOUs – Conditions Met

Perenlei Enkhbaatar, PhD – *Pseudomonas aeruginosa* and *Staphylococcus aureus*; NIH Guidelines: N/A (#2021076)
Gary Kobinger, PhD – Adenoviral vector (serotype 5); NIH Guidelines: D1, D2, D3, D4 (#2023007)
David Walker, MD – Adenovirus vector; NIH Guidelines: D1, D2, D3, D4 (#2022098)

NOU Inactivation

Rong Fang, MD, PhD – BSL3 non-select agent *Rickettsia* spp.; NIH Guidelines: D1, D2, D4 (#2018057) (expired)
Rong Fang, MD, PhD – *Anaplasma phagocytophilum*; NIH Guidelines: D1, D2, D4 (#2018058) (expired)
Rong Fang, MD, PhD – BSL2 non-select agent *Rickettsia* spp.; NIH Guidelines: D1, D2, D4 (#2018059) (expired)
Shinji Makino, DVM, PhD – Plasmids encoding MERS-CoV genomic sequence; NIH Guidelines: D2, D3 (#2018067) (expired)
Shinji Makino, DVM, PhD and Chien-Te Kent Tseng, PhD – MERS-CoV; NIH Guidelines: D1, D2, D3 (#2018073) (expired)
Peter Melby, MD – *Leishmania* spp. (*L. donovani*, *L. infantum/chagasi*, *L. major*, *L. mexicana*, *L. panamensis*, *L. brasiliensis*); NIH Guidelines: D1, D2, D4 (#2018074) (expired)
Lynn Soong, PhD – Human and NHP products; NIH Guidelines: N/A (#2018061) (expired)
Nikos Vasilakis, PhD – Kunjin virus; NIH Guidelines: N/A (#2018041) (expired)

IV. DISCUSSION

Sequencing Parameters for Sample Removal from Containment

[redacted] presented a summary of how the Sequencing Core analyzes samples to identify agents. When sequencing samples to downgrade containment, the Core is concerned about cross-contamination from pipettors or lab coats within the sequencing laboratory. Have addressed this by setting aside an area and pipettors dedicated to these requests and purchased a specific set of adapter barcodes used only for these samples. The question of how many reads are needed for a sample is difficult answer. If the Core sequenced to a depth of 200M reads, it might detect every agent that has ever been in the laboratory. About 1M reads per sample seems reasonable.

After sequencing, the reads are assembled into contigs and clustered by similarity. All unique contigs of over 400 bases are BLASTed, both by translating to protein and searching against a viral protein database and by nucleotide against NCBI nucleotide database. For viruses, the Core also expects to get contigs that match the host cell that the virus was grown in.

The individual reads are also mapped to a virus database, because if there is a contaminant at low concentration, it may not assemble into a contig and would otherwise be missed. The Core may also pick up old transposons from the host cell (virus artifacts).

The IBC discussed the following:

- If the Sequencing Core detected contaminants, what would happen? What if the Core Director was confident that the contamination came from the Sequencing Core laboratory?
    - Should the sequencing be repeated? Should a different aliquot of sample be sequenced? Should the PI plaque purify the sample again and sequence from those samples?
    - With unique barcode indexes, the Core would not expect contamination to come from the sequencer itself.
- Is there a guideline for how many reads need to be sequenced for each sample? No.
- If the Sequencing Core is not told the purpose of sequencing (to downgrade a sample), the strict procedures to minimize cross-contamination will not be used. Further, if sequencing two samples on the same run, the instrument cannot always separate the clusters that it sequenced.
- For administrative approval, consider that if there are no reads from other risk group 3 viruses in the same laboratory, it could be approved. If there are any such reads, it would need to come to the committee to assess whether it needs to be repeated.
- Approval should not be a matter of checking boxes; a contaminated sample slipping by would be a serious problem. Until we know how many and how frequently these requests will come though, it would be best to handle these requests on a case-by-case basis.
    - One requirement is that the PI have an NOU for the work at a lower biosafety level.
- The mapping and sequencing results in the example provided are sufficient for committee review.
- Is the vial that is sequenced the one that is removed from containment?
    - Typically not. A matched seed stock is generated, aliquoted into multiple vials; one vial would be opened to sequence, and then the other vials would be removed from containment.

Working without Approved NOU

A PI had submitted an NOU that was tabled. The NOU was not fully resubmitted for IBC review before the date the NOU application would be inactivated. The IBC Administrator did not send a reminder email or inactivate the NOU application at the appropriate times after the application was tabled. During June, it was discovered that the PI had performed work with some of the agents listed in the NOU without it being approved. The PI had made the changes to the NOU required by the IBC but had not resubmitted the application in EHS Assistant. The PI thought that they had resubmitted the application. At this time, the PI is not working with the agents, but may want to in the future.

The IBC determined that the PI should be made fully aware that they did not have approval to perform work with these agents, that the application is inactive, and that they will need to submit a new application if they want to work with these agents in the future.

Is there a way to automate the reminders within the online system, or know the status of an application? Not in EHS Assistant.

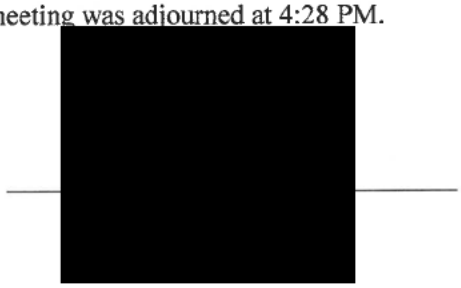
BSL2 Incident
A laboratorian mentioned to a member of Department of Biosafety that they had stuck themselves in the finger with a straight needle during a necropsy of a mouse that had been infected with *Rickettsia parkeri*. The laboratorian had not reported the incident (to either their PI, DOB, or Employee Health), which had occurred about a month ago.

The Department of Biosafety met with the laboratorian to discuss the incident. Employee Health was notified, but there was no treatment to recommend as it was outside the window. The laboratorian stated that they never developed symptoms. DOB emphasized with the laboratorian that there are no small incidents and that all such incidents should be reported to their PI, DOB, and Employee Health. The PI was also notified, to emphasize the importance of training their personnel to report and that there are no repercussions for reporting.

The laboratorian was advised to not use straight pins during necropsy and instead use tape.

Response to Invitation to Attend
[redacted] sent an apology to the IBC for the behavior of his laboratory member who attended the IBC meeting some months ago.

V. ADJOURNMENT
The meeting was adjourned at 4:28 PM.



utmb Health

Institutional Biosafety Committee
301 University Blvd.
Galveston, TX 77555-1111
O 409.772.1781

MINUTES
August 4, 2023

The Institutional Biosafety Committee met virtually on Friday, August 4, 2023 using Microsoft Teams. The meeting was called to order at 2:02 PM and was chaired by [redacted]

MEMBERS PRESENT

[redacted]

MEMBERS ABSENT

[redacted]

CONSULTANTS

[redacted]

GUESTS

[redacted]

I. APPROVAL OF MINUTES

The minutes of the July 7, 2023 meeting were approved.

II. NEW BUSINESS

Human and Nonhuman Primate Products NOUs approved administratively

Xiaoyong Bao, PhD

Dr. Bao submitted a renewal NOU for Human and Nonhuman Primate Products to work at BSL2 with **human commercial cell lines (A549, HEP G2, SAE, MK-2, induced pluripotent stem cells).**

Xiang Fang, MD, PhD

Dr. Fang submitted a new NOU for Human and Nonhuman Primate Products to work at BSL2 with **human blood and serum.**

Cheng Huang, PhD

Dr. Huang submitted a renewal NOU for Human and Nonhuman Primate Products to work at BSL2 and BSL3 with **human commercial cell lines (HEK293, HUVEC, A549, HeLa, Caco-2, Calu-3, human airway epithelium cells) and NHP commercial cell lines (COS, Vero, Vero-E6).**

Fernanda Laezza, PhD
Dr. Laezza submitted a renewal NOU for Human and Nonhuman Primate Products to work at BSL2 with **human neuronal progenitors and commercial cells (HEK293).**

Abha Sahni, PhD
Dr. Sahni submitted a renewal NOU for Human and Nonhuman Primate Products to work at BSL2 with **human commercial and primary cells (BEAS-2B, HEK293, HeLa, HMEC-1, HUVEC).**

Jun Yang, PhD
Dr. Yang submitted a renewal NOU for Human and Nonhuman Primate Products to work at BSL2 with **human tissue, body fluids, commercial cell lines (HEK293, HeLa, HEP G2).**

Amendment: Human and Nonhuman Primate Products NOUs approved administratively
Junki Maruyama, PhD
Dr. Maruyama submitted an amendment to his work with Human and Nonhuman Primate Products **to include work with additional human commercial (Expi293) cells.**

Amendment: Biological Agents and rDNA/RNA NOUs approved administratively
Xuping Xie, PhD
Dr. Xie submitted an amendment to his work with rSARS-CoV-2 and lentivirus **to add cryo-EM studies.**

Amendment: BSL3/4 CDC/USDA Regulated Agents NOUs approved administratively
Thomas Geisbert, PhD
Dr. Geisbert submitted an amendment to his work with Cedar virus **to add inactivation using an approved agent inactivation SOP.**
Family/Genus: Paramyxoviridae
Inactivation Method(s): SOP #31 Virus Inactivation of Liquids Using TRIzol, TRI-Reagent, or TriPure Reagent for Total RNA Isolation
Sample Matrix: Liquid culture).

NOU Transfer: Human Products and Nonhuman Primate Products approved administratively
Mahmoud Ahmed, PhD and Tatiana Nanovskaya, PhD to Tatiana Nanovskaya, PhD
The NOU for Human and Nonhuman Primate Products held by Dr. Ahmed and Dr. Nanovskaya (as Co-PI) was transferred to Dr. Nanovskaya.

Biological Agents and rDNA/RNA NOUs for review
Alison Coady, PhD
Dr. Coady submitted a new NOU for Biological Agents and rDNA/RNA to work at BSL2 with ***Aspergillus fumigatus*** **(CSB144.89, wild type and luciferase-expressing),** ***Fusarium solani*** **(wild type and luciferase-expressing),** ***Mucor circinelloides*** **(R7B, wild type and luciferase-expressing); NIH Guidelines: N/A.** This NOU was **approved with the following conditions:**

- Section I.8.a.vii, delete reference to infecting animals, as no work with animals is described.

Hugues Fausther Bovendo, PhD
Dr. Fausther Bovendo submitted a new NOU for Biological Agents and rDNA/RNA to work at BSL2 with **respiratory syncytial virus (RSV) and human metapneumovirus (hMPV); NIH Guidelines: D4.** This NOU was **approved with the following conditions:**

- Section I.3, for Strains or Generation, delete "RNA" and instead provide the strains for the viral seed stocks.
- Section I.6, spell out the abbreviation "mAbs" on first use.

- Section I.6, expand description of the fluorescently labeled viruses. If this labeling involves using recombinant virus, describe in Section II.
- Section I.6, expand to describe how virus specific B cells will be isolated.
- Section I.7.e.ii, specify that the listed vaccine is for RSV.
- Section I.8.c.ii, spell out "5mn" or use a different abbreviation (e.g., "5 min").
- Section I.8.c.ii, provide contact time for decontamination of RSV to chemical agents.
- Section I.8.c.ii, provide information on susceptibility of human metapneumovirus to decontamination.
- Section I.8.e, delete "BEI bioressources".
- Section I.9, if this project includes procedures which inactivate virus (e.g, extraction of viral RNA with a chaotrope or fixation of animal samples in formalin), answer Yes and answer subsequent questions.
- Section I.A.2.b.iii, write "pending" and submit a human and nonhuman primate products NOU.
- Section I.B.7, uncheck "Other" and delete text about ethanol.
- Section I.B.8, if cell sorting will be performed only using the Flow Cytometry and Cell Sorting Core Lab, delete text in text box.
- Section II, answer No and move the described recombinant work with monoclonal antibodies to a separate NOU.
- Section III.2, provide IACUC protocol number and approval date. If protocol approval is pending, write "pending".
- Section III.5, provide a brief description of the downstream assays that will be performed.
- Section III.6.b, in the uploaded Saphenous bleed SOP, change step 6 to apply pressure to stop the bleeding first and then release the animal.
- Section III.7, in the uploaded homogenization SOP, confirm that homogenizer and centrifuge are in the biosafety cabinet, or specify which steps are performed in a biosafety cabinet.

Junki Maruyama, PhD

Dr. Maruyama submitted a new NOU for Biological Agents and rDNA/RNA to work at BSL2 with **genomic material from Ebola, Marburg, Hendra, Nipah, influenza, Lassa fever, Guanarito, Junin, Machupo, Sabia, Andes, Hantaan, and Sin Nombre viruses; NIH Guidelines: D2, D3, D4.** This NOU was **tabled with the following conditions:**

- Move all work with full-length virus clones to separate NOUs that also describe work with the virus in BSL3 or BSL4. If those NOUs already exist, reference those NOUs by number throughout this application. Note that cloning full-length cDNA constructs of Ebola, Marburg, Nipah, and Hendra viruses in non-pathogenic prokaryotes at BSL2 requires approval by NIH Office of Science Policy. Contact the Department of Biosafety if you will propose to do this work.
- Section I.3, under Select Agent, answer No for all agents.
- Section I.6, specify NOU numbers for extracting viral RNA from cell culture. If an NOU does not yet exist, state "Pending" and submit an NOU application.
- Section I.6, from the third sentence, delete "or entire viral genome sequence".
- Section I.6, from fifth sentence, delete "and so on" and instead summarize the experiments that will be performed.
- Section I.6, delete the sentence "The full-length clone of arenavirus, filovirus, hantavirus, henipavirus, and influenza virus will be used to rescue recombinant viruses."
- Section I.6, delete the sentence "The use of live viruses (wild-type or recombinant) will be controlled by other NOUs."
- Section I.6, full length viruses cannot be rescued at BSL2. Instead, specify NOU numbers for virus rescue. If an NOU does not yet exist, state "Pending" and submit an NOU application.

- Section I.6, add a statement that only work with less than 2/3 of the RNA of a viral genome will be performed on this NOU.
- Section II.3, delete the sentence "The full-length clone of arenavirus, filovirus, hantavirus, henipavirus, and influenza virus will be used to rescue recombinant viruses."
- Section II.3, full length viruses cannot be rescued at BSL2. Instead, specify NOU numbers for virus rescue. If an NOU does not yet exist, state "Pending" and submit an NOU application.
- Section II.6.c, answer No.
- Section III.5, delete "such as" and list types of downstream experiments that will be performed.
- Section III.5, expand on downstream assays after T- or B-cell isolation.
- Section III.5, specify NOU numbers for virus challenge.

Brendan Prideaux, PhD

Dr. Prideaux submitted a new NOU for Biological Agents and rDNA/RNA to work at BSL2 with ***Mycobacterium avium*** **and** ***Cryptococcus neoformans*****; NIH Guidelines: N/A.** This NOU was **tabled with the following conditions:**

- Please work with the Department of Biosafety to organize a visit with members of the IBC to view the procedures described in this application.
- Section I.6, expand description of matrix sprayer and its ability to contain aerosols.
- Section I.6, provide additional information on whether the mass spectrometer is HEPA filtered and if it will be contaminated after analyzing these samples.

Nikos Vasilakis, PhD

Dr. Vasilakis submitted a new NOU for Biological Agents and rDNA/RNA to work at BSL2 with **West Nile virus (NY99) and Kunjin virus; NIH Guidelines: N/A.** This NOU was **approved with the following conditions:**

- Section I.6 describes inactivating samples with 10% formalin, TriPure RNA extraction buffer, electron microscopy fixative buffer, or RIPA sample lysis buffer. However, in Section I.9, only an approval letter for inactivation by heat is uploaded. In Section I.6, please clarify that all samples will be inactivated using the approved heat inactivation SOP prior to the other procedures, or in Section I.9, upload SOPs or approval letters for the other inactivation methods.

Amendment: BSL3/4 CDC/USDA Regulated Agents NOUs for review

Slobodan Paessler, DVM, PhD

Dr. Paessler submitted an amendment to his work at BSL4 with Marburg virus **to add work with mice and guinea pigs; NIH Guidelines: N/A.** This NOU was **approved with the following conditions:**

- Section I.6, describe use of viruses in animal experiments.
- Section I.B.7, uncheck Other and delete text regarding alcohol.
- Section III.4, under Dose per Animal: Maximum Volume, please list volume instead of PFU.
- Section V.1.B, delete all personnel listed in the table, or answer No to Section V.1.

Request to Move Live Samples from BSL3 to BSL2 Following NGS

Scott Weaver, PhD and Kenneth Plante, PhD

Dr. Weaver submitted an assurance to the IBC that 12 stock vials of West Nile virus (WNV), Kunjin virus (KUNV), and Saint Louis encephalitis virus (SLEV) that have been previously propagated at BSL3 have been analyzed by Next Generation Sequencing and showed no detectable contamination of risk group 3 or 4 pathogens. Dr. Weaver is requesting approval to move these live samples from BSL3 to BSL2. The assurance, methods used, summary of BLAST results, and NOU describing the work at BSL2 have been provided to the IBC for review.

The IBC discussed the following:

- There was no attestation from the Sequencing Core that the samples had no other risk group 3 or 4 contaminants.
- Is it appropriate to ask someone from the Sequencing Core to sign off on these types of results? That is a lot of liability without a clear definition of what they are signing off on.
    - There should be standardization on the Core's methodologies for these requests (on methods used, biochemistry, bioinformatics) so that the limitations of the analysis are known. The limitations should be acknowledged and liability lifted from the Sequencing Core.
- The application that was filled out asks the PI to sign an acknowledgement that the information provided in the document is accurate to the best of their knowledge. This is meant to ensure the PI is responsible for the statements made regarding the results presented.
- This process is similar to an inactivation SOP or validation data, where the PI is stating that they have completed an analysis and are signing off on the samples not being contaminated. A multi-signature process does not seem necessary.
- Add a statement to the request form that the PI is stating that there are no contaminants.
- Will discuss at a subsequent meeting the parts of the application that the IBC wants PIs to submit.

This request was **approved.**
1 abstained.

III. OLD BUSINESS

Biological Agents and rDNA/RNA NOUs – Conditions Met

Alexander Bukreyev, PhD – ML29-Mopeia/Lassa reassortant virus; NIH Guidelines: N/A (#2023037)
Kathryn Cunningham, PhD – Adeno-associated viral vectors (AAV); NIH Guidelines: D2, D3, D4 (#2023054)
Mark Endsley, PhD – Human coronaviruses (OC43, 229E); NIH Guidelines: N/A (#2023028)
Junki Maruyama, PhD – Pseudotyped vesicular stomatitis virus (VSV) (replication competent and incompetent); NIH Guidelines: D1, D3, D4 (#2023057)

Amendment: Biological Agents and rDNA/RNA NOUs – Conditions Met

Linda Kenney, PhD – *Salmonella enterica* serovar Typhi (strains H58, Ty2 and CT18); NIH Guidelines: D1, D2, D4 (#2022110)

NOU Transfer – Conditions Met

Nisha Garg, PhD – *Trypanosoma* spp.; NIH Guidelines: N/A (#2022095)
Xuping Xie, PhD – SARS-CoV-2, flavivirus vaccine and replicon, alphavirus vaccine and replicon; NIH Guidelines: D1, D2, D3 (#2020012)
Xuping Xie, PhD – rSARS-CoV-2 and lentivirus; NIH Guidelines: D1, D2, D3 (#2020149)
Xuping Xie, PhD – SARS-CoV-2 delORF3678; NIH Guidelines: D1, D2, D3, D4 (#2022086)

NOU Inactivation

Eliseo Eugenin, PhD – Dengue virus (serotypes 1, 2, 3, and 4); NIH Guidelines: N/A (#2018082) (expired)
Cheng Huang, PhD – Hantaviruses belonging to the virus family Bunyaviridae: Andes (ANDV), Sin Nombre (SNV), Hantaan (HTNV), and Puumala (PUUV) viruses; NIH Guidelines: D1, D2, D3 (#2018051) (expired)
Cheng Huang, PhD – Cloning of Hantaviruses belonging to the virus family Bunyaviridae: Andes (ANDV), Sin Nombre (SNV), Hantaan (HTNV), and Puumala (PUUV) viruses; NIH Guidelines: D1, D2 (#2018087) (expired)

IV. DISCUSSION

Thank you to Retiring IBC Member

[redacted] is retiring from UTMB and this is his last meeting.

Update on [redacted] Laboratory

Some time ago, there were issues in the laboratory of [redacted] that led to all his NOUs being terminated. Several years later, he earned enough trust back to obtain a human and NHP products NOU. Members of his laboratory are permitted to perform work with infectious material under the mentorship of another PI, who holds the relevant NOUs. All infectious work had been performed in a space that [redacted] did not have access to; however, there have been space issues in that building, which led to [redacted]'s laboratory being moved to [redacted]. The IBC discussed this process when it was proposed and decided it would be acceptable with some conditions. These conditions included:

- The laboratory space where infectious material is worked with requires badge access; [redacted] will not be given badge access to this space.
- The Department of Biosafety will perform monthly unannounced walkthroughs of the space to ensure [redacted] was not present.

It has taken time for renovations to be completed and the badge reader to be installed. As of a couple weeks ago, everything is functioning. DOB completed walkthroughs for July and August and did not observe any issues. If anything out of the ordinary is observed, it will be brought to the committee. DOB has set up a process to ensure these walkthroughs are completed monthly.

Follow up on BSL2 Incident

This is a follow up on the incident reported last month, where an employee had a potential exposure to *Rickettsia parkeri* but did not report the incident until approximately a month later. Two members of the Department of Biosafety spoke to the employee regarding the importance of reporting incidents in a timely manner. The employee was counseled at Employee Health regarding the potential for exposure and the importance of reporting.

The BSO spoke with the PI, and the PI has spoken to the employee about reporting. DOB is still working with the employee to help them understand the processes for reporting, the seriousness of any exposure event, and that they will not get in trouble for reporting an incident.

An IBC member noted that they feel strongly about this failure to report and that this is a very serious issue. If DOB is not certain that this employee understands the importance of reporting, that is a problem.

DOB is consulting with additional individuals who can better assess a person's ability to comprehend. In addition, DOB has also spoken to the employee's department chair about the incident. The PI works with risk group 3 and select agents, and at this time this employee is not moving further into higher containment levels; they are staying at BSL2 and ABSL2. As they have animal procedures, DOB spoke with the director of the IACUC to request post-approval monitoring of their techniques.

The employee has been at UTMB for approximately 6 months. An IBC member noted that the regularity of training events to reinforce critical safety procedures has been diluted; they are not as frequent as they used to be. There were all hands meetings for each of the biosafety levels at BSL3 and BSL4, with reinforcement about the culture of confidence and lack of repercussions for reporting problems. Some of this is the responsibility of the PI to ensure the employee is trained.

This incident was at BSL2, which has a different culture than BSL3 and BSL4. Reporting is not drilled into those who work at BSL2 as much as it is at BSL3 and BSL4. We should not overreact simply because we

tend to be in the mindset of dealing with higher containment issues. We should monitor this situation and ensure the message is getting to those who work at BSL2.

Minors in Laboratories
Department of Biosafety had been working with Office of the Provost as they brought back some of the outreach programs at UTMB. A PI won a grant to restart a high school intern research program. This includes students who are minors, and therefore DOB worked to ensure the students completed medical clearance and took biosafety training before entering the laboratory. No students were allowed to work with infectious materials for these projects.

During the month of July, it was determined that one of the PIs hosting a student had left the country. The student was not transferred to another PI in the program for scientific supervision and mentorship while this PI was gone. This PI did not inform anyone that they were leaving or take actions to reassign the student. No incidents occurred while the PI was gone.

The Office of the Provost informed the PI who won the grant and the student's parents about the situation. The current status of this student is unknown by DOB; it is possible that their summer internship ended early.

There was a relatively new UTMB employee in the laboratory, however they could not be expected to supervise the student in research or be held responsible for their safety. The student had been with the laboratory for about one week before the PI left.

Meeting Format: In-person, Hybrid, or Remote
The IBC discussed:

- Perhaps have one or two in-person meetings per year and the rest virtual
- Attendance for several members is higher with virtual meetings than in-person
- Does NIH have an official stance on virtual meetings?
- What is UTMB policy on providing food and beverages during committee meetings?

An email to the IBC will be sent out asking for comments and preliminary voting. This item will be discussed at the next IBC meeting.

V. ADJOURNMENT

The meeting was adjourned at 3:50 PM.

[redacted] [redacted]

utmb Health

Institutional Biosafety Committee
301 University Blvd.
Galveston, TX 77555-1111
O 409.772.1781

MINUTES
September 8, 2023

The Institutional Biosafety Committee met virtually on Friday, September 8, 2023 using Microsoft Teams. The meeting was called to order at 2:00 PM and was chaired by [redacted] and [redacted]

MEMBERS PRESENT

[redacted]

MEMBERS ABSENT

[redacted]

CONSULTANTS

[redacted]

GUESTS

[redacted]

I. APPROVAL OF MINUTES

The minutes of the August 4, 2023 meeting were approved.

II. NEW BUSINESS

Inactivation SOPs – approved by the Inactivation Review Subcommittee

Gregory Gray, MD, MPH

Family/Genus: Adenoviridae

Inactivation Method(s): SOP.A10001 Field Sample Inactivation with TRIzol LS

Sample Matrix: Liquid culture

Human and Nonhuman Primate Products NOUs approved administratively

Ashok Chopra, PhD

Dr. Chopra submitted a renewal NOU for Human and Nonhuman Primate Products to work at BSL2 and BSL3 with **human commercial cells (A549, Caco-2, HEK293, HeLa, T84, THP-1) and NHP primary (serum, tissue, blood, PBMC) and commercial cells (Vero).**

Tetsuro Ikegami, PhD
Dr. Ikegami submitted a renewal NOU for Human and Nonhuman Primate Products to work at BSL2, BSL3, and BSL4 with **human commercial (A549, BeWo, HEC1B, HEK293, HEK293T, HEP G2, Huh7, Jurkat, MRC-5, THP-1, U937) and primary (PBMC, macrophage, monocyte, dendritic) cells and NHP commercial (COS-7, FRhL-2, Vero, VeroE6) cells.**

Sunhee Lee, PhD
Dr. Lee submitted a renewal NOU for Human and Nonhuman Primate Products to work at BSL2 and BSL3 with **human commercial cells (A549, HEK293, HeLa, THP-1).**

Richard Wagner, MD
Dr. Wagner submitted a new NOU for Human and Nonhuman Primate Products to work at BSL2 with **human tissue.**

Amendment: Human and Nonhuman Primate Products NOUs approved administratively
Alfredo Torres, PhD
Dr. Torres submitted an amendment to his work with Human and Nonhuman Primate Products **to include work with additional human commercial cells (B-lymphoblastoid cell lines [GM00333, GM00607, GM01056, GM01312, GM01366, GM02473, GM06986, GM06991, GM06994, GM06997, GM07019, GM106989, GM17031, GM17037, GM17103, GM17135, GM17144, GM17155, GM17197, GM17444, GM17446, GM17450, GM17453, GM17456, GM17461, GM17465, GM17616, GM17632, GM17645, GM17650, GM17651, GM17656, GM17658, GM17668, GM17671, GM17679, GM17685, GM17687, GM17689, GM17695, GM17702, GM17709, GM17711, GM17714, GM17764]).**

Amendment: BSL3/4 CDC/USDA Regulated Agents NOUs approved administratively
Scott Weaver, PhD
Dr. Weaver submitted an amendment to his work with SARS-CoV-2 **to add work with hamsters; NIH Guidelines: D1, D2, D3, D4, E1.**

Amendment: BSL3/4 CDC/USDA Regulated Agents NOUs approved with conditions administratively
Janice Endsley, PhD
Dr. Endsley submitted an amendment to her work with *Mycobacterium tuberculosis* (H37Rv) and *Mycobacterium bovis* (Karlson and Lessel) **to add work with additional strains of *M. tuberculosis* (Erdman, CDC1551, HN878 [Beijing]); NIH Guidelines: N/A.**

Biological Agents and rDNA/RNA NOUs for review
Robert Abbott, PhD
Dr. Abbott submitted a new NOU for Biological Agents and rDNA/RNA to work at BSL2 with **Mayaro virus (strain CH [IQT4235]) and Venezuelan equine encephalitis virus (vaccine strain TC-83); NIH Guidelines: N/A.** This NOU was **approved with the following conditions:**

- **Work with the modified Venezuelan equine encephalitis virus (VEEV) TC-83 with mutation A3G may not be performed under this NOU. Any strain with this mutation is no longer an excluded select agent strain and any work must be performed in accordance with the Federal Select Agent regulatory determination (dated 01SEPT2022). For additional information, see** https://www.federalregister.gov/documents/2022/09/01/2022-18973/select-agent-determination-that-vaccine-strain-tc-83a3g-of-venezuelan-equine-encephalitis-virus-veev
- Section I.6, provide time point(s) of sample collection after animal infection and whether the samples are expected to be infectious or non-infectious.
- Section I.6, delete "All samples will be handled under strict BSL2 containment - all work will be done in a certified biosafety cabinet using appropriate personal protective equipment (e.g.

disposable lab coat, gloves) and thorough use of appropriate disinfectants (cavicide or 10% bleach) with appropriate contact time."
- Section I.8.c.iii, provide estimated maximum concentration of virus that will be handled.

Irma Cisneros, PhD and Slobodan Paessler, DVM, PhD (tabled at July 2023 meeting)

Dr. Cisneros submitted a new NOU for Biological Agents and rDNA/RNA to work at BSL2 with **Venezuelan equine encephalitis virus (vaccine strain TC-83 and TC-83 luciferase); NIH Guidelines: D1, D2, D3, D4.** This NOU was **approved with the following conditions:**

- **Work with the modified Venezuelan equine encephalitis virus (VEEV) TC-83 with mutation A3G may not be performed under this NOU. Any strain with this mutation is no longer an excluded select agent strain and any work must be performed in accordance with the Federal Select Agent regulatory determination (dated 01SEPT2022). For additional information, see** https://www.federalregister.gov/documents/2022/09/01/2022-18973/select-agent-determination-that-vaccine-strain-tc-83a3g-of-venezuelan-equine-encephalitis-virus-veev
- Contact Information, remove the uploaded Co-PI page and instead upload a Co-PI page with either wet ink signatures or time-stamped digital signatures.
- Section I.8.f, delete "even though the vaccine has an excellent safety record" and "however, TC-83 virus vaccine has been shown to be avirulent and to elicit a neutralizing antibody response, but not to cause clinical illness. The virus replicates in some human cell lines, but the titers of virus produced are low (Kinney et all 1989)."
- Section I.8.g, move this information to Section I.8.h.
- Section I.8.h, answer No and provide information on infectious dose in animal studies.
- Section I.9.a, if samples will be inactivated (e.g., for Western blots or ELISA) and then handled outside of primary containment, answer Yes and provide inactivation SOPs.
- Section I.A.2.b.ii, delete the sentence "inoculating humans cells of the blood brain barrier".
- Section III.4, under Sampling, also select Organs, as collection of tissue is described in Section III.5.
- Section III.5, define arena behavior.
- Section III.7, answer Yes and upload a tissue homogenization SOP. If homogenization will not be performed, describe (in Section III.5) how plaque assays of virus from tissue will be performed without homogenization.

Hugues Fausther Bovendo, PhD

Dr. Fausther Bovendo submitted a new NOU for Biological Agents and rDNA/RNA to work at BSL2 with **enterovirus 68 (strains USA 2020-23335, USA/2018-23089, US/KY/14-18953, USA/TX/2001-23223) and enterovirus 71 (strains Tainan/4643/1998, USA/WA/2016-19522, USA/2018-23082); NIH Guidelines: D4.** This NOU was **approved with the following conditions:**

- Section I.9.d.ii, upload inactivation SOPs.
- Section II.26, answer No.
- Section III.6.a, remove SOPs for monitoring weight loss.

Erin Lee, DVM

Dr. Lee submitted a new NOU for Biological Agents and rDNA/RNA to work at BSL2 with **chronic wasting disease (CWD) prions; NIH Guidelines: N/A.** This NOU was **approved with the following conditions:**

- Section I.6, delete all but the first paragraph, and instead expand on the objectives and experiments that will be conducted.
- Section I.7.b, uncheck No and check Unknown.
- Section I.8.a.i, define "Mte clay" on first use.

- Section I.8.a.iii, provide maximum concentration to be cultured or handled at one time or an explanation for why a value cannot be provided.
- Section I.8.c.ii, specify that autoclaving at 121°C is for gravity displacement and autoclaving at 134°C is for porous loads.
- Section I.8.g, answer "N/A".
- Section I.8.h, answer "N/A".
- Section I.9.a, if samples will be inactivated only for the purpose of disposal of biohazardous waste, answer No.
- Section I.9.d.ii, if samples will be inactivated for downstream assays, upload inactivation SOP.
- Section I.B.2, under explanation for use of N95, add that animals will not be in cages.
- Section I.B.6, unselect BSL3, select Other, and state that all biohazardous waste will be incinerated, and that daily husbandry waste will be chemically inactivated and then incinerated.
- Section III.6, if the agent and animal will be manipulated while the animal is not sedated, or if an infected animal will be manipulated while the animal is not sedated, answer Yes and provide justification and SOPs.
- Section V.1.B, please confirm that only Erin Lee will work on the study or add additional personnel to the table.

1 abstained.

Sunhee Lee, PhD

Dr. Lee submitted a renewal NOU for Biological Agents and rDNA/RNA to work at BSL2 with **lentiviral vectors; NIH Guidelines: D2, D3.** This NOU was **approved with the following conditions:**

- Section I.6, if cell lines modified by lentivirus will be subsequently infected with other agents (e.g., *Mycobacteria*), briefly describe and provide NOU #.
- Section II.3, clarify if the genes targeted by shRNA are mammalian, bacterial, or both.
- Section II.15.b, provide the plasmid vector(s) that will be used.
- Section V.1.B, under Agents, list all agents with which personnel have experience.

Sunhee Lee, PhD

Dr. Lee submitted a renewal NOU for Biological Agents and rDNA/RNA to work at BSL2 with ***Mycobacterium avium, M. bovis* (BCG), *M. fortiutum, M. kansasii, M. marinum, M. smegmatis, M. ulcerans, M. xenopi*, other non-tuberculous *Mycobacterium* (NTM) spp.; NIH Guidelines: D1, D2, D4.** This NOU was **approved with the following conditions:**

- **Aerosol administration to animals may not commence until full approval of the NOU is obtained from the IBC.**
- Section II.3, clarify all sources of mycobacterial genes that will be expressed in the chimeric BCG and NTM strains.
- Section II.3, specify the genes that will be expressed in the chimeric BCG and NTM strains.
- Section III.5, if animals will be challenged with virulent mycobacterial strains at ABSL3, specify that this will occur under a separate NOU and provide NOU #.
- Section III.5, if this application proposes aerosol administration using the ABSL3 Aerobiology Core Facility, clearly state: that aerosol administration to animals using the Aerobiology Core Facility will occur in the ABSL3; that animals will be housed at ABSL3 after infection; and provide a scientific justification for housing animals infected with risk group 2 agents at a higher biosafety level (ABSL3). If this application does not propose use of the ABSL3 Aerobiology Core Facility, answer No to Section III.4, Will the Aerobiology Facility be utilized?
- Section III.7, delete SOP003 and instead upload a written step-by-step protocol for sample homogenization.

If the applicant clarifies that they propose to perform work with risk group 2 agents in the ABSL3 facility (infection or housing), the response to conditions will be reviewed by the full IBC.

Junki Maruyama, PhD

Dr. Maruyama submitted a new NOU for Biological Agents and rDNA/RNA to work at BSL2 with **genomic material from Ebola, Marburg, Hendra, Nipah, influenza, Lassa fever, Guanarito, Junin, Machupo, Sabia, Andes, Hantaan, and Sin Nombre viruses; NIH Guidelines: D2, D3, D4.** This NOU was **approved.**

Guy Nir, PhD

Dr. Nir submitted a new NOU for Biological Agents and rDNA/RNA to work at BSL2 with **lentiviral vectors; NIH Guidelines: D2, D3.** This NOU was **approved with the following conditions:**

- Section I.6, from the first paragraph, delete from "This concentrated virus will then be added …" through the end of that paragraph.
- Section I.6, delete the second paragraph.
- Section I.8.c.i, expand on the stability of the agent in the environment.
- Section I.8.d, also select Sharps.
- Section II.3, from the first sentence, delete all information in parenthetical.
- Section II.3, delete "We will change the media after 24hrs, and then start collecting lentivirus media starting on day 2-4."
- Section II.3, delete "(commercially bought from Takara Bio …" through the end of the paragraph.
- Section II.7.f, delete "N/A" and provide the delivery system for gene editing.
- Section II.7.k, delete "none" and describe known off-target effects.

BSL3/4 CDC/USDA Regulated Agents NOUs for review

Dennis Bente, PhD

Dr. Bente submitted a new NOU for BSL3/4 CDC/USDA Regulated Agents to work at BSL3 with **Bourbon, Thogoto, Dhori, and Oz viruses; NIH Guidelines: D3, D4.** This NOU was **approved with the following conditions:**

- **No material may be removed from containment until inactivation SOPs have been approved by the Inactivation SOP Review Subcommittee.**
- **Work with animal and arthropod work may not commence until full approval of the NOU is obtained from the IBC.**
- Section I.3, under Strains or Generation, delete RNA and instead list the strains of each virus that will be used.
- Section I.3, under Risk Group, change risk group of Bourbon, Thogoto, and Dhori viruses to risk group 2.
- Section I.6, expand to describe work with reporter viruses and the evolutions studies that will be performed.
- Section I.8.d, also select Animal Bite.
- Section I.8.f, describe pathogenicity of Thogoto, Dhori, and Oz viruses.
- Section I.8.h, describe infectious dose in animal studies for Thogoto, Dhori, and Oz viruses.
- Section I.9.a, if samples will be removed from containment, provide Inactivation SOPs (including validation SOPs and validation data) for review. If samples will not be removed from containment, answer No.
- Section I.A.2.b.ii, amend NOU #2018112 to add SW-13 cells. In addition, only blood, tissue, and serum are listed as primary cells on NOU #2018112. If other human or NHP primary cells will be used to propagate the agents listed on this NOU, amend NOU #2018112 to add those cells.
- Section I.B.4, also list [redacted] and [redacted].

- Section II.3, specify the reporter(s) in the recombinant viruses.
- Section II.16, if recombinant virus will be propagated in tissue culture (e.g., for plaque assay), answer Yes and answer subsequent questions.
- Section II.17, answer Yes.
- Section III.10, please confirm that animals will not be transported by laboratory staff out of or between vivaria, including for tick transmission studies.
- Section IV.2, under Building, delete [redacted] and instead list a building with an ACL3.
- Section IV.3, specify which life stages of ticks will be infected through artificial feeding or through feeding on infected animals.
- Section IV.3, specify where work at ACL3 will occur, as there is no ACL3 in [redacted].
- Section IV.3, briefly describe the safe feeding of ticks on animals and steps taken to prevent escape of ticks. Upload an SOP or SOPs for these items in Section I.4 or Section IV.7.
- Section IV.3, specify which viruses the ticks will be infected with, including if the viruses are wild-type or recombinant.
- Section V.1.B, if [redacted] has experience handling ticks, describe under Animal & Arthropod Experience.

1 abstained.

Gary Kobinger, PhD and Dennis Bente, PhD

Dr. Kobinger submitted a new NOU for BSL3/4 CDC/USDA Regulated Agents to work at BSL3 with **Japanese encephalitis virus; NIH Guidelines: D1, D2.** This NOU was **approved with the following conditions:**

- **No material may be removed from containment until inactivation SOPs have been approved by the Inactivation SOP Review Subcommittee.**
- Section I.6, expand description to include use of Japanese encephalitis virus.
- Section I.6, clearly state that all recombinant work and work with virus-like particles will be performed at BSL2 and all that all work with Japanese encephalitis virus will be performed at BSL3.
- Section I.6, expand on the convalescent samples, including whether they are expected to contain JEV and whether the samples have been screened for JEV.
- Section I.8.a.iii, please confirm that only up to 10^4 PFU/mL of Japanese encephalitis virus will be cultured.
- Section I.9.a, if Japanese encephalitis virus will be inactivated (e.g., to obtain genomic material for cloning virus-like particles), answer Yes and provide inactivation SOPs.
- Section I.B.5, please confirm that no equipment like a blender, homogenizer, or sonicator will be used.

Maureen Laroche, PhD and Lucas Blanton, MD

Dr. Laroche submitted a new NOU for BSL3/4 CDC/USDA Regulated Agents to work with ***Rickettsia amblyommatis*** **(at BSL2 and BSL3) and *R. rickettsii* (strain Sheila Smith) (at BSL3); NIH Guidelines: N/A.** This NOU was **tabled with the following conditions:**

- **A subcommittee will be formed to assist in discussing and addressing the concerns of the IBC. The Department of Biosafety will coordinate further regarding this.**
- **Dr. Blanton is not a research PI, but a Co-Principal Investigator is required. Upload a signed Co-PI cover page in the Contact Information section.**
- Please attach a memo (in Section I.4) addressing the following questions and concerns:
    - Where will each step of the experiment occur? This includes *in vitro* propagation of *Rickettsia*, tick colony maintenance, canid housing when infected with *R. amblyommatis*,

canid housing when infected with *R. rickettsii*, tick feeding on canids, and tick housing after feeding on canids.
    - Is the amount of blood expected to be drawn by 200 nymphs within acceptable amounts for the age and species of canid?
    - Will protective cone collars be sufficient to keep a canid from removing tick capsules?
    - How tick capsules will be attached to the canids.
    - Is there enough surface area on a canid to secure four tick capsules?
    - How will the risk of canids being infected with other risk group 3 agents be reduced?
    - What is the risk of recrudescent *Rickettsia rickettsii* infection in canids after the proposed antibiotic treatment course?
- Section I.3, under Select Agent, answer No for *Rickettsia rickettsii*.
- Section I.4, Tick Feeding SOP, expand on how the tick capsules will be adhered to the canids.
- Section I.4, Tick Feeding SOP, Appendix 6 is referenced for preparation of bite resistant capsules. Please upload Appendix 6.
- Section I.4, Tick Feeding SOP, SOP no. 003 "Emergency Responses for the Arthropod Containment (ACL) Facility within [redacted]" is referenced. Please upload SOP no. 003.
- Section I.4, Tick Feeding SOP, SOP no. 006 "Emergency Responses for the Arthropod Containment (ACL) Facility within [redacted]" is referenced. Please upload SOP no. 006.
- Section I.8.a.ii, to accommodate the proposed experiments, recommend increasing considerably the number of flasks that will be cultured at one time.
- Section I.8.a.iii, provide units of concentration.
- Section I.8.b, provide justification for manipulation of infectious material outside of primary containment.
- Section I.8.d, also select Animal Bite.
- Section I.8.f, also describe the clinical disease observed in canids for these agents.
- Section I.B.4, also list [redacted].
- Section III.4, under Dose per Animal, Maximum Concentration, provide units of concentration.
- Section III.5, state that capsule attachment procedures will be practiced before infectious studies are started.
- Section IV, remove all information in this Section regarding tick colony maintenance, to focus only on work with ticks that includes the agents listed on this NOU. Specifically:
    - Section IV.2, under Life Stage, unselect eggs, larvae, and adults.
    - Section IV.3, delete description of colony maintenance.
- Section IV.3, also list where ticks will be housed (specify Building and arthropod containment level) after feeding on canids.
- Section IV.3, specify how long ticks will be allowed to feed on canids.

The IBC also discussed:

- How will capsules be secured so that the canids cannot remove them? Will protective cone collars be sufficient to keep the canids from removing the capsules?
- They propose to challenge canids with *R. rickettsii* in the ABSL3?
- They intend to remove animals that were housed at ABSL3 from containment and adopt them out?
    - One possibility is to use the new ABSL3 in [redacted], which has not yet been used with any agents. That would relieve the concern of the canids becoming infected with other risk group 3 agents, leaving only *R. rickettsii* infection as the concern.
- This NOU is asking for an exemption to the UTMB policy that does not allow animals to be removed from containment. DOB and ARC have spoken with UTMB leadership regarding this

experiment; they agreed to have the experiment follow the normal committee review path through IBC and IACUC and to see how the committees felt about the work.

- The inclusion of tick colony maintenance in Section IV makes a risk assessment more difficult. It would be helpful if this were removed so that the NOU focuses only on work with ticks that includes the agents on the NOUs.
- Are the number of tick nymphs proposed appropriate?
- How will four capsules be secured on a canid? Is there enough surface area?
- Is Dr. Blanton in containment often enough to serve as a Co-PI and mentor for this new PI?
    - Dr. Blanton is not currently a research PI.
- What is the risk of recrudescent infection in the canids?
    - There isn't a risk of *Rickettsia rickettsii* recrudescence, unlike some of the typhus group *Rickettsia*. Infection is expected to clear with antibiotic treatment.
- [redacted] Does that affect our decision?
    - This protocol needs to go through the IBC first, then [redacted]
- How long does it take to treat canids to clear infection? This project will occupy space that other researchers cannot use for animal containment.
    - Minimum 2 weeks, but a longer course for the control animals that are expected to have more severe disease.
- If the animals are individually housed at ABSL3 for an extended period, will they be psychologically ok to adopt to families?
    - There will need to be an assessment for the adoptability of any animal. There are extensive regulations from the Animal Welfare Act that will need to be addressed.
- Pet canids that are naturally infected with this agent are treated with antibiotics and can remain with their families during treatment.

William Lawrence, PhD

Dr. Lawrence submitted a new NOU for BSL3/4 CDC/USDA Regulated Agents to work at BSL3 with **SARS-CoV-2 (WA1 ΔPRRA); NIH Guidelines: N/A.** This NOU was **approved with the following conditions:**

- **Work may not commence until approval of the work plan is obtained from Biocontainment Engineering and Department of Biosafety.**
- Section I.3, under Strains or Generation, delete WA1/2020 and instead list WA1 ΔPRRA.
- Section I.3, under Risk Group, change to 3.
- Section I.4, upload a publication describing the WA1 ΔPRRA strain (e.g., Johnson BA, Xie X, Bailey AL, et al. Loss of furin cleavage site attenuates SARS-CoV-2 pathogenesis. *Nature*. 2021;591(7849):293-299; https://pubmed.ncbi.nlm.nih.gov/33494095/).
- Section I.6, remove name of collaborator.
- Section I.6, where WA1 strain is listed, specify WA1 ΔPRRA strain.
- Section I.6, state that biosamplers will be left in the room for at least 1 hour before retrieval.
- Section I.6, confirm that collaborator's NOU is approved for the volume and concentration of virus required for the experiments proposed in this NOU.
- Section I.8.f, also describe pathogenicity expected from the WA1 ΔPRRA strain.

The IBC discussed the following:

- Was a subcommittee formed to work with the PI on addressing the comments?
    - Yes, the subcommittee met with Dr. Lawrence and visited [redacted]. A less transmissible strain of SARS-CoV-2 was proposed for the work, which is the strain now described in the NOU. Facilities has worked to confirm the ventilation settings. Testing has been performed

to determine that the virus can be left in the biosamplers for an hour after aerosolization; this allows the room ventilation to be turned back on and approximately 10-12 air changes in the room before research personnel enter to retrieve the biosamplers.

- What virus is going to be used and what risk group is it?
    - SARS-CoV-2 WA1 ΔPRRA. This is a non-recombinant, tissue culture-adapted strain that has lost the furin cleavage site. Loss of the site attenuates the strain significantly to levels similar to a vaccine strain. Testing to obtain approval to work at BSL2 has not been performed (it remains a risk group 3 strain), but it is much less transmissible.
- Biocontainment Engineering and Department of Biosafety continue to work with the PI to ensure the specific room has the necessary airflow, that the experimental conditions will not disrupt safety, and to perform a validation study.
    - Add a condition that the NOU requires final approval by Biocontainment Engineering and Department of Biosafety.

Sunhee Lee, PhD

Dr. Lee submitted a renewal NOU for BSL3/4 CDC/USDA Regulated Agents to work at BSL3 with ***Mycobacterium tuberculosis*** **(strains V9124, H37Rv, CDC1551, Beijing/W, Erdman); NIH Guidelines: D1, D2, D4.** This NOU was **approved with the following conditions:**

- Section I.6, expand description to include how the *M. tuberculosis* samples that will be imported into the US will be screened for drug susceptibility.
- Section I.6, clearly state if work with MDR or XDR specimens is anticipated.
- Section I.B.4, under Lab/Room, delete specific room and list only as "BSL3".
- Section III.7, delete SOP001 and instead upload a written step-by-step protocol for sample homogenization.

Junki Maruyama, PhD

Dr. Maruyama submitted a new NOU for BSL3/4 CDC/USDA Regulated Agents to work at BSL3 with **Sin Nombre, Andes, Puumala, and Seoul hantaviruses; NIH Guidelines: D2, D3, D4, E1.** This NOU was **approved with the following conditions:**

- **A Co-Principal Investigator is required. Upload a signed Co-PI cover page in the Contact Information section.**
- **No material may be removed from containment to a lower biosafety level until inactivation SOPs have been approved by the Inactivation SOP Review Subcommittee.**
- Section I.6, rephrase "The virus dissemination in organs will be used for virus titration and histopathology" and correct "closed into plasmids" to "cloned into plasmids".
- Section I.6, state that the animal work with rodents will be performed in the ABSL4.
- Section II.15.a, specify *E. coli* strain.
- Section II.15.b, delete "Competent cells" and instead list the plasmids that will be used.
- Section V.1.b, add Co-PI to personnel table.

Vladimir Motin, PhD

Dr. Motin submitted a renewal NOU for BSL3/4 CDC/USDA Regulated Agents to work at BSL3 with ***Yersinia pestis*** **(CO92, KIM, Nepal 516, Pestoides F, ZE94-2122, PB6, Harbin 35, P.Exu2); NIH Guidelines: D1, D2, D4.** This NOU was **approved with the following conditions:**

- Section I.3, under Strains or Generation, delete "laboratory strains" and instead list CO92, KIM, Nepal 516, Pestoides F, ZE94-2122, PB6, Harbin 35, P.Exu2.
- Section II.3, provide examples of the housekeeping and virulence candidate genes that will be deleted.
- Section III.4, under Sampling, unselect Other and instead select Intracardiac bleeds.

- Section III.4, under If Other, Describe, delete "terminal cardiac puncture".

Amendment: Biological Agents and rDNA/RNA NOUs for review
Jun-Ho La, PhD, DVM
Dr. La submitted an amendment to his work with adeno-associated viral vectors (serotypes 2 and 5, AAV2 and AAV5) **to add work with AAV1, AAV9, AAVrg (retrograde-efficient), and AAV-PHP.S (peripheral neuron-selective); NIH Guidelines: D4.** This NOU was **approved with the following conditions:**

- Section I.8.d, also select Animal bite.
- Section I.9, answer Yes and provide inactivation SOP for immunohistochemistry.

Amendment: BSL3/4 CDC/USDA Regulated Agents NOUs for review
Scott Weaver, PhD
Dr. Weaver submitted an amendment to his work with Semliki Forest Virus, Chikungunya virus, Western equine encephalitis virus, West Nile virus, St. Louis encephalitis, and Everglades virus **to add work with Japanese encephalitis virus (JEV) and yellow fever virus (YFV); NIH Guidelines: D1, D2, D3, D4.** This NOU was **approved with the following conditions:**

- **No flavivirus samples may be removed from containment until inactivation SOPs have been approved by the Inactivation SOP Review Subcommittee.**
- Remove all work with replicons from this NOU and describe on a separate NOU at BSL2.
- Section I.8.a.ii, Is agent abortive? answer No and answer subsequent questions.
- Section I.8.c.ii, provide inactivation time for Cavicide and bleach.
- Section I.8.f, add information on pathogenicity of JEV.
- Section I.8.f, remove information related to viruses that are not listed on this NOU (VEEV, EEEV, Mucambo).
- Section II.3, update NOU #2017087 to #2022054.
- Section II.4, list BSL3 laboratories only as "BSL3".
- Section II.7.a, expand on the chimeras that will be generated, including whether the chimeras will be generated within the alphaviruses or within the flaviviruses.
- Section II.7.a, update NOU #2017087 to #2022054.
- Section II.12, answer Yes and answer subsequent questions.
- Section II.23, answer Yes.
- Section III.5, expand description to include downstream assays that will be performed.
- Section III.5, delete description of PPE choice for viruses that are not on this NOU (VEEV, EEEV, Mucambo).
- Section III.9.b, answer No.
- Section IV.8.b, answer No.
- Section V.1.B update personnel table to remove individuals no longer at UTMB.

1 recused.

III. OLD BUSINESS

Biological Agents and rDNA/RNA NOUs – Conditions Met

Alison Coady, PhD – *Aspergillus fumigatus* (CSB144.89, wild type and luciferase-expressing), *Fusarium solani* (wild type and luciferase-expressing), *Mucor circinelloides* (R7B, wild type and luciferase-expressing); NIH Guidelines: N/A (#2023065)

Amendment: BSL3/4 CDC/USDA Regulated Agents NOUs – Conditions Met

Janice Endsley, PhD – *Mycobacterium tuberculosis* (H37Rv, Erdman, CDC1551, HN878 [Beijing]) and *Mycobacterium bovis* (Karlson and Lessel); NIH Guidelines: N/A (#2021067)
Slobodan Paessler, PhD, DVM – Marburg virus; NIH Guidelines: N/A (#2020009)

Request to Move Live Samples from BSL3 to BSL2 Following NGS – Conditions Met
Tetsuro Ikegami, PhD – Risk Group 2 Bunyaviruses (Rift Valley fever virus MP-12 and delNSs-delNSm-ZH501 strains, Lone Star virus, Prospect Hill virus, La Crosse virus, Bunyamvera virus, Arumowot virus, Frijoles virus, Icoaraci, Sandfly fever Sicilian virus, Toscana virus, Punta Toro virus Balliet and Adames strains, Oropouche virus, Iquitos virus, Alenquer virus, Oriximina virus); NIH Guidelines: D1, D2, D3, D4 (#2021017) – to remove Oropouche virus, NGS-confirmed strain MD023

NOU Transfer – Conditions Met
Nigel Bourne, PhD – Human and NHP products; NIH Guidelines: N/A (#2022010)
Nigel Bourne, PhD – Herpes simplex virus (HSV) type 1, HSV type 2, and attenuated HSV-2 strains; NIH Guidelines: D3, D4 (#2022018)

IV. DISCUSSION

SciShield Introduction
This topic was postponed to a subsequent meeting.

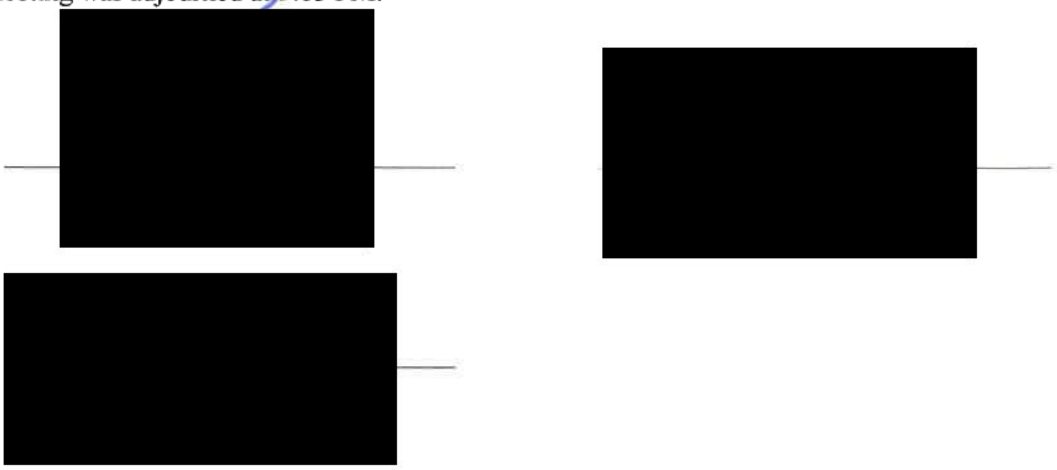
FSAP Inspection Summary
This topic was postponed to a subsequent meeting.

Informal Meeting Format Poll
This topic was postponed to a subsequent meeting.

Overview of Proposed Changes to NIH Guidelines
The NIH has proposed changes to the NIH Guidelines. This topic will be discussed in more detail at a subsequent meeting.

V. ADJOURNMENT

The meeting was adjourned at 5:03 PM.



utmb Health

Institutional Biosafety Committee
301 University Blvd.
Galveston, TX 77555-1111
O 409.772.1781

MINUTES
October 6, 2023

The Institutional Biosafety Committee met virtually on Friday, October 6, 2023 using Microsoft Teams. The meeting was called to order at 2:01 PM and was chaired by [redacted]

MEMBERS PRESENT

[redacted]

MEMBERS ABSENT

[redacted]

CONSULTANTS

[redacted]

GUESTS

[redacted]

I. APPROVAL OF MINUTES

The minutes of the September 8, 2023 meeting were approved.

II. NEW BUSINESS

Human and Nonhuman Primate Products NOUs approved administratively

Bin Gong, PhD

Dr. Gong submitted a renewal NOU for Human and Nonhuman Primate Products to work at BSL2 with **human commercial or established cells (HUVEC, HMEC-1, macrophages, THP-1, HeLa, SY5Y, BEAS-2B, HULEC-5a [ATCC CRL-3244], AT-1, AT-2, Calu-3, human fibroblast iPSC) and NHP commercial cells (Vero, Vero E6).**

Amendment: Human and Nonhuman Primate Products NOUs approved administratively

Tatiana Nanovskaya, PhD

Dr. Nanovskaya submitted an amendment to her work with Human and Nonhuman Primate Products **to add work with human commercial cell lines (HUVEC, HEK293, BeWo, HPMEC, HCMEC/D3, HEK293-OAT4) and human primary cell lines (placental trophoblast).**

David Walker, MD
Dr. Walker submitted an amendment to his work with Human and Nonhuman Primate Products **to add work with additional human commercial cell lines (HEL299, RF/6A).**

Biological Agents and rDNA/RNA NOUs – approved by eVote
Balaji Krishnan, PhD
Dr. Krishnan submitted a new NOU for **adeno-associated viral vectors; NIH Guidelines: D4.**

Biological Agents and rDNA/RNA NOUs for review
Nigel Bourne, PhD
Dr. Bourne submitted a renewal NOU for Biological Agents and rDNA/RNA to work at BSL2 with **Dengue virus (serotypes 1, 2, 3, and 4) and yellow fever virus vaccine strain 17D; NIH Guidelines: D3, D4.** This NOU was **approved with the following conditions:**

- **Materials may not be removed from BSL2 (e.g., to ship to collaborators) until validation data for inactivation SOPs are provided and approved by the IBC.**
- Permit Process Questions, provide a title for the project.
- Section I.3, under Strains or Generation, for dengue virus, delete "RNA" and instead list serotypes 1, 2, 3, and 4.
- Section I.3, under Strains or Generation, for yellow fever virus, specify vaccine strain 17D.
- Section I.8.c.ii, also list Cavicide, as this is selected as a disinfectant in Section I.B.7.
- Section I.8.c.ii, specify contact times for chemicals and heat inactivation.
- Section I.9.d.ii, Heat Inactivation SOP (SOP A), provide validation data for 30 min inactivation time.
- Section I.9.d.ii, Tissue Inactivation SOP (SOP B), specify that homogenization will be performed in a biosafety cabinet.
- Section I.9.d.ii, Serum Inactivation SOP (SOP C), in step 5.1.4, use a minimum of 3:1 ratio of reagent to sample.
- Section I.9.d.ii, Confirmation of Inactivation Procedures, either perform more than one round of replication, or incubate for longer than 5 days.
- Section I.A.2.b.i, delete Vero cells.
- Section I.A.2.b.i, delete "e.g." and instead list all cell lines that will be used.
- Section III.4, harmonize routes of administration of agents and sampling with description of work in Section III.5 (i.e., add subcutaneous route of administration, harmonize sampling by saphenous and submandibular bleeds).
- Section III.5, clarify if virus challenge will be performed using the agents listed in this NOU (e.g., dengue virus or yellow fever virus 17D), or provide NOU number(s) for the challenge virus(es).
- Section III.6.b, upload SOP for manipulation of unanesthetized animals.
- Section V.1.b, under Years of Experience, specify the biosafety level at which experience was obtained (e.g., "10 years BSL2").
- Section V.1.b, under Training at Other Institutions, delete name of institution and provide only the training obtained.
- Section V.1.b, under Animal & Arthropod Experience, specify the procedures that personnel have experience with (e.g., husbandry, IP and SQ injection, IV blood draw).

Maria Giraldo, PhD
Dr. Giraldo submitted a renewal NOU for Biological Agents and rDNA/RNA to work at BSL2 with **filovirus minigenomes (Ebola and Marburg viruses); NIH Guidelines: D1, D2, D3.** This NOU was **approved with the following conditions:**

- Section I.6, summarize description to remove unnecessary details (e.g., replace the sentence that begins "We will use the Mirus transfection reagent …" with "We will transfect plasmid DNA into cells." and delete the sentence that begins "The intensity of the luciferase bands …").
- Section I.8.a.ii, is agent abortive? answer Yes.
- Section I.8.c.i, delete information for *E. coli* and instead provide agent stability for DNA construct.
- Section I.8.c.ii, delete information for *E. coli* and instead provide susceptibility to decontamination for DNA construct.
- Section I.8.d, unselect Sharps.
- Section I.8.h, answer No, and state "Not infectious" in the text box that appears below.
- Section II.3, abbreviate description of recombinant work.
- Section II.16, answer No.
- Section V.1.b, update years of experience and training at UTMB for personnel.

Thomas Smith, PhD

Dr. Smith submitted a new NOU for Biological Agents and rDNA/RNA to work at BSL2 with **West Nile virus replicon; NIH Guidelines: D1, D2, D3.** This NOU was **approved with the following conditions:**

- **Work may not commence until your laboratory has been changed from BSL1 to BSL2. Work with the Department of Biosafety to schedule this inspection.**
- **Update lab door sign to add this agent and to reflect change from BSL1 to BSL2 laboratory.**
- Section I.1, select BSL2.
- Section I.6, summarize the description to remove unnecessary details (e.g., delete "The cells are maintained in DMEM supplemented with 10% fetal bovine serum, 50 mM HEPES (pH 7.5), 5% penicillin/streptomycin, and 5% L-glutamine. Cells are grown in humidified incubators at 37 °C with 5% CO2. Plasmid is transfected using Lipofectamine transfection reagent."; replace "Cells will be harvested 24 to 48 hours post transfection and one round replicon genes expression will be assessed by luciferase bioluminescence." with "Cells will be harvested and gene expression assessed by luciferase bioluminescence.").
- Section I.B.1, unselect PPE for Open bench work and instead select PPE for BSL2.
- Section II.14, answer Yes and answer subsequent questions.
- Section II.24.a, answer No.

David Walker, MD

Dr. Walker submitted a renewal NOU for Biological Agents and rDNA/RNA to work at BSL2 with ***Rickettsia parkeri*** **(Atlantic Rainforest-like); NIH Guidelines: D2.** This NOU was **approved with the following conditions:**

- Section I.6 specify the procedures that will be performed using the sonicator and state that the sonicator will be used in a biosafety cabinet or other primary containment.

Amendment: Biological Agents and rDNA/RNA NOUs for review

Parimal Samir, PhD

Dr. Samir submitted an amendment to his work with lentiviral vectors **to add work with genomic material from dengue (serotypes 1, 2, 3, and 4), influenza A, Japanese encephalitis, measles, Nipah, parainfluenza, and respiratory syncytial viruses; NIH Guidelines: D1, D2, D3, D4.** This NOU was **approved with the following conditions:**

- Section I.3, add influenza A virus to table.
- Section I.6, add a statement that homogenization and sonication will be performed within primary containment (e.g., a biosafety cabinet or a gasketed enclosure).
- Section I.6, expand on the downstream assays used to measure stress granule assembly.
- Section I.7.b, answer Yes.

- Section II.7.f, delete text and instead list lentiviral vector.
- Section II.13.b.i, delete text and instead list region of insertion within the lentiviral vector.
- Section II.13.b.ii, delete text and instead list the genes from influenza, dengue, Japanese encephalitis, measles, Nipah, parainfluenza, or respiratory syncytial viruses that will be inserted.
- Section II.16.a, answer Yes.
- Section III.5, expand on the potential therapeutic proteins that will be expressed.
- Section III.5, generation of a transgenic mouse is described. If lentivirus is not used for this, delete here and instead submit an NOU application for a Generation or Use of Transgenic Rodents.
- Section III.5, restate "At this moment we are not going to express viral genes in animals" to read "We will not express viral proteins from influenza, dengue, Japanese encephalitis, measles, Nipah, parainfluenza, or respiratory syncytial viruses in animals".

Response to Conditions: Biological Agents and rDNA/RNA NOUs for review

Sunhee Lee, PhD

Dr. Lee submitted a response to conditions for her work with ***Mycobacterium avium, M. bovis* (BCG), *M. fortiutum, M. kansasii, M. marinum, M. smegmatis, M. ulcerans, M. xenopi*, other non-tuberculous *Mycobacterium* (NTM) spp. which proposes performing work with risk group 2 agents in the ABSL3 facility; NIH Guidelines: D1, D2, D4.** This response to conditions was **approved.**

III. OLD BUSINESS

Biological Agents and rDNA/RNA NOUs – Conditions Met

Sunhee Lee, PhD – Lentiviral vectors; NIH Guidelines: D2, D3 (#2023077)
Guy Nir, PhD – Lentiviral vectors; NIH Guidelines: D2, D3 (#2023079)
Nikos Vasilakis, PhD – West Nile virus (NY99) and Kunjin virus; NIH Guidelines: N/A (#2023069)

BSL3/4 CDC/USDA Regulated Agents NOUs – Conditions Met

William Lawrence, PhD – SARS-CoV-2 (WA1 ΔPRRA); NIH Guidelines: N/A (#2022132)
Sunhee Lee, PhD – *Mycobacterium tuberculosis* (strains V9124, H37Rv, CDC1551, Beijing/W, Erdman); NIH Guidelines: D1, D2, D4 (#2023083)
Junki Maruyama, PhD and Slobodan Paessler, DVM, PhD – Sin Nombre, Andes, Puumala, and Seoul hantaviruses; NIH Guidelines: D2, D3, D4, E1 (#2023084)
Vladimir Motin, PhD – *Yersinia pestis* (CO92, KIM, Nepal 516, Pestoides F, ZE94-2122, PB6, Harbin 35, P.Exu2); NIH Guidelines: D1, D2, D4 (#2023085)

Amendment: Biological Agents and rDNA/RNA NOUs – Conditions Met

Jun-Ho La, DVM, PhD – Adeno-associated viral vectors (AAV1, AAV2, AAV5, AAV9, AAVrg, and AAV-PHP.S); NIH Guidelines: D4 (#2023056)

NOU Transfer – Conditions Met

Tatiana Nanovskaya, PhD – Human and NHP Products (#2022032)

NOU Inactivation

Dennis Bente, DVM, PhD – Venezuelan equine encephalitis virus replicon system based on strain TC83; NIH Guidelines: D4, E2 (#2018097) – NOU expired
Dennis Bente, DMV, PhD – Wild type and recombinant myxomavirus (Lausanne strain); NIH Guidelines: D4, E1, E2, E3 (#2018098) – NOU expired
Kelly Dineley, PhD – Adeno-associated virus (AAV); NIH Guidelines: D1, D2, D4 (#2018101) – NOU expired
Kelly Dineley, PhD – Attenuated rabies virus (ARV)-SADΔG-EGFP; NIH Guidelines: D1, D2 (#2018102) – NOU expired

Eliseo Eugenin, PhD – Human immunodeficiency virus (HIV) (ADA, JR-CSF, 92UG021); NIH Guidelines: N/A (#2018083) – NOU expired
Eliseo Eugenin, PhD – Human and NHP products (#2018094) – NOU expired
Eliseo Eugenin, PhD – Human and NHP products (#2018095) – NOU expired
Eliseo Eugenin, PhD – Human and NHP products (#2018096) – NOU expired

IV. DISCUSSION

NOUs for PIs that do not have Access to a Facility

This relates to an NOU with work at BSL3 and ABSL3. When the NOU was approved, the PI proposed that animal work would be performed by members of ARC. In the time since, the PI's lab staff have started transitioning to obtain ABSL3 training to perform the animal work. The issue is that the PI does not have access to the ABSL3.

Historically, Lab Directors and Biosafety have maintained that if a PI does not have access to a containment facility, then their personnel are not permitted access to that facility. This is due to facility manuals and emergency response procedures which mandate that the PI must be knowledgeable regarding facility specific operations and procedures in order to provide personnel oversight, maintain responsibility for personnel and be able to provide guidance to their personnel in the case of an emergency.

Recommended options:

- Require the PI to obtain independent access to the facility by completing the necessary training and containment PI mentorship under a currently approved Containment PI.
- Require the PI to find a Co-PI who is willing to oversee their staff while working in this facility (including adding that PI as a Co-PI to the relevant NOUs).

The IBC discussed the following:

- An IBC member noted that in addition to the PI not having access, the lab staff don't have mentors. While ARC can train them on animal work, having a member of ARC as their mentor would result in an incomplete mentorship, as they cannot train on the benchtop work that is specific to the NOU.
- Two of the PI's lab staff have been persistent in asking to continue through the process to obtain access to ABSL3.
- When this PI moved from BSL4 to also work at BSL3, they were required to complete BSL3 training so that their lab staff could work in BSL3, which the PI underwent and completed. This would be a similar situation.
- One IBC member noted that they strongly support the current policies for the PI obtain access to the facility, or the PI find a Co-PI who can be responsible for training, mentoring, and supervising the lab staff in this facility.
    - Another IBC member agreed.
- This PI has two NOUs that include work at ABSL3 and would be affected by this decision.

The IBC **approved** that the PI must either:

- Obtain independent access to the ABSL3 following the entity's policies and procedures, or
- Find a Co-PI with independent access to the ABSL3 who will train, mentor, and supervise their lab staff, and add them as a Co-PI to the following NOUs:
    - NOU #[redacted] (SARS-CoV-2)
    - NOU #[redacted] (Rift Valley fever virus)

FSAP Inspection Summary

An update on the results of the FSAP inspection was provided by Department of Biosafety. The on-site inspection occurred in July. A document review occurred in August/September. The report from the

document review has not yet been sent to UTMB. FSAP has informed UTMB that moving forward, they will only perform unannounced on-site inspections.

Human Products NOU for Clinical Diagnostic Labs
Currently, the IBC requires that clinical diagnostic labs obtain NOUs for human products. The Department of Biosafety is asking that the IBC remove this requirement. The NOU applications are built around the research being performed, which is not applicable to clinical diagnostic labs. There are no guidelines that state this is necessary for diagnostic labs. This would affect a couple of NOUs that are clearly clinical diagnostic, and possibly a few others where it is less clear if they are solely for diagnostics. This would not affect clinical research, which would continue to require an NOU.

The IBC discussed the following:

- This would not affect lab inspections, which would still be performed annually.
- An IBC member noted that every health care institution has a clinical lab that is not overseen by an IBC. There are many regulations that govern these entities. We should not over-regulate our clinical labs simply because they are attached to a hospital within a research university.
- An IBC member noted that an NOU is good for these labs. Traditionally, CLIA had no biosafety requirements and their safety programs were very basic.
- The risks are very different in a clinical diagnostic lab, where personnel might streak a sample for isolation or extract DNA for PCR, compared to a research lab, where personnel might grow liters of pathogen.

The IBC asked for a summary of the NOUs in question, to be discussed further at a subsequent meeting. In addition, if the IBC continues to require that they have an NOU, a different NOU application that better captures the work they perform should be developed.

SciShield Introduction
The Department of Biosafety introduced the new online platform, SciShield. DOB will use this for laboratory personnel management, biosafety lab inspections, training and training records, and tracking HEPA-filtered equipment. A large amount of information has already been input into the system, including laboratories and training records.

Online trainings that DOB has oversight over have been migrated to this system from Blackboard and UTMB Learn. In addition, a PI will be able to see the trainings that personnel in their laboratory have completed.

This system is live now. However, DOB is planning to assist PIs with registering their Laboratory throughout this fiscal year as DOB performs their annual lab inspection.

FY23 Activity of the IBC and Lab Inspection Report
An overview of the activity of the IBC and the top 10 lab inspection deficiencies for the fiscal year were presented. There were five PIs who, during the lab inspection, were performing work without an NOU. Of these five PIs, one left UTMB, two submitted NOUs that were approved, and one submitted an NOU for human products that is undergoing review. The last PI wasn't actively working with human products and DOB is following up with that PI to see if anything has changed.

Request for Information from Office of Science and Technology Policy
OSTP sent out a request for information regarding possible changes to the policies governing Dual Use Research of Concern (DURC) and Pathogens of Pandemic Potential Care and Oversight (P3CO). A subcommittee met twice to discuss and assemble a response. That response will be sent to the members of

the IBC. Any comments or suggestions from the IBC should be provided back to the IBC Administrator expeditiously, as the deadline for submission is October 16.

Overview of Proposed Changes to NIH Guidelines

The NIH is proposing changes to the NIH *Guidelines for Research Involving Recombinant or Synthetic Nucleic Acid Molecules* (NIH Guidelines). These changes largely add guidance on research with gene drives. DOB has assembled a response, which currently includes a strong objection to changes made in Section III-E-1, to include the use of transgenic rodents as falling under the NIH Guidelines, without a risk assessment or justification. The drafted response will be sent out to the members of the IBC. Any comments or suggestions from the IBC should be provided back to the IBC Administrator rapidly, as the deadline for submission is October 10.

Informal Meeting Format Poll

The question of the IBC's meeting format has been raised since the IBC started meeting virtually during the pandemic. An informal poll was conducted in August and the results were most in favor of virtual (9 votes) and hybrid (7 votes) meeting formats.

The IBC had one or two hybrid meetings that suffered from the A/V setup in the conference room that was used. If a hybrid meeting is chosen, a new location with built-in A/V would be needed. There are conference rooms, for example in the Health Education Center, that have these built-in technologies.

The virtual meetings seem to have been going well, with no reports of members being kicked off or not heard. Attendance at the virtual meetings has been very good; when the meetings were in-person, there would be 1-3 meetings per year that were cancelled due to lack of quorum. The ability to attend meetings even while out of town has been very helpful.

An IBC member asked whether NIH has objected to the fully virtual format. No one has heard from NIH regarding this.

No members noted any difficulties with voting in opposition to a motion or abstaining on a vote. For now, the IBC will continue to meet virtually, but will address this question again in another year to see if preferences have changed.

V. ADJOURNMENT

The meeting was adjourned at 3:47 PM.

[redacted]

[redacted]

utmb Health

Institutional Biosafety Committee
301 University Blvd.
Galveston, TX 77555-1111
O 409.772.1781

MINUTES
November 3, 2023

The Institutional Biosafety Committee met virtually on Friday, November 3, 2023 using Microsoft Teams. The meeting was called to order at 2:03 PM and was chaired by [redacted] and [redacted]

MEMBERS PRESENT

[redacted]

MEMBERS ABSENT

[redacted]

CONSULTANTS

[redacted]

GUESTS

[redacted]

I. APPROVAL OF MINUTES

The minutes of the October 6, 2023 meeting were approved.
1 abstained.

II. NEW BUSINESS

Human and Nonhuman Primate Products NOUs approved administratively

Nigel Bourne, PhD

Dr. Bourne submitted a renewal NOU for Human and Nonhuman Primate Products to work at BSL2 with **human established cells (HeLa, Huh-7, A549) and NHP established cells (Vero).**

Peter Melby, MD

Dr. Melby submitted a renewal NOU for Human and Nonhuman Primate Products to work at BSL2 with **human blood, commercial cells (THP-1, HEP G2, macrophages).**

Amendment: Human and Nonhuman Primate Products NOUs approved administratively

Shannan Rossi, PhD

Dr. Rossi submitted an amendment to her work with Human and Nonhuman Primate Products **to add work with human commercial and primary cells (Leydig cells) and NHP commercial cells (LLCM).**

Vaccine Clinical Trial NOUs for review

Richard Rupp, MD

Dr. Rupp submitted a new NOU for Vaccine Clinical Trial to work with **Pfizer-BioNTech COVID-19 vaccine [BNT162b2 (Omi XBB.1.5)] (doses up to 30 mcg), Quadrivalent influenza modRNA vaccine (qIRV)/BNT162b2 (Omi XBB.1.5) (doses up to 60 mcg), Trivalent influenza modRNA vaccine (tIRV)/BNT162b2 (Omi XBB.1.5) (doses up to 45 mcg) (total combination doses of up to 90 mcg); NIH Guidelines: C1.** This NOU was **approved.**

Biological Agents and rDNA/RNA NOUs for review

Antonella Casola, PhD

Dr. Casola submitted a renewal NOU for Biological Agents and rDNA/RNA to work at BSL2 with **human metapneumovirus and respiratory syncytial virus (RSV); NIH Guidelines: D3, D4.** This NOU was **approved with the following conditions:**

- Section I.6, define "AOE" on first use.
- Section I.8.a.iii, add units of concentration.
- Section I.8.a.iii, confirm this is the maximum concentration at which this agent will be handled.
- Section I.8.c.ii, also list Cavicide and 10% bleach, and provide contact time, as these are listed in Section I.B.7 as disinfectants.
- Section I.9.a is answered No, but RNA extraction, fluorescent microscopy, cell lysates or cell fractions are described in Section I.6. If these processes will involve inactivating agents or samples, please answer Yes here and upload SOP(s) in Section I.9.d.ii below.
- Section I.B.3, clarify if surgical mask is worn when working with virus in vitro, with infected animals, or both, and provide an explanation for why.
- Section I.B.7, uncheck Other and delete 70% ethanol, as this is not an approved primary disinfectant at UTMB.
- Section I.B.8, delete "FCCS will be utilized" and instead state "N/A".
- Section II.3, briefly describe the previously generated recombinant viruses, as this application is reviewed as a stand-alone document, without the previous NOU application.
- Section II.3, briefly describe the work that will be performed with recombinant virus(es).
- Section III.4, under Dose Per Animal: Maximum Concentration, only list the maximum dose that may be administered.
- Section V.1.B, under Proposed Role on this NOU, if personnel will not be performing animal work, uncheck "In vivo".
- Section V.1.B, under Years of Experience, provide biosafety level at which experience was obtained (e.g., 10 years at BSL2).
- Section V.1.B, under Animal Experience, please remove personnel's name where listed.
- Section V.1.B, under Animal Experience, please check the information listed for the first two personnel, as they appear to be duplicates.

Petr Leiman, PhD

Dr. Leiman submitted a renewal NOU for Biological Agents and rDNA/RNA to work at BSL2 with ***Listeria monocytogenes*** **and** ***Listeria ivanovii*****; NIH Guidelines: N/A.** This NOU was **approved with the following conditions:**

- Section I.8.f, in the second sentence, correct "*Listeria ivanovii monocytogenes*" to "*Listeria monocytogenes*".

- Section I.8.f, expand on pathogenicity of *Listeria monocytogenes*.
- Section V.1.B, under Agents, also list any experience personnel have with bacteriophage.

Nikos Vasilakis, PhD

Dr. Vasilakis submitted a renewal NOU for Biological Agents and rDNA/RNA to work at BSL2 with ***Rickettsia parkeri* (Atlantic Rainforest-like); NIH Guidelines: N/A.** This NOU was **approved with the following conditions:**

- Section I.8.c.ii, provide a reference for disinfection using MicroChem.
- Section III.4, provide a concentration that is not in LD50.
- Section III.5, move the last three sentences (starting with "Liver, spleen, kidney …") to Section I.6.
- Section V.1.A, spell out *Rickettsia* and *Propionibacterium* on first use.
- Section V.1.A, move experience with HUVECs to lab techniques.
- Section V.1.A, remove names of institutions.

1 recused.

Jun Yang, PhD

Dr. Yang submitted a renewal NOU for Biological Agents and rDNA/RNA to work at BSL2 with **respiratory syncytial virus (RSV); NIH Guidelines: N/A.** This NOU was **approved with the following conditions:**

- Section I.6, where lentiviral vectors are described in the second paragraph, reference NOU #2023101.
- Section I.6, in the fifth sentence of the third paragraph (which starts "At different time points"), replace "rhinovirus" with "RSV".
- Section I.8.c.ii, delete reference to 70% alcohol.
- Section I.9.b, also select to work at a lower biosafety level.
- Section I.A.2.b.iii, delete approval and expiration dates.
- Section I.B.5, answer Yes, select Homogenizer, and list the type of homogenizer in the text box.
- Section V.1.B, under Animal and Arthropod Experience, correct "ouse" to "mouse".
- Section V.1.B, under Agents, describe all agents that personnel have experience handling.
- Section V.1.B, under Laboratory Techniques, provide more detail for all personnel.

Jun Yang, PhD

Dr. Yang submitted a renewal NOU for Biological Agents and rDNA/RNA to work at BSL2 with **rhinovirus; NIH Guidelines: N/A.** This NOU was **approved with the following conditions:**

- Section I.6, where viral based vectors are described in the third paragraph, reference NOUs #2023100 and #2023101.
- Section I.8.c.ii, delete reference to 70% alcohol.
- Section I.9.b, also select to work at a lower biosafety level.
- Section I.A.2.b.iii, delete approval and expiration dates.
- Section I.B.5, answer Yes, select Homogenizer, and list the type of homogenizer in the text box.
- Section V.1.B, under Agents, describe all agents that personnel have experience handling.
- Section V.1.B, under Laboratory Techniques, provide more detail for all personnel.

Jun Yang, PhD

Dr. Yang submitted a renewal NOU for Biological Agents and rDNA/RNA to work at BSL2 with **adenoviral vectors; NIH Guidelines: D2, D3.** This NOU was **approved with the following conditions:**

- Section I.6, where infection with respiratory viruses is described, specify that cells will be infected with respiratory syncytial virus (NOU #2023098) or rhinovirus (NOU #2023099) or.

- Section I.6, describe the work that will be performed using a homogenizer. If a homogenizer will not be used with the adenoviral vector, unselect in Section I.B.5.
- Section I.8.c.i, expand on the stability of agent.
- Section I.8.c.ii, delete reference to 70% alcohol.
- Section I.8.g, delete text and instead provide infectious dose for replication-deficient adenoviral vectors in humans.
- Section I.8.h, delete text and instead summarize information on infectious dose in relevant animal models for replication-deficient adenoviral vectors.
- Section I.A.2.b.iii, delete approval and expiration dates.
- Section II.3, specify the genes that will be targeted with knockdown or siRNA.
- Section II.3, clarify when full-length genes versus synthesized fragments will be cloned into adenoviral vectors, as both are described in Section II.6.c.
- Section II.7.k, provide information on off-target effects.
- Section V.1.B, under Laboratory Techniques, provide more detail for all personnel.
- Section V.1.B, under Agents, describe all agents that personnel have experience handling.

Jun Yang, PhD

Dr. Yang submitted a renewal NOU for Biological Agents and rDNA/RNA to work at BSL2 with **lentiviral vectors; NIH Guidelines: D2, D3.** This NOU was **approved with the following conditions:**

- Section I.6, where infection with respiratory viruses is described, specify that cells will be infected with respiratory syncytial virus (NOU #2023098) or rhinovirus (NOU #2023099).
- Section I.6, describe the work that will be performed using a homogenizer. If a homogenizer will not be used with the lentiviral vector, unselect in Section I.B.5.
- Section I.8.c.i, correct "is" to "are".
- Section I.8.c.i, expand on the stability of agent.
- Section I.8.c.ii, delete reference to 70% alcohol.
- Section I.8.h, delete text and instead summarize information on infectious dose in relevant animal models for replication-deficient lentiviral vectors.
- Section I.A.2.b.iii, delete approval and expiration dates.
- Section II.3, specify the genes that will be targeted with knockdown or siRNA.
- Section II.7.k, provide information on off-target effects.
- Section V.1.B, under Laboratory Techniques, provide more detail for all personnel.
- Section V.1.B, under Agents, describe all agents that personnel have experience handling.

BSL3/4 CDC/USDA Regulated Agents NOUs for review

Maureen Laroche, PhD and Donald Bouyer, PhD (previously tabled at September 2023 IBC meeting)

Dr. Laroche submitted an NOU for BSL3/4 CDC/USDA Regulated Agents **to work at BSL2 (*Rickettsia amblyommatis*) and BSL3 (*R. amblyommatis* and *R. rickettsii*); NIH Guidelines: N/A.** This NOU was **approved with the following conditions:**

- Section I.4, upload the health assessment performed by ARC veterinarians to determine if canids are healthy for removal from containment. If this is an item that will be assessed by the IACUC, state that in Section III.5 and do not upload an SOP.
- Section I.4, upload a protocol for monitoring the health of canids in isolation. If this is a protocol that will be assessed by the IACUC, state that in Section III.5 and do not upload an SOP.
- Section III.5, state whether clearance of *Rickettsia rickettsii* with doxycycline is expected to result in resolution of all disease symptoms.
- SOP for removal of canids from biocontainment, specify the expected treatment regimen of doxycycline use.

1 recused.

The IBC discussed the following:

- Who is the UTMB prototyping lab?
- Are protocols in place to assess the canids after treatment?
- Will treatment eliminate infection but still leave canid with disease?
- A summary of the discussion from the subcommittee meeting was provided.
    - Doxycycline is very effective at clearing this agent from canids.
    - When a domestic canid is diagnosed with this agent at a veterinary clinic, it is treated with antibiotics and allowed to return home.
    - Would approval of this NOU result in additional requests for removal of animals from containment?
    - If the IBC approves this NOU, it will be taken to the Community Liaison Committee for their input.
- Would approving this NOU result in more PIs asking to bring requests to remove animals from containment?
    - Future requests would need to meet the same standards. This project has stringent requirements (i.e., no other animals with agents in the space) that would be difficult for future requests to replicate.
    - How would we draw the line on these requests?
    - Developing a policy to allow animals to be adopted would need to fulfill all scientific and safety requirements.
    - Such a policy already exists, but [redacted]
- This project will also be discussed with the community liaison committee.
- The canids would go through a third party for adoption, which anonymizes the process.

Chien-Te Tseng, PhD

Dr. Tseng submitted a renewal NOU for BSL3/4 CDC/USDA Regulated Agents to work at BSL3 with **SARS-CoV (mouse adapted strain MA-15, Urbani); NIH Guidelines: D3, D4.** This NOU was **approved with the following conditions:**

- Section I.8.a.iii, confirm this is the maximum concentration at which this agent will be cultured or handled.

Amendment: BSL3/4 CDC/USDA Regulated Agents NOUs for review

Alexander Bukreyev, PhD

Dr. Burkeyev submitted an amendment to his work with Ebola viruses **to add work with NHPs; NIH Guidelines: D1, D2, D3, D4.** This NOU was **approved with the following conditions:**

- Section II.24.a, answer No.
- Section III.2, under IACUC Approval Date, verify the date entered in the last row.
- Section III.4, under sampling for NHPs, unselect retro-orbital and saphenous bleeds.
- Section III.5, in the last sentence, remove delivery of compounds by IP route or provide scientific justification.

III. OLD BUSINESS

Biological Agents and rDNA/RNA NOUs – Conditions Met

Irma Cisneros, PhD and Slobodan Paessler, DVM, PhD – Venezuelan equine encephalitis virus (vaccine strain TC-83 and TC-83 luciferase); NIH Guidelines: D1, D2, D3, D4 (#2023053)

Hugues Fausther Bovendo, PhD – Enterovirus 68 (strains USA 2020-23335, USA/2018-23089, US/KY/14-18953, USA/TX/2001-23223) and enterovirus 71 (strains Tainan/4643/1998, USA/WA/2016-19522, USA/2018-23082); NIH Guidelines: D4 (#2023075)

Maria Giraldo, PhD – Filovirus minigenomes (Ebola and Marburg viruses); NIH Guidelines: D1, D2 (#2023089)
Balaji Krishnan, PhD – Adeno-associated viral vectors (AAV) (serotypes 2 and 5); NIH Guidelines: D4 (#2023086)
David Walker, MD – *Rickettsia parkeri* (Atlantic Rainforest-like); NIH Guidelines: D2 (#2023091)

BSL3/4 CDC/USDA Regulated Agents NOUs – Conditions Met
Gary Kobinger, PhD – Japanese encephalitis virus; NIH Guidelines: D1, D2 (#2023081)

Amendment: BSL3/4 CDC/USDA Regulated Agents NOUs – Conditions Met
Scott Weaver, PhD – Semliki Forest virus, Chikungunya virus, Western equine encephalitis virus, West Nile virus, St. Louis encephalitis virus, Everglades virus, Japanese encephalitis virus, yellow fever virus; NIH Guidelines: D1, D2, D3, D4 (#2021060)

IV. DISCUSSION

Clinical Diagnostic NOUs
Department of Biosafety is asking the IBC to no longer require human products NOUs for clinical diagnostic laboratories. There are at least three NOUs that this would apply to, and it would be implemented with future applications. The IBC's policy states that research involving human products requires an NOU. The clinical diagnostic labs only receive human samples, do not concentrate samples such that they would increase a titer, there is no recombinant work, and there is no research.

One reason a human products NOU is important is to ensure that all personnel handling human products have taken standard precautions training. The IHOP policy for Infection Control and Healthcare Epidemiology requires that all healthcare employees take standard precautions training.

This request would not include inactivating any clinical research human products NOUs. In addition, the clinical diagnostic laboratories would still be inspected annually for safety.

Many of these are CLIA approved labs. There is a new CDC-CLIA working group to put together biosafety recommendations. There may be more biosafety requirements for these types of laboratories in the future. This work doesn't seem to fall under the purview of the IBC.

The IBC **approved** inactivating the following NOUs and removing the requirement for human products NOUs for diagnostic clinical work in the future.

- Brandon Goodwin, MD – Dermatology clinical diagnostic (Application #2775)
- Jose Salazar, PhD, MLS(ASCP)cm – Teaching lab for hematology, chemistry, blood bank, immunology, urinalysis, microbiology, molecular biology, phlebotomy, parasitology, mycology, and other clinical lab methods (#2023002)
- Richard Wagner, MD – Dermatology cancer diagnostic testing (#2023070)

1 abstained.

BSL2 Incident
Department of Biosafety reported on an uncontained spill in a BSL2 laboratory. The agent was a risk group 2 coronavirus, which causes the common cold. The laboratorian appropriately informed their PI, a senior lab member, and DOB of the spill. The only incorrect thing that the laboratorians did was to not immediately leave the laboratory for 30 minutes (to allow droplets to settle and for air exchanges) before starting spill cleanup. Otherwise, they decontaminated the spill and notified properly. The laboratorians reported to Employee Health to document the potential exposure.

The laboratorians who assisted with the decontamination were retrained on BSL2 spill procedures. The laboratorian who spilled the agent will undergo BSL2 retraining with DOB.

A possible root cause for the failure to leave the laboratory is that some members of this laboratory also work in BSL3, where the spill procedures allow laboratorians to immediately start decontaminating an uncontaminated spill. That difference is permitted because all personnel in the BSL3 are already wearing respiratory protection and appropriate PPE.

An IBC member asked if spill procedures were posted in the laboratory. DOB confirmed that spill procedures were posted.

Request for Information
The Department of Biosafety informed the IBC that a request for information was made for two months of IBC minutes and the supporting documents supplied to NIH Office of Science Policy.

Inspection Finding
DOB performed a lab safety inspection last week where a laboratorian stated that they were working with a human cell line. The PI does not have an NOU for work with human products. Last year, this laboratory had the same finding (working with human cells without an NOU), but after the inspection stated that they weren't performing that work yet and would submit an NOU before starting work with human cell lines. The PI has an NOU for AAV.

Is the laboratory using the cell line to generate AAV? Yes.

DOB is requesting that the IBC administratively suspend the PI's AAV NOU until a human products NOU is approved. An administrative suspension can be reversed administratively and quickly, without further IBC involvement. The IBC would be informed in the Minutes.

The IBC **approved** suspending the adeno-associated viral vector NOU (# [redacted] until a human products NOU is submitted.

Movement and/or Transfer of BSCs without Decontamination
DOB holds the contract for BSC recertification outside of [redacted]. DOB is considering writing a policy for when a gas decontamination of the HEPA filter is required. Currently, that is performed based on a risk assessment. DOB wanted input from the IBC on factors to consider while writing such a policy.

Items the IBC discussed:

- If the BSC was used with infectious agents, it would be decontaminated.
- A surface decontamination of the cabinet is always performed.
- The manufacturer may have recommendations based on distance and if it is bumped while moving.
- The new contractor who is performing certifications may have different standards.
- OSHA fact sheets require certification after a move, so the certifier may require the HEPA be decontaminated.
    - Maybe only if they are going to change the HEPA or open the HEPA compartment.
- Could ask the manufacturer representatives to see what they recommend.
- Moving a BSC by elevator or between buildings would jostle a filter more than moving down a hallway.
- Would wrapping the cabinet to hold the HEPA filter in place be helpful?
- Get input from Biocontainment.

V. ADJOURNMENT

The meeting was adjourned at 4:12 PM.

[redacted]

[redacted]

[redacted]

utmb Health

Institutional Biosafety Committee
301 University Blvd.
Galveston, TX 77555-1111
O 409.772.1781

MINUTES
December 1, 2023

The Institutional Biosafety Committee met virtually on Friday, December 1, 2023 using Microsoft Teams. The meeting was called to order at 2:03 PM and was chaired by [redacted]

MEMBERS PRESENT

[redacted]

MEMBERS ABSENT

[redacted]

CONSULTANTS

[redacted]

GUESTS

[redacted]

I. APPROVAL OF MINUTES

The minutes of the November 3, 2023 meeting were approved.
2 abstained.

II. NEW BUSINESS

Human and Nonhuman Primate Products NOUs approved administratively

David Beasley, PhD

Dr. Beasley submitted a renewal NOU for Human and Nonhuman Primate Products to work at BSL2 and BSL3 with **human blood, serum, and commercial cell lines (HUVEC, HeLa, HEP G2, HMEC-1, HEK293, A549, K562) and NHP blood, serum, tissue, and commercial cell lines (Vero, Vero E6, LLC-MK2).**

Dennis Bente, PhD

Dr. Bente submitted a renewal NOU for Human and Nonhuman Primate Products to work at BSL2, BSL3, BSL3E, and BSL4 with **human blood, serum, tissue, and commercial cell lines (HEK293, HEP G2, HUVEC, macrophages, THP-1, HMEC-1, SW-13) and NHP commercial cell lines (Vero, Vero E6).**

Richard Rupp, MD
Dr. Rupp submitted a renewal NOU for Human and Nonhuman Primate Products to work at BSL2 with **human serum, blood, and body fluids.**

Amendment: Human and Nonhuman Primate Products NOUs approved administratively
Jason Comer, PhD
Dr. Comer submitted an amendment to his work with Human and Nonhuman Primate Products to add work with **human cornea and retina cells and NHP cornea and retina cells.**

Mark Endsley, PhD
Dr. Endsley submitted an amendment to his work with Human and Nonhuman Primate Products to add work with **additional human cells (CD34+ stem cells, mesenchymal stem cells, MRC-5).**

Thomas Geisbert, PhD
Dr. Geisbert submitted an amendment to his work with Human and Nonhuman Primate Products to add work with **additional human cell lines (A549, HBEC5i, HSAEpC, HBEpC, HTEpC, HNEpC, HPMEC, HPASMC, HMC3).**

Scott Weaver, PhD
Dr. Weaver submitted an amendment to his work with Human and Nonhuman Primate Products to add work with **human decidual, placental trophoblast, and chorion trophoblast cells.**

Biological Agents and rDNA/RNA NOUs for review
Cornelis Elferink, PhD
Dr. Elferink submitted a new NOU for Biological Agents and rDNA/RNA to work at BSL2 **with plasmid DNA; NIH Guidelines: D4.** This NOU was **approved with the following conditions:**

- Section I.8.c.ii, delete text and instead provide susceptibility to heat, Cavicide, and 10% bleach, including contact time.
- Section II.6.b, select BSL2, as the laboratories listed in Section II.4 are BSL2.
- Section II.18, answer No.
- Section III.2, provide IACUC protocol number and approval date or state that the protocol is pending.
- Section III.3, under Lab Equipment, confirm that a downdraft table will be used instead of a biosafety cabinet.
- Section III.4, under Sampling, select the sample types that will be collected.
- Section III.5, expand description to include how FGF21 will be measured (sampling, testing, etc.).
- Section III.10.c, specify if a cart will be used and how cages will be covered during transport.
- Section V.1.b, add the PI to the personnel table. If the PI will not perform any hands-on work, under Proposed Role, select "Supervisor".
- Section V.1.B, under Years of Experience, specify biosafety level at which experience was obtained for all personnel.
- Section V.1.B, under Agents, spell out TCDD.
- Section V.1.B, under Training at Other Institutions, remove name of institutions and instead list the training obtained.

Jochen Reiser, MD, PhD
Dr. Reiser submitted a new NOU for Biological Agents and rDNA/RNA to work at BSL2 with **adeno-associated virus (AAV, serotypes 2, 5, and 8); NIH Guidelines: D2, D4.** This NOU was **approved with the following conditions:**

- Section I.4, replace document about adenovirus with a pathogen safety datasheet (PSDS) for adeno-associated virus or adeno-associated viral vectors.
- Section I.6, clearly state that AAV will be purchased ready-to-use from a manufacturer and no propagation will be performed in the laboratory.
- Section I.7.b, answer Yes.
- Section I.7.c, answer Abortive.
- Section I.8.a.ii, delete text and instead provide the maximum number of containers handled or cultured at one time.
- Section I.8.a.ii, is agent abortive? Answer Yes.
- Section I.8.b, correct "ampulla of water" to "ampulla of Vater".
- Section I.8.b, expand justification to include procedures in place to minimize the risk of working outside of a BSC. Include whether a face shield can be worn by personnel during this procedure.
- Section I.B.6, unselect Other and delete text.
- Section II.3, also describe Cas9 and gRNA.
- Section II.7.f, delete text and answer AAV.
- Section III.4, under Route of Administration, also select tail vein injection, as this is described in Section III.5.
- Section III.4, under Sampling, select sampling methods, as Western blotting and immuno fluorescence staining is described in Section III.5.
- Section III.5, expand description of downstream analysis, including tissue collection and assays.
- Section III.9.b.i, answer Yes.
- Section V.1.B, under Agents, specify all experience personnel have with infectious agents.
- Section V.1.B, amend this NOU to add personnel before they begin working on this project.

Amendment: Biological Agents and rDNA/RNA NOUs for review
Thomas Geisbert, PhD
Dr. Geisbert submitted an amendment to his work with recombinant vesicular stomatitis virus (rVSV) (Indiana or New Jersey strain) vaccine vectors expressing proteins of Ebola virus, Marburg virus, Lassa virus, Junin virus, Machupo virus, Guanarito virus, Sabia virus, Lujo virus, Chapare virus, Rift Valley fever virus, Andes virus, Nipah virus, Hendra virus, Crimean-Congo hemorrhagic fever virus, Zika virus, HIVgag, SARS-CoV-1, SARS-CoV-2, MERS, or Kyasanur Forest virus **to add work with cell lines stably expressing a single protein from henipaviruses (F/H) or the glycoprotein of rVSV; NIH Guidelines: D1. D2, D3, D4.** This NOU amendment was **approved.**
1 recused.

Amendment: BSL3/4 CDC/USDA Regulated Agents NOUs for review
Chien-Te Tseng, PhD
Dr. Tseng submitted an amendment to his work with SARS-CoV-2 **to add concentration of higher amounts of virus; NIH Guidelines: D3, D4.** This NOU amendment was **approved with the following conditions:**

- Section I.6, clarify if SARS-CoV-2 will be inactivated before removal from containment for electron microscopy.
- Section I.6, clarify if a microscopy core will be used and identify which one.
- Section I.9, if SARS-CoV-2 will be inactivated for electron microscopy by an SOP not already listed here, add that inactivation SOP to this section.
- Section I.B.2, list type of PAPR that is worn.
- Section V.1.B, remove lab personnel who are no longer actively working on this NOU.

III. OLD BUSINESS

Biological Agents and rDNA/RNA NOUs – Conditions Met

Antonella Casola, PhD – Human metapneumovirus (hMPV) and respiratory syncytial virus (RSV); NIH Guidelines: D3, D4 (#2023095)

Alejandro Castellanos PhD – *Cryptosporidium parvum* and *C. hominis*; NIH Guidelines: D1, D2, D4 (#2023020)

Petr Leiman, PhD – *Listeria monocytogenes* and *Listeria ivanovii*; NIH Guidelines: N/A (#2023096)

Jun Yang, PhD – Respiratory syncytial virus (RSV); NIH Guidelines: N/A (#2023098)

Jun Yang, PhD – Rhinovirus; NIH Guidelines: N/A (#2023099)

Jun Yang, PhD – Adenoviral vectors; NIH Guidelines: D2, D3 (#2023100)

Jun Yang, PhD – Lentiviral vectors; NIH Guidelines: D2, D3 (#2023101)

BSL3/4 CDC/USDA Regulated Agents NOUs – Conditions Met

Rong Fang, PhD – BSL3 Non-Select Agent *Rickettsia* spp. (*Rickettsia africae*, *R. akari*, *R. australis*, *R. conorii*, *R. felis*, *R. parkeri*, *R. rhipicephali*, *R. rickettsii*, *R. typhi*, *Orientia tsutsugamushi*); NIH Guidelines: D4 (#2022123)

Amendment: BSL3/4 CDC/USDA Regulated Agents NOUs – Conditions Met

Alexander Bukreyev, PhD – Ebola virus; NIH Guidelines: D1, D2, D3, D4 (#2020120)

NOU Inactivation

Lee Jane Lu, PhD – Human and NHP Products (#2018107) – NOU expired

Slobodan Paessler, DVM, PhD – Human immunodeficiency virus; NIH Guidelines: N/A (#2018104) – NOU expired

Sanjeev Sahni, PhD - *Rickettsia parkeri*, *Rickettsia montanensis*, *Salmonella enterica*; NIH Guidelines: D1, D2, D4 (#2018109) – NOU expired

IV. DISCUSSION

ABSL2 Incident

There was an incident in an ABSL where mice were infected with *Cryptosporidium parvum* in an ABSL1 space instead of in an ABSL2 space. In addition, the mice were infected on a cage changing table instead of in a BSC. Typically, this PI's mice are placed in disposable caging in an ABSL2 upon arrival, but this time were instead placed in ABSL1 in normal caging. The incident was discovered during a PAM visit. The animals were moved to an ABSL2. The ABSL1 room was decontaminated with 6% H_2O_2.

DOB discussed the incident with the PI, their lab personnel, and the animal facility supervisor. The supervisor was new and didn't know that this PI's animals are to be placed in disposable caging in the ABSL2 upon arrival. The lab personnel was new and unfamiliar with BSCs and disposable caging.

What retraining is planned so that this doesn't occur again? DOB has not identified the future steps for retraining for these individuals, as the investigation was just completed. An IBC member requested that any retraining should be targeted to help this PI and trainee, not a blanket policy change for all UTMB personnel. If any sweeping changes will be enacted, this should be discussed with all stakeholders before implementation.

NIH Guidelines Annual Continuing Review

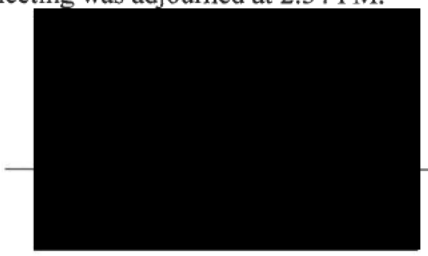
The Department of Biosafety presented the results of the FY2024 continuing review of the NIH Guidelines. DOB identified research PIs who have laboratory space and no active Bioagent NOUs. A total of 91 PIs were sent the webform. Of these, 73 attested that they do not perform work with recombinant or synthetic nucleic acids, and 18 stated that they do. Of the 18 that perform recombinant work, eight selected experiments from III-F (Exempt), and ten selected no experiments or some experiments from Sections III-D and III-E. DOB followed up with these ten PIs. For eight PIs, they either mistakenly selected work in

Sections III-D or III-E, responded for future work, or responded for work performed under another PI's NOUs.

For the last two PIs, DOB determined that the work requires an NOU. One PI submitted an NOU for that work, which was reviewed and approved by the IBC at this IBC meeting. The second PI performs work that falls under III-E, creation of transgenic rodents; this will be tracked by DOB to ensure the application is submitted and reviewed; the IBC will be notified if and when this NOU is approved.

V. ADJOURNMENT

The meeting was adjourned at 2:54 PM.



utmb Health

Institutional Biosafety Committee
301 University Blvd.
Galveston, TX 77555-1111
O 409.772.1781

MINUTES
January 5, 2024

The Institutional Biosafety Committee met virtually on Friday, January 5, 2024 using Microsoft Teams. The meeting was called to order at 2:01 PM and was chaired by [redacted]

MEMBERS PRESENT

[redacted]

MEMBERS ABSENT

[redacted]

CONSULTANTS

[redacted]

GUESTS

[redacted]

I. APPROVAL OF MINUTES

The minutes of the December 1, 2023 meeting were approved.

II. NEW BUSINESS

Inactivation SOPs – approved by the Inactivation Review Subcommittee

Jason Comer, PhD

Family/Genus: Arenaviridae

Inactivation Method(s): Gamma Irradiation

Sample Matrix: Liquid culture

Junki Maruyama, PhD

Family/Genus: Nairoviridae

Inactivation Method(s): Formalin Fixation of Animal Tissue for Histopathology and Immunohistochemistry staining

Sample Matrix: Tissue

Slobodan Paessler, DVM, PhD
Family/Genus: Nairoviridae
Inactivation Method(s): Formalin Fixation of Animal Tissue for Histopathology and Immunohistochemistry staining
Sample Matrix: Tissue

Chien-Te Kent Tseng, PhD
Family/Genus: Orthomyxoviridae
Inactivation Method(s): Inactivation using Gamma Irradiation
Sample Matrix: Liquid culture

Scott Weaver, PhD
Family/Genus: Togaviridae
Inactivation Method(s): Gamma irradiation
Sample Matrix: Serum

Human and Nonhuman Primate Products NOUs approved administratively
Antonella Casola, PhD
Dr. Casola submitted a renewal NOU for Human and Nonhuman Primate Products to work at BSL2 with **human commercial cell lines (A549, HEK293, Hep-2, small airway epithelial cells, bronchial epithelial cells) and NHP commercial cell lines (LLC-MK2, Vero).**

Biological Agents and rDNA/RNA NOUs for review
Shinji Makino, PhD
Dr. Makino submitted a new NOU for Biological Agents and rDNA/RNA to work at BSL2 with **SARS-CoV-2 delORF3678; NIH Guidelines: D1, D2, D3.** This NOU was **approved with the following administrative correction:**

- Section II.3.b, add OSP to NIH.

Work with this agent at BSL2 may not commence until approval from NIH Office of Science Policy (OSP) to decrease the level of containment is obtained.

Maria Micci, PhD
Dr. Micci submitted a new NOU for Biological Agents and rDNA/RNA to work at BSL2 with **VSV-G pseudotyped Moloney murine leukemia viral (MMLV) vector; NIH Guidelines: D4.** This NOU was **approved with the following conditions:**

- Section I.3, change bioagent name to VSV-G pseudotyped MMLV vector.
- Section I.6, expand on downstream assays after administration of agent to animals.
- Section I.7.c.i, unselect Yes and delete explanation.
- Section I.7.c.ii, unselect Yes and delete explanation.
- Section I.7.e, unselect No.
- Section I.8.b, expand justification for performing stereotaxic injection of agent outside of a BSC. Include any precautions that will be used to minimize the risk of work working with the agent outside containment.
- Section III.3, under Animal Facility, also select ABSL1.
- Section III.4, under Sampling, unselect NA.
- Section III.5, state that after administration of agent, animals will be housed with ABSL2 practices for 72 hours and then may be housed at ABSL1.

Brendan Prideaux, PhD

Dr. Prideaux submitted a new NOU for Biological Agents and rDNA/RNA to work at BSL2 with ***Mycobacterium avium*** **and** ***Cryptococcus neoformans*****; NIH Guidelines: N/A.** This NOU was **approved with the following conditions:**

- Section I.8.g, in both instances, rephrase "there is the potential that the dose could cause infection" to "there is the potential that the amount of agent in the tissue could cause infection".

Xuping Xie, PhD

Dr. Xie submitted a new NOU for Biological Agents and rDNA/RNA to work at BSL2 with **enteroviruses D68, D70, and A71; NIH Guidelines: D1, D2, D3.** This NOU was **approved with the following conditions:**

- Section I.9.d.ii, Inactivation SOPs, the first SOP (Inactivation SOP for immunostaining) references three methods that can be used to inactivate the virus, but only one method is described. Correct and re-upload Inactivation SOPs.
- Section II.8.d, answer Yes and provide an explanation in the text box.
- Section II.15.d is answered Yes, but use of *E. coli* to express proteins is not described in the NOU. Either answer No to Section II.15.d or describe this work in Sections I.6 and II.3.
- Section II.26, answer No.
- Section II.31, answer No.

Xuping Xie, PhD

Dr. Xie submitted a new NOU for Biological Agents and rDNA/RNA to work at BSL2 with **human coronaviruses (HCoV) 229E, OC43, NL63, and HKU1; NIH Guidelines: D1, D2, D3, D4.** This NOU was **approved with the following conditions:**

- Permit Process Question, provide a title that reflects the project, instead of solely the agent.
- Section I.6, describe how mouse-adapted strains will be generated.
- Section I.6, expand on the goal of work with mouse-adapted strains of agent.
- Section I.9.c.ii, delete inactivation SOPs and instead upload approval letters from Inactivation SOP Subcommittee.
- Section I.A.1.a, answer No.
- Section I.A.1.d, answer No.
- Section V.1.B, under Training at Other Institutions, delete the name of all institutions and provide only the training obtained.

Xuping Xie, PhD

Dr. Xie submitted a new NOU for Biological Agents and rDNA/RNA to work at BSL2 with **herpes simplex virus 1 (HSV-1, human alphaherpesvirus 1); NIH Guidelines: N/A.** This NOU was **approved with the following conditions:**

- Permit Process Question, provide a title that reflects the project, instead of solely the agent.
- Section I.9.d.ii, Inactivation SOPs, the first SOP (Inactivation SOP for immunostaining) references three methods that can be used to inactivate the virus, but only one method is described. Correct and re-upload Inactivation SOPs.

Amendment: Biological Agents and rDNA/RNA NOUs for review

Tetsuro Ikegami, PhD

Dr. Ikegami submitted an amendment to his work with Risk Group 2 Bunyaviruses (Rift Valley fever virus [MP-12 strain and delNSs-delNSm-ZH501 strain], Punta Toro virus [Adames strain and Balliet strain], Toscana virus, Sandfly fever Sicilian virus, Icoaraci virus, Frijoles virus, Arumowot virus, Bunyamvera virus, La Crosse virus, Lone Star virus, Prospect Hill virus, Oropouche virus, Iquitos virus, Alenquer virus,

Oriximina virus) **to add animal studies with wildtype Oropouche virus; NIH Guidelines: D1, D2, D3, D4.** This NOU amendment was **approved with the following conditions:**

- Section III.2, under Category, select Animal for all rows.
- Section III.2, provide IACUC approval date or state Pending.
- Section V.1.B, under Training at Other Institutions, delete the name of all institutions and provide only the training obtained.

1 recused.

Amendment: BSL3/4 CDC/USDA Regulated Agents NOUs for review

Alexander Bukreyev, PhD

Dr. Bukreyev submitted an amendment to his work with SARS-CoV-2 **to add a Co-PI; NIH Guidelines: D1, D2, D3, E1.** This NOU amendment was **approved with the following conditions:**

- Section I.3, under Strains or Generation, delete text and instead list the strain(s) of agent used.
- Section I.6, update the statement that all animal work will be performed by ARC staff to reflect any animal work that will be performed by lab personnel.
- Section III.2, update IACUC Protocol number and provide approval dates.
- Section III.5 states that all animal work will be performed by ARC. Update description to delineate animal work that may be performed by lab personnel, by ARC, or by both.
- Section V.1.A, if non-ARC personnel will work with ferrets, provide experience with this animal model.

Vineet Menachery, PhD

Dr. Menachery submitted an amendment to his work with SARS-CoV-2 **to increase the amount of agent grown; NIH Guidelines: D1, D2, D3, D4.** This NOU amendment was **approved with the following conditions:**

- Section I.6, list NOU number for bat coronavirus (CoV) infectious clone system.
- Section I.8.f, update information on agent pathogenicity.
- Section I.8.g, update information on agent infectious dose.
- Section I.8.h, answer Yes.
- Section II.12.a, if bat CoV will be used as a backbone, also list here and provide NOU number.
- Section II.15.b, if bat CoV-related plasmids will be used, also list here and provide NOU number.
- Section II.15.d is answered Yes, but use of *E. coli* to express proteins is not described in the NOU. Either answer No to Section II.15.d or describe this work in Section II.3.
- Section II.26, answer No.
- Section II.31, answer No.
- Section III.2, provide IACUC protocol number and approval date.
- Section V.1.A, update table to remove personnel no longer working on this NOU.

1 recused.

Response to Conditions: Biological Agents and rDNA/RNA NOUs for review

Jochen Reiser, MD, PhD

Dr. Reiser submitted a response to conditions to his work with **adeno-associated viral vector (serotypes 2, 5, and 8); NIH Guidelines: D2, D4.** This NOU was **approved.**

III. OLD BUSINESS

Biological Agents and rDNA/RNA NOUs – Conditions Met

Nigel Bourne, PhD – Dengue virus (serotypes 1, 2, 3, and 4) and yellow fever virus vaccine strain 17D; NIH Guidelines: D3, D4 (#2023088)

Amendment: BSL3/4 CDC/USDA Regulated Agents NOUs – Conditions Met
Chien-Te Kent Tseng, PhD – SARS-CoV-2; NIH Guidelines: D3, D4 (#2020013)

NOU Inactivation
Slobodan Paessler, DVM, PhD – Lentiviral vector; NIH Guidelines: D1, D3 (#2018126) – NOU expired
Slobodan Paessler, DVM, PhD – ML29-Mopeia/Lassa reassortant virus; NIH Guidelines: D2, D3, D4, E1 (#2018136) – NOU expired
Ravi Radhakrishnan, PhD – Human Products (#2018134) – NOU expired
Bing Tian, PhD – Rhinovirus 16 and adenovirus; NIH Guidelines: D1, D3, D4 (#2018052) – NOU expired
Bing Tian, PhD – Respiratory syncytial virus, lentiviral and adenoviral vectors; NIH Guidelines: D1, D3, D4 (#2018053) – NOU expired

IV. DISCUSSION

Meeting Guest

[redacted] a new faculty member at UTMB in the Department of Bioethics and Health Humanities, attended the meeting. His interests are in science policy and governance of science and technology. His previous research focused on the ethical dimensions of synthetic biology and technologies to develop biocontained organisms.

Electron Microscopy Core SOPs
The Department of Biosafety proposed a change to the NOU application. Previously, when an applicant described work with the Cryo EM Core, they were required to submit an amendment stating the agent and concentration and attesting that they have discussed with work with the Core manager. As the Cryo EM Core has its own facility manual that is reviewed annually, DOB is recommending that this amendment process is removed and instead a question is added to the NOU application asking if the Core will be used.

InfoEd and SciShield updates
DOB provided an update on the plan to move NOU applications from EHS Assistant to InfoEd. DOB attended two implementation meetings in September and October, but meetings have been cancelled since. DOB's understanding is that UTMB and InfoEd are renegotiating the contract for this module.

In addition, automated reminder emails are about to be turned on for SciShield. These will include emails to PIs to set up their laboratory in SciShield and emails to PIs and lab personnel to take required biosafety trainings.

V. ADJOURNMENT

The meeting was adjourned at 3:20 PM.

[redacted]

[redacted]

utmb Health

Institutional Biosafety Committee
301 University Blvd.
Galveston, TX 77555-1111
O 409.772.1781

MINUTES
February 2, 2024

The Institutional Biosafety Committee met virtually on Friday, February 2, 2024 using Microsoft Teams. The meeting was called to order at 2:00 PM and was chaired by [redacted]

MEMBERS PRESENT

[redacted]

MEMBERS ABSENT

[redacted]

CONSULTANTS

[redacted]

GUESTS

[redacted]

I. APPROVAL OF MINUTES

The minutes of the January 5, 2024 meeting were approved.

II. NEW BUSINESS

Request to Lower Biosafety Level – approved by NIH OSP
Shinji Makino, PhD

Dr. Makino submitted a request to NIH OSP to lower the biosafety level of his work with **SARS-CoV-2 delORF3678 to BSL2; NIH Guidelines: D1, D2, D3.**

Amendment: Biological Agents and rDNA/RNA NOUs – approved by eVote
Shannan Rossi, PhD

Dr. Rossi submitted an amendment to her work with BSL2 Viruses and Arboviruses (Dengue (serotypes 1-4), CHIK 181Clone25, Zika, Mayaro, Ilheus, Ross river, VSV (attenuated), VSV vaccine vector, Modoc, Yellow fever vaccine (17D), Sindbis, Una and cDNA infectious clones, VEEV vaccine TC-83 and V3526, O'Nyong-Nyong, and Rio Bravo viruses) **to add work with nanoparticle and mRNA-VLP vaccines; NIH Guidelines: D1, D2, D3, D4.**

Amendment: BSL3/4 CDC/USDA Regulated Agent NOUs – approved by eVote

Alexander Freiberg, PhD

Dr. Freiberg submitted an amendment to his work with select agent flavivirises (Far-eastern tick-borne encephalitis, Kyasanur Forest disease, Omsk hemorrhagic fever) **to add work with NHPs; NIH Guidelines: D2, D3, D4.**

Alexander Freiberg, PhD

Dr. Freiberg submitted an amendment to his work with Alkhumra and Central European encephalitis viruses **to add work with NHPs; NIH Guidelines: N/A.**

Amendment: Human and Nonhuman Primate Products NOUs approved administratively

Amina El Ayadi, PhD

Dr. El Ayadi submitted an amendment to her NOU for Human and Nonhuman Primate Products to add work with **human body fluids.**

NOU Transfer for review

Jason Comer, PhD to David Beasley, PhD

Dr. Comer submitted a request to transfer the following NOUs to Dr. Beasley:

- Chikungunya virus (#2020121)
- Lassa Virus GPC and NP mRNA (#2022017)
- SARS-CoV-2 (#2022044)
- Tamiami mammarenavirus (TAMV), Lymphocytic choriomeningitis virus (Armstrong, Clone 12, Traub, Pasteur, and other RG2 strains), Tacaribe mammarenavirus (TCRV), Pichinde mammarenavirus (PICV/PICHV), Parana mammarenavirus (PARV), Merino walk mammarenavirus (MWV), Ippy mammarenavirus (IPPYV), Cupixi mammarenavirus (CPXV), ML29-Mopeia/Lassa reassortant virus, Junin virus (vaccine strain Candid #1), Amapari mammarenavirus (AMAV), and genetic material from filoviruses, arenaviruses, henipavirus, bunyavirus, coronavirus, flavivirus, alphavirus (#2022072)
- Mopeia mammarenavirus (MOPV), Lymphocytic choriomeningitis virus (non-neurotropic and neurotropic strains), ML29-Mopeia/Lassa reassortant virus, Flexal virus, Allpahuayo mammarenavirus (ALLPV), White Water Arroyo mammarenavirus (WWAV), Catarina mammarenavirus (CTNV), Bear Canyon mammarenavirus (BRCV/BCNV), Mobala mammarenavirus (MOBV), Oliveros mammarenavirus, Pirital mammarenavirus (PIRV) (#2022077)
- Human and NHP products (#2022081)

This NOU transfer request was **approved with the following conditions for all NOUs:**

- Section III.2, update IACUC Protocol # and Approval Date.
- Section V.1, update personnel and ensure new PI is listed.

Biological Agents and rDNA/RNA NOUs for review

Thomas Geisbert, PhD

Dr. Geisbert submitted a renewal NOU for Biological Agents and rDNA/RNA to work at BSL2 with **parainfluenza virus 5 vaccine vectors; NIH Guidelines: D1, D2, D3, D4.** This NOU was **approved with the following conditions:**

- Section I.4, information on a lentiviral expression system is uploaded, but work with this system is not described. Either remove this document from Section I.4 or describe use of this agent throughout.

- Section III.5, describe IP and SC administration of agent, as these are selected as routes of administration in Section III.4.
- Section III.5, delete "in a volume of 0.250 ml or less per site up to 0.5 ml".

1 recused.

Haitao Hu, PhD

Dr. Hu submitted a new NOU for Biological Agents and rDNA/RNA to work at BSL2 with **T4 bacteriophage artificial viral vectors (AVVs); NIH Guidelines: D4.** This NOU was **approved.**

1 recused.

Gary Kobinger, PhD

Dr. Kobinger submitted a new NOU for Biological Agents and rDNA/RNA to work at BSL2 with **adeno-associated virus and adenovirus 5 (Ad5) viral vector; NIH Guidelines: D3.** This NOU was **approved with the following conditions:**

- Section II.2, delete the second sentence.
- Section II.3, delete text and instead describe the recombinant work that will be performed (e.g., cloning, rescue of AAV using co-infection with adenovirus).
- Section II.6, answer Yes and answer subsequent questions.
- Section II.15, if adenovirus 5 viral vector plasmids will be propagated or cloned in *E. coli* or HEK293 cells, answer Yes and answer subsequent questions.
- Section II.23, answer Yes.
- Section II.26, answer No.
- Section II.31, answer No.

Jun Yang, PhD

Dr. Yang submitted a new NOU for Biological Agents and rDNA/RNA to work at BSL2 with **herpes simplex virus 1 (HSV-1, human alphaherpesvirus 1); NIH Guidelines: N/A.** This NOU was **approved with the following conditions:**

- Section I.6, rephrase last sentence to state "HSV-1 DNA/RNA will not be manipulated".
- Section I.8.a, either delete "flasks" or state that the maximum volume is "10 mL in flasks".
- Sections I.9.d.i and I.9.d.ii, either remove the SOPs for formalin fixation of animal tissue and virus inactivation of tissues, or describe that work in Section I.6.

Amendment: BSL3/4 CDC/USDA Regulated Agents NOUs for review

Scott Weaver, PhD

Dr. Weaver submitted an amendment to his work with SARS-CoV-2 **to add behavioral testing of hamsters post infection; NIH Guidelines: D1, D2, D3, D4.** This NOU was **approved with the following conditions:**

- Section III.6.b, SOP for Grip Strength Testing, specify if the testing will be performed in a BSC or on a downdraft table.
- Section III.6.b, SOP for Grip Strength Testing, provide additional protection to scruffing hand during testing (e.g., use a cut-resistant glove, use forceps).

The IBC discussed the following:

- The first two SOPs specify that the testing will be performed either in a BSC or on a downdraft table. The grip strength testing SOP does not specify BSC or downdraft table.
- The SOPs are being developed using naïve animals. Will the animals behave differently post infection?
    - The grip strength testing may require more bite protection for the lab personnel, possibly with a cut-resistant glove. Need to balance the increased protection with a loss of dexterity.

- Perhaps recommend replacing the scruffing hand with a tong.
- Allow the users the flexibility to find a method that works.

- Bite is a transferrable method for this agent, but there is low likelihood of transmission through a bite in this instance, as little agent is found in the saliva of this animal model.

Response to Conditions: BSL3/4 CDC/USDA Regulated Agents NOUs for review
Dennis Bente, PhD

Dr. Bente submitted a response to conditions to his work with **Bourbon, Thogoto, Dhori, and Oz viruses; NIH Guidelines: D3, D4.** This NOU remains **approved with the following conditions:**

- **Work with animals and arthropods may not commence until full approval of the NOU is obtained from the IBC.**
- **Work with the ACL3 Directors and Department of Biosafety to update and/or develop ACL3 SOPs.**
- Section I.4, upload a PSDS for influenza A virus, as this agent is referenced in Section I.8.c.ii as being expected to have similar physical properties as the agents listed on this NOU.
- Section I.6, state the species of ticks that will be used for these studies.
- Section I.6, if competence of different tick species will be studied, describe in this section.
- Section I.6, state that if higher than expected lethality with these agents is observed in animal models, the IBC will be informed immediately.
- Section I.6, state that samples will not be removed from containment until Inactivation SOPs have been approved.
- Section III.5 describes infecting ticks through artificial feeding. Upload this SOP in Section I.4 or Section IV.7.
- Sections III.7 and IV.7, Homogenization SOP, homogenization must be performed within the BSC.
- Section IV.3, specify how many ticks will be kept per egg clutch per species of tick.
- Section IV.7, ACL3 SOP, also provide SOPs for infestation of rabbits.
- Section IV.7, Maximum Number of Ticks to be Used for Tick Rearing Infestation, additionally break out by tick species. Align with currently approved ACL3 SOPs.
- Section IV.7, Maximum Number of Ticks to be Used for Tick Rearing Infestation, remove whole-body infestation.
- Section V.1.B, under Years of Experience, for all personnel on the NOU, list any experience at ACL2, ACL3, and ACL4.
- Section V.1.B, under Animal and Arthropod Experience, for all personnel on the NOU, clearly state who has experience working with different species of ticks at ACL3.

The IBC discussed the following:

- There is a lack of information in the field about Oz virus, which makes it difficult to perform a risk assessment. If the researcher observes higher than expected lethality with this agent, they should immediately inform the IBC.
- Who will perform the work with ticks? Will it be the PI? The other person on the NOU has no listed experience with ticks.
- Over the years, we have reduced the numbers of ticks used during studies. The numbers proposed here are not what we would approve now.
- The PI offers no justification for performing whole-body infestation in containment.
- The SOPs do not describe rabbit infestation.
- The failure to fully respond to the conditions of the committee is disappointing.

1 abstained.

III. OLD BUSINESS

Biological Agents and rDNA/RNA NOUs – Conditions Met

Cornelis Elferink, PhD – Plasmid DNA; NIH Guidelines: D4 (#2023106)

Erin Lee, DVM – Chronic wasting disease (CWD) prions; NIH Guidelines: N/A (#2023076)

Maria Micci, PhD – VSV-G pseudotyped Moloney murine leukemia viral (MMLV) vector; NIH Guidelines: D4 (#2024003)

Xuping Xie, PhD – Enteroviruses D68, D70, and A71; NIH Guidelines: D1, D2, D3 (#2023004)

Xuping Xie, PhD – Human coronaviruses (HCoV) 229E, OC43, NL63, and HKU1; NIH Guidelines: D1, D2, D3, D4 (#2024005)

Xuping Xie, PhD – Herpes simplex virus 1 (HSV-1, human alphaherpesvirus 1); NIH Guidelines: N/A (#2024006)

Amendment: Biological Agents and rDNA/RNA NOUs – Conditions Met

Tetsuro Ikegami, PhD – Risk Group 2 Bunyaviruses (Rift Valley fever virus [MP-12 strain and delNSs-delNSm-ZH501 strain], Punta Toro virus [Adames strain and Balliet strain], Toscana virus, Sandfly fever Sicilian virus, Icoaraci virus, Frijoles virus, Arumowot virus, Bunyamvera virus, La Crosse virus, Lone Star virus, Prospect Hill virus, Oropouche virus, Iquitos virus, Alenquer virus, Oriximina virus); NIH Guidelines: D1, D2, D3, D4 (#2021017)

Parimal Samir, PhD – Lentiviral vector, genomic material from dengue (serotypes 1, 2, 3, and 4), influenza A, Japanese encephalitis, measles, Nipah, parainfluenza, and respiratory syncytial viruses; NIH Guidelines: D1, D2, D3, D4 (#2022052)

IV. DISCUSSION

Positive-Stranded RNA Virus Inactivation

A member of the Department of Biosafety asked for clarification on what the Inactivation SOP Subcommittee should require after inactivation of non-select agent positive-stranded RNA viruses. Currently, the Subcommittee does not require that the RNA be deemed non-infectious if the PI has already completed the inactivation of live virus to RNA using a validated SOP. In contrast, for select agents the RNA must be validated as non-infectious so that it is no longer a select agent.

A motion was made that the IBC not require that non-select agent positive-stranded RNA virus samples to be validated as non-infectious; only the inactivation of live virus to RNA must be validated. **This motion was approved.**
1 abstained.

Newly Proposed FSAP Regulations

FSAP has released proposed regulation changes. There is a 60-day comment period. The Department of Biosafety will assist with coordinating a subcommittee of IBC members, BSAT PIs, and other interested parties to formulate responses.

Extensive changes have been proposed, including:

- Remove some overlap agents, including *Brucella* spp.
- Rename some agents, including Ebolavirus, Mpox, and SARS-CoV
- Remove Tier 1 designation for botulinum neurotoxin-producing species of *Clostridium*
- Designate Nipah virus as a Tier 1 select agent
- Exclude animals that are naturally infected with select agents
- Specify frequency of BSL3 and ABSL3 annual certification requirements to every 12 months
- Require that discoveries of select agents be reported (using new Form 6)
- Require that an inactivation certification travel with inactivated select agents upon intra-entity transfers

- Require that the effluent decontamination system be addressed in the biosafety, security, and incident response plans
- New training requirement for non-SRA individuals whose responsibilities routinely place them in close proximity to laboratories and those individuals who perform administrative or oversight functions
- Redefine "release" such that the failure of or breach in PPE in the presence of BSAT is reportable

The IBC discussed the following:

- These types of changes could bring an entire research program to a halt. The operational impacts will affect many researchers.
- They offer no justification for requiring an administrative assistant to go through training.
- Why does FSAP want users to keep records of a sample that is no longer a select agent? These samples have been exempted by regulation by being inactivated.
- Much of the work that these changes would affect is related to national security. If users cannot do this work, and there is another pandemic, national security would be negatively affected.
- When the original FSAP regulations came out in the early 2000s, ASM documented that approximately 800 scientists stopped working with infectious disease to avoid the administrative burden.
- Have these changes been distributed to professional societies for their responses?
- Can either the state or UT System be involved in these responses?
- Has UTMB leadership been informed? Yes.
- The subcommittee should look at what Canada and the EU doing, which seems more sensible.

Downgrading Cedar Virus from BSL4 to BSL2

An IBC member wanted to inform the IBC of an upcoming proposal from a UTMB PI to work with Cedar virus (both WT and recombinant versions) at BSL2. Cedar virus is a paramyxovirus closely related to Nipah virus but lacks the primary virulence factors. The UTMB PI asked the IBC several years ago about the requirements to work with this agent to BSL2 and was asked to generate data showing that it lacked virulence in relevant animal models. The PI has been performing those experiments. A collaborator developed a reverse genetics system to make recombinant Cedar virus, including chimeras that express the entry proteins of Nipah or Hendra viruses; this is similar to a pseudotyped VSV platform. The collaborator has reached out to NIH and obtained institution-specific approval to perform this work at BSL2. The UTMB PI will similarly reach out to NIH-OSP to obtain UTMB-specific approval for this work at BSL2 after IBC approval of the NOU.

Thank You to Departing IBC Member

[redacted] is departing UTMB after six years of service.

V. ADJOURNMENT

The meeting was adjourned at 3:59 PM.

[redacted]

[redacted]

utmb Health

Institutional Biosafety Committee
301 University Blvd.
Galveston, TX 77555-1111
O 409.772.1781

MINUTES
March 1, 2024

The Institutional Biosafety Committee met virtually on Friday, March 1, 2024 using Microsoft Teams. The meeting was called to order at 2:01 PM and was chaired by [redacted] and [redacted]

MEMBERS PRESENT

[redacted]

MEMBERS ABSENT

[redacted]

CONSULTANTS

[redacted]

GUESTS

[redacted]

I. APPROVAL OF MINUTES

The minutes of the February 2, 2024 meeting were approved.

II. NEW BUSINESS

Inactivation SOPs – approved by the Inactivation Review Subcommittee

Thomas Ksiazek, DVM, PhD

Family/Genus: Orthomyxoviridae

Inactivation Method(s): Inactivation using Gamma Irradiation

Sample Matrix: Liquid culture

Human and Nonhuman Primate Products NOUs approved administratively

Elvis-Yane Cuevas-Martinez, PhD

Dr. Cuevas-Martinez submitted a new NOU for Human and Nonhuman Primate Products to work at BSL2 with **human serum, tissue, and commercial cell lines (HMEC-1).**

Thomas Green, PhD
Dr. Green submitted a renewal NOU for Human and Nonhuman Primate Products to work at BSL2 with **human tissue and commercial cell lines (HEK293).**

Vineet Gupta, PhD
Dr. Gupta submitted a new NOU for Human and Nonhuman Primate Products to work at BSL2 with **human blood, serum, and body fluids.**

Victor Reyes, PhD
Dr. Reyes submitted a renewal NOU for Human and Nonhuman Primate Products to work at BSL2 with **established human cell lines (AGS, GC28, GSM06, HEK293, HFE-145, HS738, IMST, Kato III, macrophages, MKN45, N87, THP-1).**

Shannan Rossi, PhD
Dr. Rossi submitted a renewal NOU for Human and Nonhuman Primate Products to work at BSL2, BSL3, and BSL3E with **human serum, plasma, and commercial or established cell lines (alveolar type 1, alveolar type 2, HULEC-5a, HEK293T, Leydig, Huh7, HeLa, HMEC-1, BEAS-2b, SH-SY5Y, A549, Sertoli) and NHP bone, blood, body fluids, serum, tissue, and commercial cell lines (Vero, Vero E6, LLCM).**

David Wei, MD, PhD
Dr. Wei submitted a new NOU for Human and Nonhuman Primate Products to work at BSL2 with **human blood, serum, body fluids, tissue, and commercial cell lines (HEK293, HeLa, HEP G2, BEAS-2B).**

Amendment: Human and Nonhuman Primate Products NOUs approved administratively
Perenlei Enkhbaatar, PhD
Dr. Enkhbaatar submitted an amendment to his work with Human and Nonhuman Primate Products to add work with **human amniotic fluid.**

Arthropod Containment Level 2 SOPs – moved from eVote to full review
Dennis Bente, PhD and Maureen Laroche, PhD
Drs. Bente and Laroche submitted **Arthropod Containment Level 2 (ACL2) standard operating procedures (SOPs) for work with ticks and rabbits** in a new building. The expedited review process identified sufficient issues that a motion was made and seconded to complete this review with the full committee.

Biological Agents and rDNA/RNA NOUs for review
Thomas Green, PhD
Dr. Green submitted a renewal NOU for Biological Agents and rDNA/RNA to work at BSL2 with **adeno-associated viral vectors (rAAV2); NIH Guidelines: D4.** This NOU was **approved with the following conditions:**

- Section I.6, for consistency, also specify genes of interest and shRNA targets in this section.
- Section I.8.b, specify that microinjection syringe will be loaded with AAV within a biosafety cabinet before transfer to the stereotaxic microinjector.
- Section I.8.c.ii, ethanol is not an accepted primary disinfectant. Instead use 10% bleach to decontaminate the syringe, then rinse with 70% ethanol to remove bleach residue.
- Section I.A.2.a, answer Yes.
- Section III.5, replace sacrificed with euthanized throughout.
- Section III.8, provide additional information about waste disposal processes.

Tetsuro Ikegami, PhD

Dr. Ikegami submitted a renewal NOU for Biological Agents and rDNA/RNA to work at BSL2 with **adenovirus type 5 (lacking E1 and E3) vector; NIH Guidelines: D1, D2, D3.** This NOU was **approved with the following minor correction:**

- Section V.1.B, clarify who will perform recombinant work.

1 recused

Tetsuro Ikegami, PhD

Dr. Ikegami submitted a renewal NOU for Biological Agents and rDNA/RNA to work at BSL2 with **encephalomyocarditis virus (EMCV, Mengo strain), Sendai virus (Cantell strain), Sindbis virus (TVP-3991 strain), and vesicular stomatitis virus (VSV, Indiana strain); NIH Guidelines: N/A.** This NOU was **approved with the following conditions:**

- Section I.6, describe source of cells used for IFN bioassays, including whether they are commercially purchased or generated under a different NOU. If these cells are generated using a viral vector not described in an approved NOU, submit an NOU for that agent.
- Section I.8.f, remove statements that all infectious materials will be autoclaved.
- Section I.B.5, unselect Other and delete text about CO2 incubator.
- Section V.1.B, confirm that only the PI will perform work on this NOU.

1 recused

Slobodan Paessler, DVM, PhD

Dr. Paessler submitted a renewal NOU for Biological Agents and rDNA/RNA to work at BSL2 with **ML29-Mopeia/Lassa reassortant virus; NIH Guidelines: D3, D4.** This NOU was **approved with the following conditions:**

- **Work with this agent at BSL2 may not commence until approval from NIH Office of Science Policy (OSP) to decrease the level of containment is obtained.**
- Section I.6, in project #1, correct BSL4 to BSL2.
- Section I.8.c.ii, provide contact time for decontamination with CaviCide.
- Section I.B.4, correct building name for room [redacted].
- Section I.B.7, confirm that 10% bleach will not be used for decontamination of liquid waste.
- Section II.2, confirm whether agent was purchased for or from a collaborator.
- Section II.3.a, answer Yes.
- Section II.4, correct building name for room [redacted]
- Section III.5, confirm that hearing and balance tests will be performed using a primary containment device (e.g., biosafety cabinet or downdraft table).

1 abstained.

Jochen Reiser, MD, PhD

Dr. Reiser submitted a new NOU for Biological Agents and rDNA/RNA to work at BSL2 with **lentiviral vector; NIH Guidelines: D1.** This NOU was **tabled with the following conditions:**

- Section I.3, under Risk Group, change to 2.
- Section I.6, expand description to include whether lentiviral vector will be generated in the lab, purchased ready-to-use from a vendor, or if some cloning will be performed in the lab and then sent to a vendor for production and purification.
- Section I.6, clarify how agent will be used to reduce gene expression in tissues, as no animal work is proposed.
- Section I.6, expand on downstream assays that will be performed after administration of lentiviral vector.
- Section I.7.b, answer Yes.

- Section I.7.c, answer Abortive.
- Section I.8.a.ii, delete text and instead provide the maximum number of containers that will be handled at one time.
- Section I.8.a.ii, Is agent abortive? Answer Yes.
- Section I.8.b, uncheck Yes and instead answer No.
- Section I.8.c.ii, delete text and instead provide susceptibility to decontamination with at least 10% bleach, as this is listed in Section I.B.7, including contact time.
- Section I.8.c.ii, also provide susceptibility to decontamination by heat, including contact time.
- Section I.8.d, also select Sharps.
- Section I.8.h, summarize information on infectious dose of agent in appropriate animal models.
- Section I.A.2.b.i, delete HEK293 cells here and instead list in Section I.A.2.b.ii.
- Section I.A.2.b.iii, list an approved NOU, or state "Pending" and submit a human products NOU.
- Section I.B.1, unselect Open bench work.
- Section I.B.5, delete pipettes.
- Section I.B.7, also select another disinfectant (e.g., CaviCide), or confirm that only 10% bleach will be used to decontaminate surfaces after agent use.
- Section II.3, specify the genes (or types of genes) that will be targeted.
- Section II.3, specify if lentiviral vector will be generated in the lab, purchased ready-to-use from a vendor, or if some cloning will be performed in the lab and then sent to a vendor for production and purification.
- Section II.3, describe use of CRISPR/Cas9 technologies, as this work is indicated in Section II.7.
- Section II.8.b, answer Yes and provide an explanation in the text box. If lentiviral vector is nonintegrating, describe in Sections I.6 and II.3.
- Section V.1.B, under Proposed Role on this NOU, uncheck "In vivo", as no animal work is described in this NOU.
- Section V.1.B, under Years of Experience, specify biosafety level at which experience was obtained (e.g., 10 years BSL2).
- Section V.1.B, add PI to the personnel table.

Xuping Xie, PhD

Dr. Xie submitted a renewal NOU for Biological Agents and rDNA/RNA to work at BSL2 with **Japanese encephalitis virus (JEV) vaccine strain SA14-14-2; NIH Guidelines: D1, D2, D3.** This NOU was **approved with the following conditions:**

- Section I.8.c.i, describe stability of agent at room temperature.
- Section I.8.d, unselect Animal bite and Arthropod bite.
- Section I.A.1.c.i, answer Yes and provide explanation.
- Section I.A.2.b.ii, notes use of THP1 cells. Amend human/NHP products NOU to add this cell line.
- Section II.15.d, answer No or describe work with expressed recombinant proteins in Section II.3.

Xuping Xie, PhD

Dr. Xie submitted a renewal NOU for Biological Agents and rDNA/RNA to work at BSL2 with **yellow fever virus (YFV) vaccine strain 17D; NIH Guidelines: D1, D2, D3.** This NOU was **approved with the following conditions:**

- Section I.6, in the first paragraph, correct "viral protein" to "viral protein expression".
- Section I.6, correct "resistant selection" to "resistance selection".
- Section I.6, describe the antivirals that will be tested, including whether these are in development or currently approved.
- Section I.7.c.i, answer Yes.
- Section I.8.c.i, describe stability of agent at room temperature.

- Section I.8.d, also select Ingestion.
- Section I.A.2.b.ii, notes use of THP1 cells. Amend human/NHP products NOU to add this cell line.
- Section II.3, correct "resistant" to "resistance".

BSL3/4 CDC/USDA Regulated Agent NOUs for review

Alexander Bukreyev, PhD

Dr. Bukreyev submitted a renewal NOU for BSL3/4 CDC/USDA Regulated Agents to work at BSL4 with **Marburg virus (Uganda, Musoke, Ravn, Angola, Ci67, mouse-adapted, guinea pig-adapted); NIH Guidelines: D1, D2, D3, D4.** This NOU was **approved with the following conditions:**

- Section I.6, delete last sentence of first paragraph ("Work with human and NHP products is covered by NOU #2015070"), as this is described in Section I.A.2.b.iii.
- Section I.6, delete name of collaborator.
- Section I.6, delete description of work with NHP and bats.
- Section I.6, in last sentence, update NOU# to 2021049.
- Section I.8.c.ii, provide contact time for chemicals.
- Section I.8.c.ii, provide information on heat inactivation, including contact time.
- Section I.A.2.b.iii, update NOU# to 2020084.
- Section I.B.4, also list [redacted]
- Section II.3, update NOU #2016068 to #2021049.
- Sections II.6.a and II.6.c, update NOU #2016068 to #2021049.
- Section II.8, NOU #2016068 to #2021049.
- Section II.12.a, delete text and instead state "Marburg virus".
- Section III.4, under Dose per Animal: Maximum Concentration, provide units of concentration or clarify if the maximum concentration is 1000 pfu/dose.
- Section III.5, for both mouse and guinea pig work, delete the sentence that describes method by which animals are euthanized.
- Section III.9.b, answer No.
- Section V.1.A, Personnel Table, under Proposed Role on this NOU, remove "In vivo", as the description in Section III.5 states that ARC will perform all vaccinations/treatment, infection, and sample collection.
- Section V.1.A, Personnel Table, update experience at BSL4.

Tetsuro Ikegami, PhD and Alexander Freiberg, PhD

Drs. Ikegami and Freiberg submitted a renewal NOU for BSL3/4 CDC/USDA Regulated Agents to work at BSL4 with **Rift Valley fever virus (RVFV); NIH Guidelines: D3.** This NOU was **approved.**

2 recused.

Slobodan Paessler, DVM, PhD

Dr. Paessler submitted a renewal NOU for BSL3/4 CDC/USDA Regulated Agents to work at BSL4 with **Crimean-Congo haemorrhagic fever (CCHF) virus; NIH Guidelines: N/A.** This NOU was **approved with the following conditions:**

- Section I.8.c.ii, provide contact time for decontamination with MicroChem.
- Section I.8.d, also select Animal bite.
- Section I.8.h, expand description of infectious dose to include information from NHP studies.
- Section III.5, expand description to include generation of mouse-adapted virus.
- Section V.1.A, Personnel Table, under Years of Experience at Biosafety Level, update for any personnel with BSL4 experience.
- Section V.1.A, Personnel Table, update Agent experience to include any experience with bunyaviruses.

Amendment: Biological Agents and rDNA/RNA NOUs for review

Perenlei Enkhbaatar, PhD

Dr. Enkhbaatar submitted an amendment to his work with *Pseudomonas aeruginosa* and *Staphylococcus aureus* **to add recombinant work with IVISbrite *Pseudomonas aeruginosa* Xen41 and *Staphylococcus aureus* ATCC 49525 (Xen36); NIH Guidelines: D4.** This NOU amendment was **approved with the following conditions:**

- Section I.8.b, expand scientific justification for working outside containment. Include a description of the measures taken to minimize risk and ensure safety while performing this work.
- Section I.B.4, confirm that work with agent will be performed in room [redacted].
- Section II.3, correct "t possesses" to "It possesses".
- Section III.4, under Dose per Animal/Maximum Volume, clarify the maximum volume for each administration route (e.g., *x* mL IN, *y* mL bronchial, *z* mL topical).

Amendment: BSL3/4 CDC/USDA Regulated Agent NOUs for review

Alexander Bukreyev, PhD

Dr. Bukreyev submitted an amendment to his work with Andes, Sin Nombre, and hamster-adapted Sin Nombre viruses **to add work with Hantaan virus; NIH Guidelines: N/A.** This NOU amendment was **approved with the following conditions:**

- Section I.6, clearly state whether live samples will be manipulated after in vivo ABSL4 studies. Will all samples be inactivated and worked with at lower biosafety level? Will some or all live samples be retained in the BSL4?
- Section I.6, add a statement that animal work is performed at ABSL4 due to use of permissive animal hosts.
- Section I.8.e, please confirm that the origin of these agents is a clinical isolate from Galveston, TX, or clarify that these are previously existing agent stocks currently located in Galveston, TX.
- Section I.B.4, also select BSL4 PPE.
- Section I.B.4, if work with the agent will be performed at BSL4, also list here.
- Section I.B.6, also select BSL4 waste disposal.
- Section III.5, delete the sentence that describes method by which animals are euthanized.
- Section V.1.B, Personnel Table, update Agent Experience with hantavirus.

Ashok Chopra, PhD and Chien-Te Kent Tseng, PhD

Drs. Chopra and Tseng submitted an amendment to their work with SARS-CoV-2 **to remove a Co-PI; NIH Guidelines: D1, D2, D3, D4.** This NOU amendment was **approved with the following conditions:**

- Section V.1.A, under Agent Experience, update personnel experience with SARS-CoV-2.

Thomas Geisbert, PhD

Dr. Geisbert submitted an amendment to his work with Crimean-Congo haemorrhagic fever (CCHF) virus **to add work with Kasokero virus; NIH Guidelines: N/A.** This NOU amendment was **approved with the following conditions:**

- Section I.6, copy the scientific justification for working with Kasokero virus at BSL4 from the summary of the amendment to this section, i.e., "Although the BMBL lists Kasokero virus as a BSL-2 agent, CDC has decided to conduct experiments in animals at ABSL-4 (Schuh et al. Sci Rep. 2022 Dec 3;12(1):20936; Kirejczyk et al. Vet Pathol. 2023 May;60(3):324-335.)".
- Section I.8.b, delete "as an example" and instead specify all situations where agent will be handled outside primary containment.
- Section I.8.c.ii, also list 10% bleach and 5% MicroChem, and provide contact time.
- Section III.2, update IACUC protocols and approval dates for protocols marked as Pending.
- Section III.4, confirm that all selected routes of administration will be used in mouse and hamster.

- Section V.1.A, Personnel Table, update personnel for those who have left UTMB and those with experience at BSL3 or BSL4.

Thomas Geisbert, PhD

Dr. Geisbert submitted an amendment to his work with Nipah virus **to add work with Langya and Angavokely viruses; NIH Guidelines: D1, D2, D3, D4.** This NOU amendment was **approved with the following conditions:**

- Section I.8.b, delete "as an example" and instead specify all situations where agent will be handled outside primary containment.
- Section I.8.b, specify that for clinical pathology assays, samples will be loaded in the BSC.
- Section I.9.c.i, define LSB on first use.
- Section II.3, clarify whether any chimeric mutants (e.g., P, C, V, W) will be produced among the listed henipaviruses.
- Section II.15.d, answer No or describe work with expressed recombinant proteins in Section II.3.
- Section II.23, answer Yes.
- Section III.2, update IACUC protocols and approval dates for protocols marked as Pending.
- Section V.1.A, ensure UTMB ID# for all personnel are rendered properly.
- Section V.1.A, update biosafety training for personnel.

Response to Conditions: Amendment: BSL3/4 CDC/USDA Regulated Agent NOUs for review

Scott Weaver, PhD

Dr. Weaver submitted a response to conditions to his amendment to his work with SARS-CoV-2 **to add behavioral testing; NIH Guidelines: D1, D2, D3, D4.** This NOU amendment response to conditions was **approved.**

1 recused.

Arthropod Containment Level 2 SOPs for review

Dennis Bente, PhD and Maureen Laroche, PhD

Drs. Bente and Laroche submitted **Arthropod Containment Level 2 (ACL2) standard operating procedures (SOPs) for work with ticks and rabbits** in [redacted]. The IBC discussed the following:

- These are SOPs for work in a new ACL2 in a different building; the tick colonies have been displaced due to renovation in the current building.
- One of the reviewers and members of Dept of Biosafety were able to visit the spaces allocated to the new ACL2. With some additional caulking and taping, the spaces will be acceptable for tick containment.
- The SOPs have some minor problems and grammatical errors but also several serious containment and accounting issues.
    - Accurate counts of all arthropods are critical for both colony maintenance and infection experiments. Tick larvae are so small that it is difficult to count individual larval ticks. In the past, this PI proposed (and the IBC approved) a surrogate for counting: weighing the larvae and estimating the number.
    - Whole-body infestation is described, which is a method where accounting for ticks before and after infestation cannot be performed. Some of the ticks will die and some of the ticks will be eaten by the animal during grooming, all which cannot be accounted for.
- A different method of counting larvae is to instead obtain the average weight of 10 or 20 tick eggs from a clutch, place the eggs inside a syringe to hatch to the larval stage, then use that to administer larval into a capsule. This method provides a more accurate number of larvae.
- In adapting to a new building, the SOPs are unclear where each containment barrier will be. The locations of sticky mats or Vaseline on doors are not defined. One tick room adjoins an anteroom,

but the other tick room adjoins the autoclave room; will the autoclave room serve as an anteroom for that second tick room? Where will the containment barriers be for each room?

- Some of the proposed tick species are exotic. Release into the vivarium or into the surrounding community is not acceptable.
- Infesting a rabbit using ear socks is concerning given the seeming resistance to counting ticks on and off the animal. A tick can hide in the ear canal of a rabbit. If the rabbit is moved from the ACL to another husbandry room within the vivarium after the sock has been removed, the tick can re-emerge from the ear canal and crawl to another animal room in the vivarium.
- This ACL2 is within a vivarium [redacted].
    - This is a potential source of food for a tick that escapes the ACL.
    - It is also a potential confounding factor, as ticks can [redacted]. The containment and accounting for ticks within this ACL2 needs to be strong enough for us to be confident that any ticks found within the vivarium are not escapees from the ACL.
- We should ensure that ARC has reviewed and approved with the husbandry SOP.
- The autoclaves within the ACL are too small to fit a rabbit cage shell. They may need to be bagged and taken to another building with a large autoclave.
- Additional containment barriers (sticky mats and/or precise application of acaricide) will reduce the risk of tick escape.
- Is this ACL permanent or only meant to be used for the length of the renovations that are keeping them out of their previous ACL? It is meant to be temporary, with estimates of 3-6 months.
- If too many ticks are placed in a capsule, some will attempt to escape the capsule to find a host. Limiting the number of ticks is a way to increase containment.

These SOPs were **approved with the following conditions**, in addition to other comments identified during the expedited review:

- No whole animal infestation may be performed. Feeding may only be performed using capsules.
- Instead of estimating larvae by weight, count tick eggs (use the average weight of tick eggs from a clutch) that will then hatch to larvae.
- Add additional risk mitigation using focused use of acaracide and/or sticky mats to expand the barrier zone.
- Department of Biosafety will inspect the facility before work begins.

Comments identified during expedited review:

General Comments

- Throughout, update references to [redacted](ACL Facility Director, ACL staff, SOPs, facilities) or confirm that these references are accurate.
- Define which rooms are designated as ACL rooms. Confirm that the satellite housing room is for only non-infested rabbits.
- SOPs 001 and 007 mention tick containment barriers, but the SOPs do not clearly delineate where the room level or facility level barriers are located. What additional risk assessments were performed for this ACL, given that [redacted](not part of this study) are located across the hallway? Have additional barriers been considered for this ACL?
- Throughout, clearly delineate containment barriers (e.g., primary, secondary, tertiary). Describe where the containment barriers are at each layer and where the containment barriers extend to (e.g., which door frames need barriers). What additional considerations will be implemented given [redacted] will be housed across the hallway?
- In at least one SOP, fully describe room labeling requirements. Description should include the Ticks are Present signage and listing animal and arthropod species on a whiteboard (or using separate signage).

- Throughout, in Section 1.0, update "standard operating protocol" to "standard operating procedure".
- Throughout, where appropriate, update Environmental Health and Safety to Department of Biosafety.

SOP 001 – Tick rearing procedures in the Arthropod Containment Level-2 (ACL-2) Laboratory

- Section 5.1.3, clarify the position "[redacted]2-BSL-2 Director".
- Section 8.0, confirm that immunodeficient animals will be infested.
- Section 8.2, specify within this section which tick stages (larvae, nymphs, and adults) will be individually counted.
- Section 8.2.2, provide justification for why the chill table is only used for large numbers of larvae? If the chill table assists with immobilizing ticks (thus increasing safety) should this be used with other life stages and lower numbers of larvae? What defines large numbers?
- Section 8.2.5, clearly state which tick stages and conditions will be transferred with the transfer device (not those "more likely to be used").
- Section 8.2.8 states that containment is provided by consideration of three aspects, but four items are listed. Rectify.
- Section 8.2.9 states the user should follow procedures in section 6.2.13, but this section does not exist in these SOPs. Rectify.
- Section 8.3.8.4, provide reference or data showing that contact with 10% bleach for 24 hours will kill a tick.
- Section 9.1.3, instead of enumerating larvae by average weight (as volume of blood meal and hydration status will affect this), enumerate ticks by using an average weight of egg mass, separating and isolating into bundles of 50-100 eggs, allowing to hatch, and then placing on the animal for feeding.

SOP 002 – Waste Management and Inactivation procedures in the Arthropod Containment (ACL) Facility

- Section 2.0, specify that this SOP applies to work with ticks. When work with other arthropods is proposed, amend this SOP or provide new SOPs for review and approval.
- Section 3.0, include used PPE as waste.
- Section 6.1, other SOPs state throughout no precise tick counting, other than adults. If this is the case, how will number of ticks be rectified in this section, if there is no starting tick count?
- Section 6.1.1, clarify which inactivation procedure(s) will be used with infected ticks, whether all infectious agents to be handled in the ACL2 are susceptible to these inactivation procedures, or if the expectation is that all agents will be inactivated by autoclaving (Section 6.2).
- Section 6.1.1.3, provide reference or data validating chemical inactivation.
- Section 6.2.2, specify that all materials that come in contact with arthropods/arthropod parts should either be bagged and immediately autoclaved, or placed in a sealed autoclave bag until it can be processed in the autoclave.
- Section 6.2.2, define what "discarding in the facility trash for regular waste procedure" means, including whether this material is autoclaved and incinerated (as in Section 6.2.5).
- Section 6.2.4, specify this section refers to solid waste.
- Section 6.2.5, clarify if "disposal" is meant to be "disposable".
- Section 6.2.6, confirm that all waste procedures will be validated and that Biocontainment will be involved in the validation.

SOP 003 – Emergency Responses for the Arthropod Containment (ACL) Facility within [redacted]

- In general, the emergency procedures need to be clarified using common terminology. There are many phrases used that are not standard terminology and make the read confusing. These should be written so that any user can read, understand, and follow the procedures as written.
- Section 2.0, specify that this SOP applies to work with ticks. When work with other arthropods is proposed, amend this SOP or provide new SOPs for review and approval.
- Section 6.0, define the reporting procedures for potential and confirmed arthropod escape.
- Section 6.1, rewrite for clarity, as procedures are confusing.
- Section 6.1.1.2.1, rephrase "recover to the preceding vial, if ensure species." for clarity.
- Section 6.1.2, confirm that the incubator is considered the primary barrier for containment, instead of the vial as primary containment and the incubator as tertiary containment.
- Section 6.1.3.2.1, the cage must be immediately closed, taped, placed in an autoclave bag and immediately autoclaved.
- Section 6.1.3.2.2, the cage must be immediately closed, taped, placed in an autoclave bag and immediately autoclaved.

SOP 004 – Husbandry and Sanitation: Rabbits in the Arthropod Containment (ACL) Facility within [redacted]

- Verify that ARC has reviewed and approved this SOP.
- Section 2.0, specify that this SOP applies to work with ticks. When work with other arthropods is proposed, amend this SOP or provide new SOPs for review and approval.
- Section 10.0, Level 4 training criteria, clarify "Author and approved for Training".

SOP 005 – Personnel training process in the Arthropod Containment (ACL) Facility within [redacted]

- Section 6.1, define "[redacted]-ACL" on first use, or in Section 3.0 (Definitions).
- Section 6.4.2, specify that users will understand the risks and safety precautions when working with all life stages of ticks.
- Section 6.4.5, rephrase "capable of proceed immobilization techniques" to improve clarity.
- Section 6.4.6, rephrase "capable of decision make of ways" to improve clarity.
- Section 6.5.2, rephrase "capable of handling independent all steps" to improve clarity.
- Section 6.5.5, rephrase "capable of address potential risk situations" to improve clarity.
- Section 6.6.1 and 6.7.1, update "[redacted]-ACL SOP" references to reflect [redacted] SOPs.
- Section 7.0, rephrase "designated personal that will access problem solve knowledge related to the facility safety" for clarity.

SOP 006 – Entrance and exit procedures in the Arthropod Containment (ACL) Facility within [redacted]

- Section 2.0, specify that this SOP applies to work with ticks. When work with other arthropods is proposed, amend this SOP or provide new SOPs for review and approval.
- Section 6.1, specify whether PPE will be donned in the anteroom, regardless of which ACL room will be entered.
- Section 6.1, specify order of PPE removal, including any disinfection steps (and identify disinfectant used), and whether users will inspect their PPE prior to doffing and exiting.
- Section 6.1, identify reusable PPE, if any, and provide instructions to decontaminate for re-use and storage.

SOP 007 – Tick acquisition and transmission of pathogens in Arthropod Containment Level-2 (ACL-2) Laboratory

- Section 8.1.2.3, provide justification for why the chill table is only used for large numbers of larvae. If the chill table assists with immobilizing ticks (thus increasing safety) should this be used with other life stages and lower numbers of larvae?
- Section 8.1.2.3, define large numbers of larvae.
- Section 8.1.2.6, clearly state which tick stages and conditions will be transferred with the transfer device (not those "more likely to be used").
- Section 8.1.2.9 states that containment is provided by consideration of three aspects, but four items are listed. Rectify.
- Section 8.2.3, change "virus" to "agent" or "pathogen".
- Section 8.3.2.6, clearly state which tick stages and conditions will be transferred with the transfer device (not those "more likely to be used").
- Section 8.3.2.9 states that containment is provided by consideration of three aspects, but four items are listed. Rectify.
- Section 8.3.2.10 states the user should follow procedures in section 6.2.13, but this section does not exist in these SOPs. Rectify.
- Section 9.2, specify the filters that are used for different life stages or tick species.
- Section 9.2, clarify if this is a HEPA filter or a different type of filter.
- Section 9.3, instead of enumerating larvae by average weight (as volume of blood meal and hydration status will affect this), enumerate ticks by using an average weight of egg mass, separating and isolating into bundles of 50-100 eggs, allowing to hatch, and then placing on the animal for feeding.
- Section 9.4, provide a justification for only documenting adult tick numbers on storage vials.

Appendix 6 – Examples of capsule preparation and attachment for tick infestation in different species of animals

- Section A.1, retake pictures with screw-cap tubes (instead of flip-top tubes) or add a highly visible footnote that only screw-cap tubes may be used.
- Section A.2, retake pictures with screw-cap tubes (instead of flip-top tubes) or add a highly visible footnote that only screw-cap tubes may be used.
- Section C.1, remove capsule preparation and attachment on rabbit ears, or confirm that live rabbits will not be moved from the ACL to general ABSL housing.

1 recused.

III. OLD BUSINESS

Biological Agents and rDNA/RNA NOUs – Conditions Met

Thomas Geisbert, PhD – Parainfluenza virus 5 vaccine vectors; NIH Guidelines: D1, D2, D3, D4 (#2024007)

Jun Yang, PhD – Herpes simplex virus 1 (HSV-1, human alphaherpesvirus 1); NIH Guidelines: N/A (#2024010)

Amendment: BSL3/4 CDC/USDA Regulated Agents NOUs – Conditions Met

Alexander Bukreyev, PhD and Ashok Chopra, PhD – SARS-CoV-2 (NeonGreen, USA-WA 1/2020, hCoV-19/usa/md-HP01542/2021 (SA)B.1.1351, VP23301 SARS CoV-2 Delta); NIH Guidelines: D1, D2, D3, E1 (#2020023)

IV. DISCUSSION

Request for Recommendations for IBC Community Member

[redacted] is stepping back as a member of the UTMB IBC. If any members have a recommendation for another community member, please send them.

IBC Minutes Request

A request was made for the previous ten years of IBC meeting minutes. There is an estimated fee that is owed to UTMB's legal department to cover the cost of reviewing and redacting requested documents. It appears that the requestor did not pay those fees within the required time frame, and therefore the request may be closed.

The Department of Biosafety has started to implement the records retention policy for committee documents. For IBC meeting minutes, this means disposing of documents up to February 2021.

Will this generate a perception issue that we have changed our records retention policy in response to this documents request? DOB clarified that no policies were changed in response to the request; the department's current records retention policy was last updated in March 2021. DOB had not been regularly implementing the records disposal dictated by that policy, hence the backlog of records.

Changes to Department of Biosafety NOU Review

Instead of having a member of Department of Biosafety as a primary reviewer for NOUs, a member of DOB will review each NOUs. They will focus on safety and compliance items, like other NOUs or NIH Office of Science Policy approvals. This will mimic the role of [redacted] where each protocol is reviewed by an SME.

In addition, Ms. Corrie Ntiforo is serving as the Institutional Biosafety Officer. Communications with NIH Office of Science Policy with go through her.

Arthropod SOP Review

An NOU is required for recombinant/synthetic materials that fall under the NIH Guidelines and for pathogens. The IBC does not have a process for registering work with arthropods that does not also include recombinant/synthetic materials or pathogens.

The Arthropod Containment Guidelines recommends that at ACL2, a site-specific safety manual is prepared, *approved by the IBC* or other institutional review entities, and adopted. This includes emergency procedures, standard operating procedures, waste disposal, and other information necessary to inform personnel of the methods for safe maintenance and operation of the insectary.

How should the IBC update its institutional policies to include review of these items/SOPs? In what way should the committee document review of these SOPs? These questions will be considered at a subsequent IBC meeting.

Overview of FSAP and IPP Document Review

Federal Select Agent Program (FSAP) and Import Permit Program (IPP) performed a virtual document review. Approximately 7 FSAP and 4 IPP inspectors. There was a great deal of focus on the new BSL4 annual verification policy focused on HVAC and maintenance activities. Approximately 8000-10,000 pages of documents were provided for the inspectors.

The onsite inspection is expected the week of April 22.

V. ADJOURNMENT

The meeting was adjourned at 4:56 PM.

[redacted]

[redacted]

[redacted]

utmb Health

Institutional Biosafety Committee
301 University Blvd.
Galveston, TX 77555-0192
O 409.772.1781

MINUTES
April 5, 2024

The Institutional Biosafety Committee met virtually on Friday, April 5, 2024 using Microsoft Teams. The meeting was called to order at 2:00 PM and was chaired by [redacted]

MEMBERS PRESENT

[redacted]

MEMBERS ABSENT

[redacted]

CONSULTANTS

[redacted]

GUESTS

[redacted]

I. APPROVAL OF MINUTES

The minutes of the March 1, 2024 meeting were approved.

II. NEW BUSINESS

Inactivation SOPs – approved by the Inactivation Review Subcommittee

William Lawrence, PhD

Family/Genus: *Bacillus*

Inactivation Method(s): Filtration Sterilization

Sample Matrix: Plasma, Serum

Amendment: Biological Agents and rDNA/RNA NOUs approved administratively

Jun-Ho La, PhD, DVM

Dr. La submitted an amendment to his work with adeno-associated viral vectors (AAV1, AAV2, AAV5, AAV9, AAVrg, and AAV-PHP.S) **to add additional mammalian genes delivered by viral vectors; NIH Guidelines: D4.**

Amendment: Human and Nonhuman Primate Products NOUs approved administratively

Giulio Taglialatela, PhD

Dr. Taglialatela submitted an amendment to his work with Human and Nonhuman Primate Products to add work with **additional human commercial cell line (Tau RD P301S FRET Biosensor cells).**

Nikos Vasilakis, PhD

Dr. Vasilakis submitted an amendment to his work with Human and Nonhuman Primate Products to add work with **additional human commercial (Huh-7) and NHP commercial (FRHL) cell lines.**

NOU and Inactivation SOP Transfer Request for review

Vineet Menachery, PhD to Bryan Johnson, PhD and Chien-Te Kent Tseng, PhD

Drs. Menachery and Johnson requested to transfer the following NOUs:

- SARS-CoV-2 (#2020014)
- Lentivirus (#2020018)
- Group 2b coronaviruses (SARS-CoV, SARS-CoV-2, Group 2b Bat-CoVs) (#2022102)
- MERS-CoV and group 2C bat-CoVs (#2022115)
- Human coronaviruses (HCoV-229E, HCoV-OC43, HCoV-HKU1, HCoV-NL63, CCoV-HuPn-2018) (#2022122)
- SARS-CoV-2 delORF3678 (#2023014)
- Human and NHP products (#2022127)

The IBC discussed the following:

- [redacted]
- Does Dr. Johnson need a Co-PI for the work at BSL2? For example, the work with lentivirus, human/NHP products, and human coronaviruses? We can only decide on what was proposed here.
    - Even though some of the work is at BSL2, having a Co-PI will be beneficial, as the research group is large.

The transfer request for these NOUs and inactivation SOPs was **approved with the following conditions:**

- [redacted]
- Amend all NOUs to update the personnel.
- Personnel Table, for all personnel with Proposed Role of In Vivo, update any training at UTMB at ABSL2 or ABSL3.

1 recused.

Vaccine Clinical Trial NOUs for review

Richard Rupp, MD

Dr. Rupp submitted a new NOU for Vaccine Clinical Trial to work with **live attenuated respiratory syncytial virus (RSV) ΔNS2/Δ1313/I1314L vaccine (≥ 4.7 log10 PFU/dose); NIH Guidelines: C1.** This NOU was **approved with the following conditions:**

- Provide IRB-approved consent form when it is available.
- Section IV.1, define the acronym "RSVt" upon first use.
- Section V.3.a, update NOU# to 2023105.
- Section VI.1. Research Subjects, define acronyms "URT" and "LRT" upon first use.

- Section VI.2, please provide information as it pertains to communicability or contamination from the research subject.
- Section VI.4 and 5, questions have been edited from the original form. Please use the original questions and answer accordingly.
- Personnel Table, update and include date of standard precautions training for all personnel.

Richard Rupp, MD

Dr. Rupp submitted a new NOU for Vaccine Clinical Trial to work with **V181; Dengue quadrivalent vaccine rDENVΔ30 (live, attenuated) (doses up to 2.7×10^4 PFU per serotype); NIH Guidelines: C1.** This NOU was **approved with the following conditions:**

- Provide IRB-approved consent form when it is available.
- Section V.3.a, update NOU# to 2023015.
- Section VI.1, for potential hazards for research subjects, add a brief (1-2 sentence) statement regarding how research subjects who experience side effects are treated.
- Personnel Table, update and include date of standard precautions training for all personnel.

Biological Agents and rDNA/RNA NOUs for review

Ashok Chopra, PhD

Dr. Chopra submitted a new NOU for Biological Agents and rDNA/RNA to work at BSL2 with **adenovirus vector (serotype 5 and ChAdOx1) and mRNA-based vaccines; NIH Guidelines: D1, D2, D4.** This NOU was **tabled with the following conditions:**

- Separate the work with adenovirus vector vaccines from the work with mRNA-based vaccines into two NOUs.
- Section I.9, confirm that no agent or sample inactivation will occur, as the project description includes immunological and histopathologic analyses.
- Section III.5, delete descriptions of mouse or rat anesthetization, NHP initial physical exam, and implantation of temperature monitoring units.
- Section III.5, specify that ARC will perform all work with NHPs.
- Section III.6.b, remove SOPs for "Intraperitoneal (IP) Injection in Rats and Mice" and "Oral Gavage in Mice and Rats", and then answer No to Section III.6.a.
- Section III.7, Homogenization SOPs, delete specification of ABSL3 and BSL3.

Ashok Chopra, PhD

Dr. Chopra submitted a renewal NOU for Biological Agents and rDNA/RNA to work at BSL2 with **T4 bacteriophage-based vaccines and anthrax lethal toxin; NIH Guidelines: D4.** This NOU was **approved with the following conditions:**

- Section I.4, remove the PSDS for *Bacillus anthracis*, Influenza type A, SARS-CoV-2, and *Yersinia pestis*.
- Section I.6, remove collaborator's name.
- Section I.8.c.ii, clarify if contact time of 30-60 minutes is for all listed chemical disinfectants.
- Section I.8.c.ii, provide information on heat inactivation, including contact time.
- Section I.B.5, Homogenizer Type, please specify this is a handheld disposable tissue grinder.
- Section II.3, change "perspective pathogens" to "respective pathogens (work performed under other approved NOUs)."
- Section II.21, answer No.
- Section II.24.b, answer No.
- Section III.3, confirm that an N95 respirator will be worn at ABSL2.

- Section III.4, under Maximum Dose per Animal (volume), specify the maximum amount that will be administered via each route.
- Section III.5, delete descriptions of mouse or rat anesthetization.
- Section III.5, delete last paragraph and instead state that animals will be transferred to ABSL3 for challenge studies (work performed under other approved NOUs).
- Section III.5, summarize studies.
- Section III.7, Homogenization SOPs, delete specification of ABSL3 and BSL3.

Ashok Chopra, PhD

Dr. Chopra submitted a renewal NOU for Biological Agents and rDNA/RNA to work at BSL2 with ***Yersinia pestis* (LMA and LMP strains); NIH Guidelines: D4.** The IBC noted the following:

- These strains of *Yersinia pestis* have been approved by FSAP as excluded BSAT strains.

This NOU was **approved with the following conditions:**

- **Work may not commence at BSL2 until approval from NIH Office of Science Policy to lower the containment level is obtained.**
- Section I.6, replace "by intranasal or intramuscular route" with "by various routes", as specific information is instead described in Section III.
- Section I.8.d, uncheck Arthropod Bite as a potential route of lab transmission, as arthropod work is not being proposed in this NOU.
- Section I.A.2.b, select Yes and list HeLa cells and macrophages.
- Section I.B.4, confirm whether work with agents will be performed in the shared equipment room [redacted]
- Section I.B.5, Homogenizer Type, specify this is a handheld disposable tissue grinder.
- Section II.2, update goal, as live attenuated vaccines have already been generated.
- Section II.4, confirm whether work with agents will be performed in the shared equipment room [redacted]
- Section III.5, delete descriptions of mouse or rat anesthetization, NHP initial physical exam, and implantation of temperature monitoring units.
- Section III.5, specify that ARC will perform all work with NHPs.
- Section III.5, update EHS to DOB for shipping.
- Section III.5, in description of rodent immunization, clarify if "oral route" means by oral gavage. If this does not refer to oral gavage, remove SOP in Section III.6.b, and answer No to Section III.6.a.
- Section III.6.b, remove SOP for "Intraperitoneal (IP) Injection in Rats and Mice".
- Section III.7, Homogenization SOPs, delete specification of ABSL3 and BSL3.

Bin Pan, MD, PhD

Dr. Pan submitted a new NOU for Biological Agents and rDNA/RNA to work at BSL2 with **adeno-associated virus (AAV) (serotypes 2, 5, 6, 8); NIH Guidelines: D2, D4.** This NOU was **approved with the following conditions:**

- Section I.6, delete last paragraph.
- Section I.8.b, expand scientific justification to include why injection cannot be performed within a BSC.
- Section I.A.2.b, answer No.
- Section II.14, answer No, as the description of use clearly states that vectors will be purchased ready-to-use.

- Section III.2, provide IACUC Protocol # or state "Pending".
- Section III.3, under Animal Facility, also select ABSL1.
- Section III.5, add a statement that animals will be housed with ABSL2 practices for 72 hours after agent administration, then at ABSL1.

Parimal Samir, PhD

Dr. Samir submitted a new NOU for Biological Agents and rDNA/RNA to work at BSL2 with ***Aeromonas hydrophila*, *Klebsiella pneumoniae* (subspecies *pneumoniae*, *ozaenae*, and *rhinoscleromatis*), *K. oxytoca*, *K. granulomatis*, *K. variicola*, *K. singaporensis*, *K. planticola*, *K. terrigena*, *K. orinthinolytica*, and *Listeria monocytogenes*; NIH Guidelines: N/A.** This NOU was **approved with the following conditions:**

- Section I.6, delete specific cell lines and simply state "cell lines".
- Section I.6, clarify which bacteria will be used to infect cell lines (if all bacteria listed on the NOU will be used, state that all bacteria listed above will be used to infect cell lines).
- Section I.6, expand description to include how the different techniques will be used.
- Section I.A.2.b.ii, specify type of primary human brain cells will be used to propagate bacteria.
- Section I.A.2.b.iv, delete text.

Parimal Samir, PhD

Dr. Samir submitted a new NOU for Biological Agents and rDNA/RNA to work at BSL2 with ***Aspergillus fumigatus*, *A. flavus*, *A. nidulans*, *A. niger*, *A. terreus*, *A. montevidensis*, *Blastomyces dermatitidis*, *Histoplasma capsulatum*, and mycovirus; NIH Guidelines: N/A.** The IBC discussed the following:

- The Canadian PSDS categorizes *Blastomyces dermatitidis* and *Histoplasma capsulatum* as risk group 3.
- For *B. dermatitidis* and *H. capsulatum*, the BMBL recommends BSL2 for some activities (e.g., yeast-form cultures, clinical materials), but BSL3 for handling sporulating mold-form cultures and soil or other environmental samples known or likely to contain infectious conidia.
- The PI indicated they only intend to isolate *Aspergillus* from soil and that *B. dermatitidis* and *H. capsulatum* will be obtained from a clinical collaborator; this needs to be stated clearly in the NOU.
- The IBC may need to reach out to a clinician or researcher with more knowledge about fungi to perform a risk assessment on the work with these agents.

This NOU was **approved with the following conditions:**

- Remove work with *Blastomyces dermatitidis* and *Histoplasma capsulatum* from this NOU and instead describe work with these agents in a separate NOU.
    - On the separate NOU, list *Blastomyces dermatitidis* and *Histoplasma capsulatum* as Risk Group 3.
- Section I.4, upload soil isolation SOP.
- Section I.6, describe how up to 1 L of culture will be handled in a BSC, as this volume is indicated in Section I.8.a.i.
- Section I.6, delete last sentence.
- Section I.8.g, delete information on *Epidermophyton floccosum*, *Microsporum* spp., and *Trichophyton* spp.
- Section I.8.h, also describe infectious dose of *Aspergillus* spp. in animal models.
- Section I.9.d, list and upload inactivation SOPs.
- Section I.B.2, add respiratory protection for field work when collecting soil samples.

Giulio Taglialatela, PhD

Dr. Taglialatela submitted a new NOU for Biological Agents and rDNA/RNA to work at BSL2 with **herpes simplex virus 1 (HSV1) (pBACYAC-LacZ-HSV-1(KOS)); NIH Guidelines: N/A.** This NOU was **approved with the following conditions:**

- Section I.4, upload a PSDS for HSV (e.g., from Canadian Pathogen Safety Data Sheets website: https://www.canada.ca/en/public-health/services/laboratory-biosafety-biosecurity/pathogen-safety-data-sheets-risk-assessment.html).
- Section I.6, clarify that work will be performed with HSV1 (KOS) (as opposed to HSV1).
- Section I.8.a.i and ii, also list the volume and number of containers for cultured HSV during cell culture infection.
- Section I.8.f, also describe pathogenicity for pregnant individuals.
- Section I.9.d.ii, for inactivation SOP, specify the minimum volume of formalin required for each container type that will be used (e.g., 6-well plate, 24-well plate).
- Section I.A.2.b.ii, delete text and only list the cell line.

Chien-Te Kent Tseng, PhD

Dr. Tseng submitted a new NOU for Biological Agents and rDNA/RNA to work at BSL2 with **influenza virus (H3N2 A/Aichi/2/68 (X-31), H1N1 A/PR/8/34); NIH Guidelines: N/A.** This NOU was **approved with the following conditions:**

- Section III.5, confirm that only lung samples will be collected, as homogenization SOP also describes other tissue types.

David Changli Wei, MD, PhD

Dr. Wei submitted a new NOU for Biological Agents and rDNA/RNA to work at BSL2 with **lentiviral vectors; NIH Guidelines: N/A.** This NOU was **approved with the following conditions:**

- Section I.8.c.ii, delete text and instead provide susceptibility to decontamination with at least 10% bleach and CaviCide, including contact time, as these are listed in Section I.B.7.
- Section I.8.c.ii, also provide susceptibility to decontamination by heat, including contact time.
- Section I.8.g, move information on animal model to Section I.8.h.
- Section I.8.g, delete the sentence "Virus has potential to cause oncogenesis or generate replication competent lentivirus".
- Section I.B.7, delete text for CaviCide and 10% bleach.
- Section II.1.b, answer No, or clearly describe in Section II.3 the recombinant material that will be created on UTMB campus.
- Section V.1.B, under Proposed Role on this NOU, uncheck In Vivo and instead select In Vitro for all personnel.

BSL3/4 CDC/USDA Regulated Agent NOUs for review

Ashok Chopra, PhD

Dr. Chopra submitted a renewal NOU for BSL3/4 CDC/USDA Regulated Agents to work at BSL3 with ***Yersinia pestis*** **(CO92, Nepal516, KIM6); NIH Guidelines: D1, D2, D4.** This NOU was **approved with the following conditions:**

- Section I.7.d, answer No.
- Section I.8.a.vi, provide units of concentration (e.g., CFU/mL).
- Section I.8.c.i, provide information on stability of agent at room temperature (e.g., in a laboratory setting).
- Section III.5, specify that ARC will perform all work with NHPs.

- Section III.5, delete descriptions of mouse or rat anesthetization, NHP initial physical exam, and implantation of temperature monitoring units.
- Section III.5, in description of rodent immunization, clarify if "oral route" means by oral gavage. If this does not refer to oral gavage, remove SOP in Section III.6.b, and answer No to Section III.6.a.
- Section III.6.b, remove SOP for "Intraperitoneal (IP) Injection in Rats and Mice".
- Section III.7, Homogenization SOPs, delete specification of ABSL3 and BSL3.

Maureen Laroche, PhD

Dr. Laroche submitted a new NOU for BSL3/4 CDC/USDA Regulated Agents to work at BSL3 with ***Rickettsia rickettsii* (Sheila Smith) and *Rickettsia amblyommatis* (Amblyomma Americanum isolate); NIH Guidelines: N/A.** The IBC noted the following:

- During pre-review of this NOU, the PI was asked to list a Co-PI and upload a signed Co-PI Cover Page. The PI complied. However, the Cover Page was the same document that had been uploaded to a different NOU last year (identical signature time-stamp and date). When contacted, the identified Co-PI was unaware of the NOU and had not agreed to be the Co-PI; they asked that their name be removed from this NOU.

This NOU was **approved with the following conditions:**

- **Identify a Co-PI and upload a signed Co-PI Cover Page for this project.**
- **ABSL3 work may not commence until a Co-PI is obtained.**
- Section I.4, upload ACL2 and ACL3 SOPs.
- Section I.6.b, correct "infection status will be *controlled* by PCR on blood" to confirmed, monitored, or other appropriate language.
- Section I.8.f, move information on guinea pig model to Section I.8.h.
- Section I.B.4, for [redacted], unselect chemical fume hood and instead select biological safety cabinet.
- Section III.2, provide IACUC protocol number or state "Pending".
- Section III.5 states that capsules hold 30 nymphs and 5 female ticks; please specify life stage of the female ticks.
- Section III.5, please confirm that all tick manipulations will be performed in a BSC.
- Section III.5, specify type of anesthesia used.
- Section V.1.B, under Years of Experience, specify years of ACL2 and/or ACL3 experience for all personnel.

1 abstained.

Amendment: Biological Agents and rDNA/RNA NOUs for review

Nikos Vasilakis, PhD

Dr. Vasilakis submitted an amendment to his work with Ilheus virus **to add work with Cacipacore and Iguape viruses; NIH Guidelines: D1, D2, D4.** This NOU amendment was **approved with the following conditions:**

- Section I.6, expand description to include vaccine studies.
- Section I.6, expand description to include work that will be performed with Sabethes mosquitoes.
- Section I.7.c.i and ii, add a statement that Ilheus and Cacipacore viruses can cause disease.
- Section I.9.d, list and upload inactivation SOPs.
- Please ensure that collaborator's laboratory door sign is updated to list these agents before work commences.

Amendment: BSL3/4 CDC/USDA Regulated Agent NOUs for review

Chien-Te Kent Tseng, PhD

Dr. Tseng submitted an amendment to his work with MERS-CoV **to add work with Nano-Luc-MERS-CoV; NIH Guidelines: N/A.** This NOU amendment was **approved.**

III. OLD BUSINESS

Biological Agents and rDNA/RNA NOUs – Conditions Met

Tetsuro Ikegami, PhD – Encephalomyocarditis virus (EMCV, Mengo strain), Sendai virus (Cantell strain), Sindbis virus (TVP-3991 strain), and vesicular stomatitis virus (VSV, Indiana strain); NIH Guidelines: N/A (#2024019)

Gary Kobinger, PhD – Adeno-associated virus (AAV) and adenovirus 5 (Ad5) viral vector; NIH Guidelines: D2, D3 (#2024009)

Slobodan Paessler, DVM, PhD – ML29-Mopeia/Lassa reassortant virus; NIH Guidelines: N/A (#2024020)

BSL3/4 CDC/USDA Regulated Agents NOUs – Conditions Met

Alexander Bukreyev, PhD – Marburg virus (Uganda, Musoke, Ravn, Angola, Ci67, mouse-adapted, guinea pig-adapted); NIH Guidelines: D1, D2, D4 (#2024024)

Slobodan Paessler, DVM, PhD – Crimean-Congo haemorrhagic fever (CCHF) virus; NIH Guidelines: N/A (#2024026)

Amendment: Biological Agents and rDNA/RNA NOUs – Conditions Met

Perenlei Enkhbaatar, PhD – *Pseudomonas aeruginosa* (ATCC-27317, IVISbrite *Pseudomonas aeruginosa* Xen41) and *Staphylococcus aureus* (BAA-1721, BAA-1717), ATCC 49525 (Xen36)); NIH Guidelines: D4 (#2021076)

Amendment: BSL3/4 CDC/USDA Regulated Agents NOUs – Conditions Met

Alexander Bukreyev, PhD – Andes, Hantaan, Sin Nombre, and hamster-adapted Sin Nombre viruses; NIH Guidelines: N/A (#2019073)

Ashok Chopra, PhD and Chien-Te Kent Tseng, PhD – SARS-CoV-2; NIH Guidelines: D1, D2, D4 (#2022057)

Thomas Geisbert, PhD – Crimean-Congo haemorrhagic fever (CCHF) and Kasokero viruses; NIH Guidelines: N/A (#2020060)

Thomas Geisbert, PhD – Angavokely, Langya, and Nipah viruses; NIH Guidelines: D1, D2, D4 (#2020065)

IV. DISCUSSION

Updates to NIH Guidelines as of April 2024

National Institutions of Health updated the Guidelines for Research Involving Recombinant or Synthetic Nucleic Acid Molecules as of April 4, 2024. The Department of Biosafety hasn't had an opportunity to go through the changes thoroughly. One major change is research with gene drive modified organisms.

InfoEd Implementation Update

Implementation meetings have started for moving NOU applications into InfoEd. The estimated timeline is to have the system able to accept applications in the next six months to a year. Volunteer testers will be sought to test out the new system when that stage is reached.

Scope of NOU Amendment Review

When an amendment is reviewed, should the reviewer look at only the information that was changed, or all information in the NOU?

- Procedural changes may have occurred since the NOU was originally approved that would be caught during an amendment review.
- Reviewers should not be discouraged from reviewing the entire application.
- What is the expectation of the reviewer for an amendment versus a new NOU.
- Perhaps have the expectation that the first reviewer will review the entire NOU, and the second reviewer may review only the changes.
    - This can be tested and feedback sought.
    - A note will be made to cover this again at a subsequent meeting for those not present.

V. ADJOURNMENT

The meeting was adjourned at 4:23 PM.

utmb Health

Institutional Biosafety Committee
301 University Blvd.
Galveston, TX 77555-0192
O 409.772.1781

MINUTES
May 3, 2024

The Institutional Biosafety Committee met virtually on Friday, May 3, 2024 using Microsoft Teams. The meeting was called to order at 2:03 PM and was chaired by [redacted]

MEMBERS PRESENT

[redacted]

MEMBERS ABSENT

[redacted]

GUESTS

[redacted]

I. APPROVAL OF MINUTES

The minutes of the April 5, 2024 meeting were approved.
1 abstained.

II. NEW BUSINESS

Inactivation SOPs – approved by the Inactivation Review Subcommittee
Vineet Menachery, PhD
Family/Genus: Coronaviridae
Inactivation Method(s): Formaldehyde Fixation of Infected Lung Tissue
Sample Matrix: Tissue

Human and Nonhuman Primate Products NOUs approved administratively
Istvan Boldogh, PhD
Dr. Boldogh submitted a renewal NOU for Human and Nonhuman Primate Products to work at BSL2 with **human established cells (nasal airway epithelial cells).**

Donald Bouyer, PhD
Dr. Bouyer submitted a renewal NOU for Human and Nonhuman Primate Products to work at BSL2 with **human blood, serum, commercial cells (HeLa, HUVEC, HMEC-1), and NHP commercial cell lines (Vero, Vero E6).**

Ruksana Huda, PhD
Dr. Huda submitted a renewal NOU for Human and Nonhuman Primate Products to work at BSL2 with **human blood and body fluids.**

Bhupendra Kaphalia, PhD
Dr. Kaphalia submitted a renewal NOU for Human and Nonhuman Primate Products to work at BSL2 with **human tissue and primary, commercial, or established cell lines (HEP G2, alveolar epithelial cells (type 2), lung fibroblasts).**

Surendra Sharma, MD, PhD
Dr. Sharma submitted a new NOU for Human and Nonhuman Primate Products to work at BSL2 with **human serum.**

Amendment: Human and Nonhuman Primate Products NOUs approved administratively
Mark Endsley, PhD
Dr. Endsley submitted an amendment to his work with Human and Nonhuman Primate Products to add work with **additional human commercial cell line (HepG2).**

Chien-Te Kent Tseng, PhD
Dr. Tseng submitted an amendment to his work with Human and Nonhuman Primate Products to add work with **additional human commercial cell line (HEK293).**

Xuping Xie, PhD
Dr. Xie submitted an amendment to his work with Human and Nonhuman Primate Products to add work with **additional human established and commercial cell lines (MRC-5, THP-1, HCT-8).**

Biological Agents and rDNA/RNA NOUs for review
David Beasley, PhD
Dr. Beasley submitted a new NOU for Biological Agents and rDNA/RNA to work at BSL2 with **mRNA vaccines (COVID-19 BNT162b2 original, COVID-19 BNT162b2 bivalent); NIH Guidelines: D4.** This NOU was **approved with the following conditions:**

- Section I.8.f, describe vaccine side effects.
- Section II.4, remove the Building Name [redacted] and instead list the building name(s) of ABSL2 labs.
- Section III.5, define "SD" upon first use.
- Section III.5, remove description of activities to be performed post-challenge and confirm that this information is listed on NOU #2022044.

1 abstained.

Ashok Chopra, PhD
Dr. Chopra submitted an NOU for Biological Agents and rDNA/RNA to work at BSL2 with **adenovirus vector (serotype 5 and ChAdOx1); NIH Guidelines: D1, D2, D4.** This NOU was **approved with the following conditions:**

- Section I.7.b, unselect No.
- Section I.9.a, if no agent will be inactivated, answer No.

- Section III.4, under Dose per Animal Maximum Concentration, provide units of concentration (e.g., PFU/mL, PFU/dose).

1 abstained.

Ashok Chopra, PhD

Dr. Chopra submitted a new NOU for Biological Agents and rDNA/RNA to work at BSL2 with **mRNA vaccines; NIH Guidelines: D4.** This NOU was **approved.**

Mark Endsley, PhD

Dr. Endsley submitted a new NOU for Biological Agents and rDNA/RNA to work at BSL2 with **influenza A virus (H1N1 A/PR/8/34); NIH Guidelines: N/A.** This NOU was **approved with the following conditions:**

- Section I.4, provide an SOP for concentration of virus.
- Section I.6, expand description.
- Section I.6, state that electron microscopy will be performed by the Cryo-EM Core Lab.
- Section I.9, confirm that live agent will be provided to the Cryo-EM Core, and that inactivation using EM buffer will not be performed under this NOU.
- Section I.B.5, if ultracentrifuge will be used to concentration virus, indicate use here.

Mark Endsley, PhD

Dr. Endsley submitted a new NOU for Biological Agents and rDNA/RNA to work at BSL2 with **respiratory syncytial virus (RSV); NIH Guidelines: N/A.** This NOU was **approved with the following conditions:**

- Section I.3, under Strain or Generation, state strain that will be used.
- Section I.4, provide an SOP for concentration of virus.
- Section I.7.e.ii, also state that ACIP recommends vaccination for individuals over 60 years.
- Section I.7.e.iii, answer No.
- Section I.9, confirm that live agent will be provided to the Cryo-EM Core, and that inactivation using EM buffer will not be performed under this NOU.
- Section I.B.5, if ultracentrifuge will be used to concentration virus, indicate use here.

Salim Hayek, MD

Dr. Hayek submitted a new NOU for Biological Agents and rDNA/RNA to work at BSL1 with **adeno-associated viral (AAV) vector (serotype 8); NIH Guidelines: D4.** This NOU was **tabled with the following conditions:**

- Consult with the Department of Biosafety for assistance in making corrections to the NOU.
- Section I.5, consider rephrasing "gain of function".
- Section I.6, expand description to include that AAV vector is sourced commercially and any downstream assays following administration to animals.
- Section I.8.c.ii, delete last sentence.
- Section I.B.4, confirm laboratory spaces.
- Section II.2, consider rephrasing "gain of function".
- Section II.3, expand description to include that AAV vector is sourced commercially and that no additional growth or genetic manipulation will occur in the lab.
- Section II.4, confirm laboratory spaces.
- Section III.4, under Dose per Animal Maximum Concentration, provide units of concentration (e.g., PFU/mL, PFU/dose).
- Section III.5, clarify the work that will happen with the animal within the first 72 hours after injection of AAV.

- Section III.6.a, delete "without anesthesia as these procedures do not cause excess distress in animals."
- Section III.6.b, title the uploaded document and include effective/revision date(s).
- Section III.6.b, remove any manipulation of the animal that will occur outside of 1) administration of the agent, and 2) within the first 72 hours after administration of the agent.
- Section III.8, also specify the type of container perfusion will be performed in (e.g., a metal pan); the perfusion material (e.g., PBS, paraformaldehyde); how contaminated absorbent material will be decontaminated prior to disposal into biohazard waste.
- Section III.10.b, confirm laboratory spaces.
- Section V.1.B, under Training at Other Institutions, remove names of institutions and list only the training obtained.

Agenor Limon-Ruiz, PhD

Dr. Limon-Ruiz submitted a new NOU for Biological Agents and rDNA/RNA to work at BSL2 with **human immunodeficiency virus (HIV); NIH Guidelines: N/A.** This NOU was **tabled with the following conditions:**

- Section I.4, if sonication of agent (or samples containing agent) will be performed, upload an SOP.
- Section I.6, clearly state whether patient or animal tissue samples are confirmed positive for HIV.
- Section I.6, clearly state expected concentrations of HIV in patient and animal tissue samples.
- Section I.6, clearly state whether membrane preparation inactivates HIV.
- Section I.6, confirm whether samples to be provided to the Mass Spectrometry Core have been inactivated, or if they are still potentially infected with HIV.
- Section I.6, specify when homogenization and sonication is performed, as these are selected in Section I.B.5.
- Section I.6, delete the sentence that begins "Although unlikely, there is a small probability …" as use of additional PPE is covered in Section I.B.3.
- Section I.6, delete the last sentence that begins "Recorded oocytes are placed into…"
- Section I.8.c.i, remove name of collaborator; a reference may be provided instead.
- Section I.8.c.ii, provide susceptibility to heat decontamination (time and temperature).
- Section I.8.f, delete last sentence that discusses opportunistic infections.
- Section I.8.g, delete "based on lab experience from collaborator."
- Section I.A.2.b.i, delete the word "frogs".
- Section I.B.3, face mask will not protect against aerosols; please provide a different reason why it is worn.
- Section III.6.b, Homogenization SOP, tissue samples from animals infected with HIV must be homogenized in the biosafety cabinet.
- Section V.1.B, under Experience with Agents, confirm that personnel have no experience with infectious agents.

Shannan Rossi, PhD

Dr. Rossi submitted a renewal NOU for Biological Agents and rDNA/RNA to work at BSL2 with **chimpanzee (simian) adenovirus vectors and mRNA vectors; NIH Guidelines: D4.** This NOU was **approved.**

1 recused.

Amendment: Biological Agents and rDNA/RNA NOUs for review

Alison Coady, PhD

Dr. Coady submitted an amendment to her work with *Aspergillus fumigatus* (CSB144.89, wild type and luciferase-expressing), *Mucor circinelloides* (R7B, wild type and luciferase-expressing), and *Fusarium solani* (wild type and luciferase-expressing) **to add animal work with mouse; NIH Guidelines: D4.** This NOU amendment was **approved with the following conditions:**

- Section I.6, in the last paragraph, consider broadening the description of animal work from solely *Mucor* species to any agents on this NOU.
- Section III.5, remove step-by-step procedures and instead provide a general description of the project.
- Section III.6.b, remove injury SOP.
- Section III.7, Homogenization SOP, remove surgical and pre-surgical steps; include only the information related to the direct process of homogenizing the tissues.
- Section III.7, Homogenization SOP, ensure organ weighing is not performed on the open bench (e.g. pre-weigh tubes before adding organs).
- Section III.10.a, delete text and instead state for euthanasia and necropsy.
- Section III.10.e, PPE for personnel who are handling animals from an ABSL2 in the laboratory should be double gloves, disposable lab coat or gown, eye protection, surgical mask, and head cover.
- Section V.1.B, under Experience with Agents, delete "Fungal species on this NOU" and instead state the agents.

Minghua Li, PhD

Dr. Li submitted an amendment to his work with Dengue virus (serotypes 1-4), Kunjin virus, La Crosse virus, Rift Valley fever virus (MP12 strain), Zika virus, and lentiviral vectors **to add work with West Nile virus; NIH Guidelines: D1, D3.** This NOU amendment was **approved.**

Junki Maruyama, PhD

Dr. Maruyama submitted an amendment to his work with pseudotyped vesicular stomatitis virus (VSV) (replication competent and incompetent) **to add work with guinea pig; NIH Guidelines: D1, D2, D3, D4.** This NOU amendment was **approved with the following conditions:**

- Section I.8.d, delete text in box.
- Section III.5, expand description of the project.

Casey Wright, PhD

Dr. Wright submitted an amendment to his work with lentiviral vector **to add work with retrovirus (pQCXIX); NIH Guidelines: D2.** This NOU amendment was **approved.**

Amendment: BSL3/4 CDC/USDA Regulated Agent NOUs for review

Alexander Bukreyev, PhD and Ashok Chopra, PhD

Drs. Bukreyev and Chopra submitted an amendment to their work with SARS-CoV-2 **to add flow cytometry/cell sorting; NIH Guidelines: D1, D2.** This NOU amendment was **approved with the following conditions:**

- Section I.4, upload flow cytometer SOP (this can be obtained from the BSL3 Facility Director).

Chien-Te Kent Tseng, PhD

Dr. Tseng submitted an amendment to his work with highly pathogenic avian influenza viruses (HPAIV) (A/Whooper swan/Mongolia/244/2005, A/Cambodia/R0405050/2007 (H5N1), A/Thailand/676/2005 (H5N1)) **to add work with HPAIV A/cattle/Texas/56283/2024(H5N1); NIH Guidelines: D4, D7.** This NOU amendment was **approved.**

III. OLD BUSINESS

Vaccine Clinical Trial NOU – Conditions Met

Richard Rupp, MD – Live attenuated respiratory syncytial virus (RSV) ΔNS2/Δ1313/I1314L vaccine (≥ 4.7 log10 PFU/dose); NIH Guidelines: C1 (#2024027)

Biological Agents and rDNA/RNA NOUs – Conditions Met

Ashok Chopra, PhD – T4 bacteriophage-based vaccines and anthrax lethal toxin; NIH Guidelines: D4 (#2024030)

Ashok Chopra, PhD – *Yersinia pestis* (LMA and LMP strains); NIH Guidelines: D1, D4 (#2024031)

Thomas Green, PhD – Adeno-associated viral vectors (rAAV2); NIH Guidelines: D4 (#2024017)

Giulio Taglialatela, PhD – Herpes simplex virus 1 (HSV1) (pBACYAC-LacZ-HSV-1(KOS)); NIH Guidelines: N/A (#2024035)

Chien-Te Kent Tseng, PhD – Influenza virus (H3N2 A/Aichi/2/68 (X-31), H1N1 A/PR/8/34); NIH Guidelines: N/A (#2024036)

David Changli Wei, MD, PhD – Lentiviral vectors; NIH Guidelines: N/A (#2024021)

Xuping Xie, PhD – Japanese encephalitis virus (JEV) vaccine strain SA14-14-2; NIH Guidelines: D1, D2 (#2024022)

Xuping Xie, PhD – Yellow fever virus (YFV) vaccine strain 17D; NIH Guidelines: D1, D2 (#2024023)

BSL3/4 CDC/USDA Regulated Agents NOUs – Conditions Met

Ashok Chopra, PhD – *Yersinia pestis* (CO92, Nepal 516, KIM6); NIH Guidelines: D1, D2, D4 (#2024037)

Amendment: Biological Agents and rDNA/RNA NOUs – Conditions Met

Nikos Vasilakis, PhD – Ilheus, Cacipacore, and Iguape viruses; NIH Guidelines: D1, D2, D4 (#2022088)

NOU Transfer: BSL3/4 CDC/USDA Regulated Agents NOUs – Conditions Met

David Beasley, PhD – SARS-CoV-2; NIH Guidelines: N/A (#2022044)

NOU Inactivation

Patricia Aguilar, PhD – Chikungunya virus; NIH Guidelines: N/A (#2019017)

IV. DISCUSSION

Scope of NOU Amendment Review

Reiterated what was discussed last month: the first reviewer would be responsible for reviewing the entire NOU; the second reviewer may review the entire NOU or may focus on only the parts that changed with the amendment.

The IBC discussed:

- Even items in an NOU that have been approved before are still open for discussion and correction; it would be welcomed if only the parts that changed with the amendment were reviewed.
- Only the amended part should be reviewed. However, if the reviewers are going to review the entire NOU, it should be reapproved for a new 5-year term.
- Sometimes NOUs are approved even when there are issues with the application; if these are not caught and corrected during subsequent reviews, that is an issue.
- Biosafety-related information can change over the course of 5 years, especially for emerging and re-emerging pathogens. Information on available SARS-CoV-2 vaccines was different when most of the SARS-CoV-2 NOUs were approved compared to now.
- Regarding renewing NOUs when amendments are reviewed: there are administrative issues with turning an amendment into a renewal.

This will be discussed further at a subsequent meeting to get the opinions of additional IBC members.

FSAP Inspection
Last week, inspectors from FSAP (USDA and CDC), as well as CDC Import Permit Program (IPP), were at UTMB. The FSAP inspection included regulated spaces at BSL2, BSL3, and BSL4. The FSAP items mentioned during the close-out meeting included:

- [redacted]
- [redacted]
- [redacted] (corrected while FSAP was on-site).

An IBC member commended the Department of Biosafety for their work during the inspection. DOB thanked the BSL3 Director for his support escorting inspectors. This was the fourth inspection in the last year: two document inspections and two on-site inspections. The goal is to return to the previous schedule, which was to have document inspection at the start of the calendar year and the on-site inspection afterward.

The IPP inspection included non-regulated spaces. IPP allowed FSAP to inspect the permitted containment spaces. Items mentioned during the close-out meeting included:

- [redacted] (corrected while IPP was on-site).
- [redacted] (corrected while IPP was on-site).
- [redacted]

The IPP inspectors noted that while labs were good at conveying the PPE visitors were required to wear upon entry into the laboratory, there was no visitor training to communicate the hazards present in the lab. Before DOB asks PIs to change this, it would be better to have an institutional policy in place. The IBC discussed the following:

- IPP stated that the training does not need to be documented.
- IPP gave examples of how to give this training: review the door sign with the visitor; tell the visitor that today in the lab, we have X, Y, and Z hazards present.
- Once a policy is decided on, it can go into the campus Safety Manual, and initial/annual biosafety training.
- An IBC member strongly opposed this policy. It seems like a recommendation that is going to become a requirement.
- What is the difference between having a sign on the door vs. this visitor training?
- If the training doesn't have to be documented, how will we know labs are doing it?
- The BMBL states that an institutional policy regarding visitor training, occupational health requirements, and safety communication be considered.
- At an IBC member's previous institution, each lab had a script for any visitor. It was a short paragraph covering the infectious agents and the risks in the lab. It was something that visitors were read before they came in. It was a standardized format but the specifics were adapted to each lab. It included contact information for a visitor to get additional information

This will be discussed again at a subsequent meeting.

V. ADJOURNMENT

The meeting was adjourned at 4:22 PM.

[redacted] [redacted]

Institutional Biosafety Committee
301 University Blvd.
Galveston, TX 77555-0192
O 409.772.1781

MINUTES
June 7, 2024

The Institutional Biosafety Committee met virtually on Friday, June 7, 2024 using Microsoft Teams. The meeting was called to order at 2:00 PM and was chaired by [redacted]

MEMBERS PRESENT

[redacted]

MEMBERS ABSENT

[redacted]

CONSULTANTS

[redacted]

I. APPROVAL OF MINUTES

The minutes of the May 3, 2024 meeting were approved.

II. NEW BUSINESS

Inactivation SOPs – approved by the Inactivation Review Subcommittee

Alexander Bukreyev, PhD
Family/Genus: Hantaviridae
Inactivation Method(s): Virus Inactivation of Liquids Using TRIzol TRI regent or TriPure Reagent for Total RNA isolation
Sample Matrix: Liquid culture

Thomas Ksiazek, DVM, PhD
Family/Genus: Orthomyxoviridae
Inactivation Method(s): SOP.A10002.1 Influenza Virus Inactivation_TRIzol LS
Sample Matrix: Liquid culture

Chien-Te Kent Tseng, PhD
Family/Genus: Orthomyxoviridae
Inactivation Method(s): Inactivation of Influenza Virus by TRIzol reagent
Sample Matrix: Liquid

Inactivation Method(s): Formalin Fixation of Animal Tissue
Sample Matrix: Tissue

Scott Weaver, PhD
Family/Genus: Orthomyxoviridae
Inactivation Method(s): SOP.A10002.1 Influenza Virus Inactivation_TRIzol LS
Sample Matrix: Liquid culture

Human and Nonhuman Primate Products NOUs approved administratively
Salim Hayek, MD
Dr. Hayek submitted a new NOU for Human and Nonhuman Primate Products to work at BSL2 with **human blood, body fluids, tissue, serum, and commercial cell lines (HUVEC, THP-1).**

Jonathan Hommel, PhD
Dr. Hommel submitted a new NOU for Human and Nonhuman Primate Products to work at BSL2 with **human commercial cell lines (HEK293).**

Amendment: Human and Nonhuman Primate Products NOUs approved administratively
Vineet Gupta, PhD
Dr. Gupta submitted an amendment to his work with Human and Nonhuman Primate Products **to add administration of human blood products into mouse.**

Reactivated NOU: Biological Agents and rDNA/RNA NOUs approved administratively
Jonathan Hommel, PhD
Dr. Hommel complied with the requirement (to obtain an NOU for Human and Nonhuman Primate Products) to reactivate his suspended NOU for **adeno-associated viral vector; NIH Guidelines: D2, D3, D4.**

NOU Transfer: Human and Nonhuman Primate Products NOUs approved administratively
Susan McLellan, MD, MPH to Corri Levine, PhD, MPH
Drs. McLellan and Levine submitted a request to transfer an NOU for Human and Nonhuman Primate Products to work at BSL2 with **human blood, serum, body fluids, tissue, and bone.**

Disinfectant Review
Sani-Cloth Germicidal Wipes
Dr. Carole Tucker requested to use **Sani-Cloth AF3 Germicidal Wipes** for disinfection of surfaces when working with **human products (blood, body fluids, tissue).** The use of this disinfectant was **approved.**

Biological Agents and rDNA/RNA NOUs for review
David Beasley, PhD
Dr. Beasley submitted a renewal NOU for Biological Agents and rDNA/RNA to work at BSL2 with **yellow fever virus vaccine (17D and substrains); NIH Guidelines: D2.** This NOU was **approved with the following conditions:**

- Section I.6, remove specific building and room numbers from the description.

Alexander Bukreyev, PhD

Dr. Bukreyev submitted a new NOU for Biological Agents and rDNA/RNA to work at BSL2 with **dengue virus (serotypes 1, 2, 3, 4); NIH Guidelines: N/A.** This NOU was **tabled with the following conditions:**

- Section I.3, under Strains and Generation, delete RNA and instead list the strains that are expected to be obtained.
- Section I.6, expand the description of the PBMCs, including whether they are from individuals who are acutely infected or convalescent, and if the samples are expected to be dengue virus-positive, etc.
- Section I.6, provide additional information on how the samples have been screened, including if it is known that only dengue virus is present.
- Section I.6, if other pathogens (including risk group 3 or 4 agents) may be present in PBMC samples, consider whether inactivation SOPs need to be modified to account for this risk.
- Section I.6, clearly describe any manipulation of the samples that will be performed prior to inactivation.
- Section I.6, expand on the downstream assays.
- Section I.7.e.i, also select Internationally available.
- Section I.7.e.ii, also list Takeda vaccine (QDENGA).
- Section I.8.a.iii, provide maximum expected concentration of agent in samples.
- Section I.8.c.ii, provide contact time for disinfection of agent with CaviCide and 10% bleach.
- Section I.8.d, also select mucous membrane.
- Section I.8.f, also describe information on the spectrum of disease.
- Section I.9.a, answer Yes and answer the subsequent questions, including uploading inactivation SOPs (for example, extraction of DNA or RNA from PBMCs).

Upon resubmission, this NOU may undergo expedited review if the project is time-sensitive.

Salim Hayek, MD (previously tabled May 2024)

Dr. Hayek resubmitted a new NOU for Biological Agents and rDNA/RNA to work at BSL1 with **adeno-associated virus (AAV) (serotype 8); NIH Guidelines: D4.** This NOU was **approved with the following conditions:**

- Section I.8.c.ii, provide susceptibility of agent to CaviCide.
- Section III.6.a, delete "isofluorane drop jar will be employed to briefly anesthetize mice during procedure" and instead state the animals will be anesthetized with an IACUC approved method.
- Section III.8, for absorbent material used to collect PBS, decontaminate with either 10% bleach or CaviCide; ethanol is not an approved primary disinfectant at UTMB.
- Section III.8, for absorbent material used to collect paraformaldehyde, dispose as biohazardous waste (any collected liquid paraformaldehyde is disposed as chemical waste).

Agenor Limon-Ruiz, PhD (previously tabled May 2024)

Dr. Limon-Ruiz resubmitted a new NOU for Biological Agents and rDNA/RNA to work at BSL2 with **human immunodeficiency virus (HIV); NIH Guidelines: N/A.** This NOU was **approved with the following conditions:**

- Section I.8.g, also clarify how copies/mL (as listed here) correlates to particles/mg tissue (as listed in Section I.6).
- Section I.B.3, change "aerosols" to "splashes".

1 abstained.

Vladimir Motin, PhD

Dr. Motin submitted a renewal NOU for Biological Agents and rDNA/RNA to work at BSL2 with **adenovirus (replicatively-disabled); NIH Guidelines: D1, D2.** This NOU was **approved.**

Xuping Xie, PhD

Dr. Xie submitted a new NOU for Biological Agents and rDNA/RNA to work at BSL2 with **West Nile virus; NIH Guidelines: D1, D2.** This NOU was **not reviewed.**

When the applicant clarifies an element of the project, it may undergo expedited review.

Amendment: Biological Agents and rDNA/RNA NOUs for review

Hugues Fausther Bovendo, PhD

Dr. Fausther Bovendo submitted an amendment to his work with enterovirus 68 (strains USA 2020-23335, USA/2018-23089, US/KY/14-18953, USA/TX/2001-23223) and enterovirus 71 (strains Tainan/4643/1998, USA/WA/2016-19522, USA/2018-23082) **to add measurement of brain electrophysiology; NIH Guidelines: D4.** This NOU amendment was **approved with the following conditions:**

- Section I.6, clarify whether brain electrophysiology will be performed in a primary containment device.
- Section I.8.b, if brain electrophysiology will not be performed in a primary containment device, answer Yes and provide scientific justification.
- Section II.24.a, answer No.
- Section III.2, if IACUC protocols have been approved, update IACUC protocol # and approval date.
- Section III.4, under Dose per Animal Maximum Concentration, provide units of concentration.

Thomas Geisbert, PhD

Dr. Geisbert submitted an amendment to his work with recombinant vesicular stomatitis virus (rVSV) (Indiana or New Jersey strain) vaccine vectors expressing proteins of Ebola virus, Marburg virus, Lassa virus, Junin virus, Machupo virus, Guanarito virus, Sabia virus, Lujo virus, Chapare virus, Rift Valley fever virus, Andes virus, Nipah virus, Hendra virus, Crimean-Congo hemorrhagic fever virus, Zika virus, HIVgag, SARS-CoV-1, SARS-CoV-2, MERS-CoV, or Kyasanur Forest virus; cell lines stably expressing a single protein from henipaviruses (F/H) or the glycoprotein of rVSV **to change vaccine vectors from individual viruses to viral families; NIH Guidelines: D1, D2, D3, D4.** This NOU amendment was **approved with the following conditions:**

- Section I.3, under Bioagent Name, harmonize with the requested change to virus families, or list agent simply as "Recombinant vesicular stomatitis virus (rVSV) vaccine vector".
- Section II.13.b.ii, also list inserted genes from phleboviruses and hantaviruses.
- Section II.13.b.iii, also list expressed proteins or genes from phleboviruses and hantaviruses.
- Section III.4, under Dose per Animal Maximum Concentration, provide units of concentration or clarify if the amount is pfu per dose.

Amendment: BSL3/4 CDC/USDA Regulated Agent NOUs for review

David Beasley, PhD

Dr. Beasley submitted an amendment to his work with SARS-CoV-2 **to add information on study-specific experimental procedures for work with animals; NIH Guidelines: N/A.** This NOU amendment was **approved.**

Janice Endsley, PhD

Dr. Endsley submitted an amendment to her work with *Mycobacterium tuberculosis* (H37Rv, Erdman, CDC1551, HN878 [Beijing]) and *M. bovis* (Karlson and Lessel) **to add oral gavage without anesthesia; NIH Guidelines: N/A.** The IBC discussed the following:

- The loss of dexterity from wearing cut resistant gloves outweighs the protection they would provide.

This NOU amendment was **approved with the following conditions:**

- Section III.6.a, add a statement on the risk or lack of risk for personnel performing this procedure without anesthesia.
- Section III.6.a, delete the last paragraph, starting at "Potential sequelae include …".
- Section III.6.b, Oral Gavage SOP, change ABSL2 to ABSL3.

1 recused. 1 abstained.

Shannan Rossi, PhD

Dr. Rossi submitted an amendment to her work with Chikungunya virus **to add Japanese encephalitis, Powassan, Rocio, and St. Louis encephalitis viruses; NIH Guidelines: D2, D3, D4.** This NOU amendment was **approved with the following conditions:**

- **Material containing flaviviruses may not be removed from containment until inactivation SOPs for flaviviridae have been approved by the Inactivation SOP Review Subcommittee. Please submit inactivation SOPs using this form: https://utmb.us/b16.**
- Section I.8.g, specify the agent(s) for which infectious dose is unknown.
- Section III.5, delete the last 3 sentences, starting with "No more than 10% …".
- Section III.7, Homogenization SOP, please add a statement that all steps where the agent is manipulated or homogenized are performed in a BSC.

1 recused.

Response to Conditions: BSL3/4 CDC/USDA Regulated Agents NOUs for review

Dennis Bente, PhD

Dr. Bente submitted a response to conditions for his work with **Bourbon, Thogoto, Dhori, and Oz viruses; NIH Guidelines: D3, D4.** The IBC discussed the following:

- One reviewer compared the provided ACL3 SOPs to previous ACL2 SOPs and found them to be very similar, with a few superficial changes (ACL2 to ACL3) but little of the content changed. ACL2 SOPs from this PI were recently reviewed by the IBC and the changes required to those SOPs have not been implemented here. The reviewer was disappointed by the number of issues in the ACL3 SOPs and felt they had spent more time reviewing the SOPs than the PI spent adapting the SOPs to ACL3.
- DOB noted that in the last 12 years, the PI has not had access to a UTMB ACL3. If the PI has not worked in an ACL3 here, who will train these ACL3 users?
- An IBC member noted that these concerns have come up years ago and again just months ago. They felt that this submission was a waste of time and disrespectful to the committee. How does the committee deal with someone who does not take responsibility for providing comprehensive procedures?
- One reviewer noted that the PI indicated on the personnel table that they had completed ACL3 training at UTMB, and asked if that was accurate. An ACL3 Director clarified that the PI had completed ACL2 and ACL4 training, but not ACL3. The reviewer noted that the committee shouldn't spend more time on this NOU as the applicant is not being transparent.
- An IBC member ask whether, if this NOU is tabled, there would be any potential loss of animals or tick colonies. One of the conditions for approval was that work with animals and arthropods could not commence until full approval was obtained by the IBC. Since this NOU has not yet received full approval, no work with animals or ticks could have started; tabling the NOU would not result in loss of animals or ticks.
- An IBC member asked whether a graduate student or someone else submitted this application, as the issues are disturbing. DOB noted that only the PI or one of his two proxies has access to EHSA to submit the application but that the SOPs could have been written by anyone.

This NOU response to conditions was **tabled with the following conditions:**

- Section I.6, in the sentence starting with "For tick transmission studies …", change "feeding infected animals" to "feeding on infected animals".
- Section I.6, clarify whether Bourbon virus is the only agent carrying a fluorescent reporter.
- Section I.6, also describe studies with *Ixodes* and *Hyalomma* spp., as these are selected in Section IV.2.
- Section I.6, in the sentence starting with "If higher than expected …", change "the IBC will be informed" to "the IBC will be informed immediately".
- Section I.B.5, under Homogenizer type, also list the CryoPrep system.
- Section I.B.5, if the Qiagen TissueLyzer will be used with animal or arthropod tissues containing agent(s), also upload homogenization SOPs to Section III.7 and/or Section IV.7.
- Section III.7, SOP – Homogenization of tissue using the CryoPrep System
    - Under Section 4.0 (Requirements), provide a justification for why glass tubes must be used for this procedure.
    - 5.4.4, change "should be used" and "should be loaded" to "must be used" and "must be loaded".
- Section IV.3, in the first sentence, change "feeding infected animals" to "feeding on infected animals".
- Section IV.7, SOP – Homogenization of ticks using the CryoPrep System
    - A member of the Department of Biosafety will visit the lab to perform a risk assessment of this piece of equipment.
    - Under Section 4.0 (Requirements), provide a justification for why glass tubes must be used for this procedure.
    - 5.8.4, change "should be used" and "should be loaded" to "must be used" and "must be loaded".
- Section IV.7, SOP Tick ACL3 - 0001 – Tick acquisition and transmission of pathogens in Arthropod Containment Level-3 (ACL-3) Laboratory
    - Throughout, update BSL2, ACL2, and ABSL2 (directors, staff, users, training, etc.) to BSL3, ACL3, and ABSL3.
    - Multiple Appendices and SOPs are referenced but are not provided. Upload to Section IV.7: Appendices 1, 2, 3, and 6, SOP "Entrance and Exit Procedures Tick ACL-3 002", SOP 003 Emergency Response for the ACL Facility within [redacted], SOP 006 Emergency Responses for ACL Facility within [redacted].
    - Accurate counting and recording of all infected ticks (larvae, nymphs, and adults) added to and removed from an animal and of all naïve ticks (larvae, nymphs, and adults) added to or removed from an infected animal is mandatory at ACL3. Ensure that counting and documentation of ticks is described throughout these SOPs.
    - Please clarify where infested rabbits will be housed, as guinea pigs are the largest animals that can be worked with in the [redacted]. If they will be housed in an ABSL3, upload SOP to Section IV.7.
    - 1.0 and throughout, clarify which ACL3 these SOPs are for [redacted].
    - Throughout, clarify containment barriers around different types of animal cages and rooms.
    - 4.4, update UTMB Safety Manual 2015 to current version, or state "most current version".
    - 5.1.3, update Environmental Health and Safety to Department of Biosafety.
    - 5.2, update Environmental Health and Safety to Department of Biosafety.
    - 5.4.1, for entrance and exit procedures, reference the ACL3 Facility Manual. If the SOP "Entrance and Exit Procedures Tick ACL-3 002" deviates from the practices in the ACL3 Facility Manual, upload SOP to Section IV.7.

- 8.1.2.3, provide justification for why the chill table is only used for large numbers of larvae. If the chill table assists with immobilizing ticks (thus increasing safety) should this be used with other life stages and lower numbers of larvae? What defines large numbers?
- 8.1.2.9, 8.1.2.10, 8.3.2.9, and 8.3.2.10, confirm the practice of placing animal cages in a secondary containment barrier such as a tray or pan filled with soapy water, as this is not standard practice in ACL3.
- 8.1.2.12, clarify that the referenced removal is of the gel capsule or PCR tubes that was used to administer the ticks, and not the tick capsule used to contain the ticks.
- 8.1.2.14 and 8.3.2.15 references SOP 003 Emergency Response for the ACL Facility within [redacted]. Clarify whether this SOP also describes emergency response procedures in [redacted] or [redacted].
- 8.3.2.4, clarify whether the referenced Appendix 5 applies for level 3 pathogens.
- 8.3.2.4, clarify if Appendix 5 is the table also uploaded to this NOU (Maximum number of ticks to be used for tick infestation), as it is not identified as Appendix 5.
- Section 9.3, instead of enumerating larvae by average weight (as volume of blood meal and hydration status will affect this), enumerate ticks by using an average weight of egg mass, separating and isolating into bundles of 50-100 eggs, allowing to hatch, and then placing on the animal for feeding.
- 9.3, in the last sentence, delete "Engorged", and instead count all nymphs and adult ticks.
- 9.4, also state that for infected ticks or ticks that fed on infected animals, the agent must be included on the label.
- 10.0 references SOP 006 Emergency Responses for ACL Facility within [redacted], whereas in other sections of this SOP, this is listed as SOP 003. If these are the same SOP, harmonize language.

- Section IV.7, Table – Maximum number of Haemaphysalis and Amblyomma ticks per animal
  - Strict accounting for all arthropods added to and removed from an animal is mandatory at ACL3; align maximum number of ticks with currently approved ACL3 SOPs.
  - Also provide maximum number of ticks for *Ixodes* and *Hyalomma* spp., as these are selected in Section IV.2.
- Section IV.7, SOP DABLAB003 – Artificial Feeding System
  - 4.6, change disinfectant for the components of the tick feeding unit and the electronic heating block from 70% ethanol to another disinfectant, or provide a justification for its use as a primary disinfectant, including susceptibility of these agents to 70% ethanol and contact time.
- Section IV.7, SOP Tick-ACL3 - 0002 – Working with ticks in Arthropod Containment Level 3 (ACL-3) Laboratory
  - Throughout this SOP, when compared to SOP Tick ACL3 - 0001 – Tick acquisition and transmission of pathogens in Arthropod Containment Level-3 (ACL-3) Laboratory, the same types of procedures are described, but there are technical differences in the steps. Clarify which SOP will be followed by users and how users know which SOP to follow.
  - 4.1, update BMBL to most current edition.
  - 5.1.3, update Environmental Health and Safety to Department of Biosafety.
  - 5.2, update Environmental Health and Safety to Department of Biosafety.
- Section V.1.B, under Years of Experience, for those with experience at ACL3, break out whether this experience was obtained at UTMB or at another institution.
- Section V.1.B, under Training at UTMB, for the PI, unselect ACL3.

III. OLD BUSINESS

Vaccine Clinical Trial NOU – Conditions Met

Richard Rupp, MD – BNT162b2 RNA-Based COVID-19 Vaccine (Omicron BA.4/BA.5); NIH Guidelines: C1 (#2023023)

Richard Rupp, MD – V181; Dengue quadrivalent vaccine rDENVΔ30 (live, attenuated) (doses up to 2.7×10^4 PFU per serotype); NIH Guidelines: C1 (#2024028)

Breeding Transgenic Animal NOUs – Conditions Met

Balaji Krishnan, PhD - *Drosophila melanogaster*-GAL4 × *D. melanogaster*-UAS; NIH Guidelines: D4 (#2022128)

Biological Agents and rDNA/RNA NOUs – Conditions Met

David Beasley, PhD – Japanese encephalitis virus vaccine strain (SA 14-14-2); NIH Guidelines: D1, D2 (#2023052)

David Beasley, PhD – mRNA vaccines (COVID-19 BNT162b2 original, COVID-19 BNT162b2 bivalent); NIH Guidelines: D4 (#2024044)

Miguel Cabada, MD – *Fasciola hepatica*; NIH Guidelines: N/A (#2023016)

Bo Chen, PhD – Adeno-associated virus (AAV) serotypes 2 and 5; NIH Guidelines: D4 (#2023026)

Ashok Chopra, PhD – Adenovirus vectors (serotype 5 and ChAdOx1); NIH Guidelines: D1, D2, D4 (#2024029)

Hugues Fausther Bovendo, PhD – Respiratory syncytial virus (RSV), human metapneumovirus (hMPV); NIH Guidelines: D4 (#2023066)

Bin Pan, MD, PhD – Adeno-associated virus (AAV) (serotypes 2, 5, 6, 8); NIH Guidelines: D4 (#2024032)

Parimal Samir, PhD – *Aeromonas hydrophila*, *Klebsiella pneumoniae* (subspecies *pneumoniae*, *ozaenae*, and *rhinoscleromatis*), *K. oxytoca*, *K. granulomatis*, *K. variicola*, *K. singaporensis*, *K. planticola*, *K. terrigena*, *K. orinthinolytica*, and *Listeria monocytogenes*; NIH Guidelines: N/A (#2024033)

Parimal Samir, PhD – *Aspergillus fumigatus*, *A. flavus*, *A. nidulans*, *A. niger*, *A. terreus*, *A. montevidensis*, and mycovirus; NIH Guidelines: N/A (#2024034)

Nikos Vasilakis, PhD – *Rickettsia parkeri* (Atlantic Rainforest-like, Tate's Hell); NIH Guidelines: N/A (#2021128)

BSL3/4 CDC/USDA Regulated Agents NOUs – Conditions Met

Chien-Te Kent Tseng, PhD – SARS-CoV-1 (mouse-adapted strain MA-15, Urbani); NIH Guidelines: D3, D4 (#2023102)

Amendment: Biological Agents and rDNA/RNA NOUs – Conditions Met

Alison Coady, PhD – *Aspergillus fumigatus* (wild type CSB144.89 and C3 [luciferase-expressing]), *Fusarium solani* (wild type and luciferase-expressing), *Mucor circinelloides* (R7B, wild type and luciferase-expressing); NIH Guidelines: D4 (#2023065)

Amendment: BSL3/4 CDC/USDA Regulated Agents NOUs – Conditions Met

Alexander Bukreyev, PhD and Ashok Chopra, PhD – SARS-CoV-2 (NeonGreen, USA-WA 1/2020, hCoV-19/USA/MD-HP01542/2021 (SA)B.1.1351, P23301 SARS CoV-2 Delta); NIH Guidelines: D1, D2, D3, E1 (#2020023)

NOU Inactivation

Emilio Gonzalez, PhD – Human and NHP Products; NIH Guidelines: N/A (#2021041) – PI left UTMB

Sanjeev Sahni, PhD – *Rickettsia conorii*; NIH Guidelines: D1, D2, D4 (#2019026) – NOU expired

Tian Wang, PhD – West Nile virus; NIH Guidelines: D3, D4 (#2019006) – NOU expired

IV. DISCUSSION

Thank You to Departing IBC Member

[redacted] is departing UTMB. He was thanked for his years of service to the IBC.

Emergency Weather Information
The campus is at 88% completion for labs to submit emergency weather forms. This form is how dry ice pre-orders information is obtained and FRS numbers are collected. An IBC member asked for clarification on whether the dry ice pre-ordered for emergency weather events are paid by the PI or by the institution. DOB had been asked by Supply Chain to collect FRS numbers in order to place orders. The IBC member stated that during a meeting with Supply Chain leadership, and it was stated that this is an institutional expense; if the FRS will be used for dry ice, inform stakeholders so this can be escalated quickly to leadership.

Liquid nitrogen orders may be different; it is possible these are the reason an FRS number is collected.

July IBC meeting
The upcoming July IBC meeting is scheduled for an atypical day due to the July 4 holiday.

Legal Consultants
One of the IBC's long-standing consultants, [redacted] has transitioned to a different role within UTMB. [redacted] will be the lead for Legal over the areas related to the IBC. Another consultant, [redacted] has joined that team.

High Pathogenicity Avian Influenza Regulatory Changes
FSAP sent a notice yesterday that H5 avian influenza virus is exempt from the Select Agent regulations for the next three years to respond to the public health emergency. DOB is going to work on a set of minimum inventory requirements for investigators to follow, since in three years these samples will again be select agents and UTMB will need to be able to account for every vial on campus.

If virus is shipped, the receiver will need to have a USDA permit.

V. ADJOURNMENT
The meeting was adjourned at 3:54 PM.

[redacted]

[redacted]

utmb Health

Institutional Biosafety Committee
301 University Blvd.
Galveston, TX 77555-0192
O 409.772.1781

MINUTES
August 2, 2024

The Institutional Biosafety Committee met virtually on Friday, August 2, 2024 using Microsoft Teams. The meeting was called to order at 2:00 PM and was chaired by [redacted]

MEMBERS PRESENT

[redacted]

MEMBERS ABSENT

[redacted]

CONSULTANTS

[redacted]

GUESTS

[redacted]

I. APPROVAL OF MINUTES

The minutes of the June 7, 2024 meeting were approved.

II. NEW BUSINESS

Request to Lower Biosafety Level – approved by NIH Office of Science Policy

Ashok Chopra, PhD

Dr. Chopra submitted a request to NIH OSP to lower the biosafety level of his work with ***Yersinia pestis*** **(LMA and LMP strains); NIH Guidelines: D1, D4.**

Inactivation SOPs – approved by the Inactivation Review Subcommittee

Alexander Freiberg, PhD

Family/Genus: Arenaviridae

Inactivation Method(s): Gamma Irradiation
Sample Matrix: Liquid culture

Inactivation Method(s): 4020 - Formalin Inactivation of Tissue Culture plates or chamber slides in BSL4
Sample Matrix: Cell monolayers

Inactivation Method(s): 4024 - Formalin Fixation of Animal Tissue
Sample Matrix: Tissue

Inactivation Method(s): SLP-0400-0004v4-Viral Neutralization Using TRIzol Reagent for Total RNA isolation and Analysis
Sample Matrix: Cell monolayers

Inactivation Method(s): SOP# 31 Virus Inactivation of Liquids Using TRIzol, TRI-Reagent, or TriPure Reagent for Total RNA isolation
Sample Matrix: Liquid culture

Family/Genus: Filoviridae

Inactivation Method(s): Formalin Fixation of Animal Tissue - 21 Day Large Tissues
Sample Matrix: Tissue

Inactivation Method(s): 4020 - Formalin Inactivation of Tissue Culture plates or chamber slides in BSL4
Sample Matrix: Cell monolayers

Inactivation Method(s): 4024 - Formalin Fixation of Animal Tissue
Sample Matrix: Tissue

Inactivation Method(s): 4021 - Formaldehyde 4% inactivation of cells
Sample Matrix: Cell monolayer, liquid culture

Inactivation Method(s): Gamma Irradiation
Sample Matrix: Liquid culture, tissue, slides, assay plates

Inactivation Method(s): Formalin Fixation of Animal Tissue
Sample Matrix: Tissue

Inactivation Method(s): SOP-LAB-002-007-v01 - Inactivation of Liquid Samples Containing Virus Using Trizol, Tri-Reagent and TriPure Reagent
Sample Matrix: Liquid culture

Family/Genus: Paramyxoviridae

Inactivation Method(s): Formalin Fixation of Animal Tissue - 21 Day Large Tissues
Sample Matrix: Tissue

Gregory Gray, MD, MPH
Family/Genus: Pneumoviridae
Inactivation Method(s): SOP.A10001 Field Sample Inactivation with TRIzol LS
Sample Matrix: Liquid culture

Human and Nonhuman Primate Products NOUs approved administratively
Hugues Fausther Bovendo, PhD
Dr. Fausther Bovendo submitted a new NOU for Human and Nonhuman Primate Products to work at BSL2 with **human blood, serum, tissue, and commercial cell lines (HEK293, HEP G2, RD cells, A549, Hep2) and NHP blood, serum, body fluids, and established and commercial cell lines (Vero, Vero E6).**

Anna Fracassi, PhD
Dr. Fracassi submitted a new NOU for Human and Nonhuman Primate Products to work at BSL2 with **human tissue.**

Mauro Montalbano, PhD
Dr. Montalbano submitted a new NOU for Human and Nonhuman Primate Products to work at BSL2 with **human established cell lines (HEK293).**

Carole Tucker, PhD
Dr. Tucker submitted a new NOU for Human and Nonhuman Primate Products to work at BSL2 with **human blood, body fluids, and tissue.**

Amendment: Human and Nonhuman Primate Products NOUs approved administratively
Alexander Freiberg, PhD
Dr. Freiberg submitted an amendment to his work with Human and Nonhuman Primate Products **to add work with additional human primary and commercial cell lines (HeLa, HEK293, THP-1, cardiomyocyte, HMEC-1, HUVEC).**

Guy Nir, PhD
Dr. Nir submitted an amendment to his work with Human and Nonhuman Primate Products **to add work with additional human established and commercial cell lines (MDA-MB-231, HEK293, MCF 10A, glioblastoma stem cells).**

Pablo Valdes Quevedo, MD, PhD
Dr. Valdes Quevedo submitted an amendment to his work with Human and Nonhuman Primate Products **to add work with established and commercial cells (human glioma stem cells (U251)).**

Biological Agents and rDNA/RNA NOUs – approved by eVote
Salim Hayek, MD
Dr. Hayek submitted a new NOU for Biological Agents and rDNA/RNA to work at BSL2 with **influenza A and B viruses; NIH Guidelines: N/A.** This NOU was **approved with the following conditions:**

- Section I.3, specify what "influenza" encompasses (vs. influenza A and influenza B). If influenza C or D will be handled, list these in the table.
- Section I.6, expand on any activities that will be performed with biological material in a chemical fume hood, as this equipment is selected in Section I.B.7.
- Section I.7.e.ii, specify seasonal flu vaccine.
- Section I.8.f, unselect Field Samples, or explain in Section I.6 the types of field samples that will be obtained.
- Section I.8.h, expand on the infectious dose in relevant animal models.

- Section I.9.d.i and I.9.d.ii, confirm that no samples will be inactivated for flow cytometry studies, or provide inactivation SOP.
- Section I.9.d.i and I.9.d.ii, confirm that no samples will be fixed for microscopy, or provide inactivation SOP.
- Section I.9.d.ii, Immunoassay Protocol, define what proper PPE is.
- Section I.9.d.ii, Immunoassay Protocol, 2% bleach is listed for liquid decontamination within the SOP, but 10% household bleach is listed in Section I.B.7. Update SOP to 10% bleach.
- Section V.1.B, under Training at UTMB, for Dr. Hayek, complete field.

Salim Hayek, MD

Dr. Hayek submitted a new NOU for Biological Agents and rDNA/RNA to work at BSL2E with **SARS-CoV-2; NIH Guidelines: N/A.** This NOU was **approved with the following conditions:**

- **Inactivation of samples containing SARS-CoV-2 must have UTMB IBC approval for method-specific inactivation. Provide inactivation SOP, validation SOP, and validation data: https://utmb.us/b16**
- **Cell sorting of live samples containing agent may not be performed at BSL2.**
- Section I.6, state that PPE signage specifying the PPE required to enter the space will be posted in the lab when SARS-CoV-2 samples are handled.
- Section I.6, clarify whether samples from multiple patients will be handled at once, as the response in Section I.8.a.ii indicates up to 4 blood tubes may be handled at one.
- Section I.6, expand on any activities that will be performed with biological material in a chemical fume hood, as this equipment is selected in Section I.B.7.
- Section I.7.e.ii, specify available vaccines (e.g., by name and/or manufacturer).
- Section I.8.a.iii, change "Viral particles have not been detected in patient blood" to "Viral particles have rarely been detected in patient blood".
- Section I.8.e, unselect Existing Stock, or explain in Section I.6 where these samples are from.
- Section I.9.d.i and I.9.d.ii, confirm that no samples will be inactivated for flow cytometry studies, or provide inactivation SOP.
- Section I.9.d.i and I.9.d.ii, confirm that no samples will be fixed for microscopy, or provide inactivation SOP.
- Section I.9.d.ii, delete Immunoassay Protocol, as this is not an SOP for inactivation of agent.

Slobodan Paessler, DVM, PhD

Dr. Paessler submitted a new NOU for Biological Agents and rDNA/RNA to work at BSL2 with **RNA vaccines and *Saccharomyces cerevisiae* containing RNA vaccines; NIH Guidelines: D4.** This NOU was **approved with the following conditions:**

- Section I.6, specify the agents (or families of agents) that the vaccines are for.
- Section I.7.b, confirm that *S. cerevisiae* delta-PEP4 cannot infect humans, including immunocompromised individuals. If it can, answer Yes to Section I.7.c.ii.
- Section I.8.a.iii, provide units of concentration for *S. cerevisiae*.
- Section I.8.c.i, describe stability of RNA vaccines and of *S. cerevisiae* in the environment.
- Section I.8.c.ii, describe susceptibility of RNA vaccines and of *S. cerevisiae* to decontamination.
- Section I.8.d, select Sharps.
- Section I.8.f, describe pathogenicity of RNA vaccines (e.g., side effects of vaccination) and of *S. cerevisiae*.
- Section I.8.g, provide doses of mRNA vaccines used in humans and information on *S. cerevisiae*.
- Section I.B.7, confirm that bleach will not be used in the event of a spill or in a waste tray. If it will be used, select it on the table.

- Section III.4, under Dose per Animal, Maximum Concentration, for *S. cerevisiae*, provide units of concentration or clarify if the maximum is 10^8 cells per dose.
- Section III.4, under Routes of Administration, for any animal models where agent will be administered by oral gavage, uncheck Oral and instead check Gavage.
- Section III.4, under Sampling, also select Organs for all animal models.

Xuping Xie, PhD

Dr. Xie submitted a new NOU for Biological Agents and rDNA/RNA to work at BSL2 with **adenovirus type 5 vector; NIH Guidelines: D4.** This NOU was **approved with the following conditions:**

- **If agent or infected animals are moved into or handled in BSL3, material may not be removed from containment until SOPs have been approved by the IBC Inactivation SOP Subcommittee.**
- Section I.6, add a statement regarding whether expression of the target gene of interest is likely to enhance susceptibility, decrease susceptibility, or have no effect on susceptibility to the agent. If expression of the target gene is likely to enhance susceptibility, answer Yes to Section I.A.1.f.

Xuping Xie, PhD

Dr. Xie submitted a new NOU for Biological Agents and rDNA/RNA to work at BSL2 with **West Nile virus; NIH Guidelines: D1, D2.** This NOU was **approved with the following conditions:**

- The response to conditions will be reviewed by the IBC when it is submitted.
- Section I.6, state that the IBC will be immediately notified if mutants display increased escape potential.
- Section I.8.g, provide reference for infectious dose.
- Section II.3, add information on the specifics of resistance selection.
- Section II.6.a, include information on the metrics of resistance and escape (e.g., comparison to wild type).
- Section II.12.c, also state that the IBC will be immediately notified if increased fitness in cell culture is observed.

Amendment: Biological Agents and rDNA/RNA NOUs – approved by eVote

Perenlei Enkhbaatar, PhD

Dr. Enkhbaatar submitted an amendment to his work with *Pseudomonas aeruginosa* (ATCC-27317, IVISbrite *Pseudomonas aeruginosa* Xen41) and *Staphylococcus aureus* (BAA-1721, BAA-1717), ATCC 49525 (Xen36)) **to add work with swine; NIH Guidelines: D4.** This NOU amendment was **approved with the following conditions:**

- Section I.8.b, delete first seven sentences (through "This results in sepsis.").
- Section III.6.b, in uploaded SOP, only provide written procedures for manipulation of animals without anesthesia.

Thomas Geisbert, PhD

Dr. Geisbert submitted an amendment to his work with recombinant vesicular stomatitis virus (rVSV) **to add work with RNA vaccines; NIH Guidelines: D1, D2, D3, D4.** This NOU amendment was **approved with the following conditions:**

- Section III.7, Homogenization SOP, all steps where the agent is manipulated or homogenized must be performed in a BSC.

Amendment: BSL3/4 CDC/USDA Regulated Agent NOUs – approved by eVote

Alexander Bukreyev, PhD and Alexander Freiberg, PhD

Dr. Bukreyev submitted an amendment to his work with Rift Valley fever virus **to add a Co-PI for the work at ABSL3; NIH Guidelines: N/A.** This NOU amendment was **approved with the following conditions:**

- **Per IBC policy, the Co-PI has the same responsibility and authority as the submitting PI and will be held accountable for the work conducted on the NOU.**
- Section V.1.A, if personnel from the Co-PI's laboratory will train personnel in the PI's laboratory, add these personnel to the table.

The IBC discussed the following:

- Where does the responsibility lie if any incidents occur?
    - Discuss this again at a later meeting. Can the Responsible Official and Legal weigh in on this topic?
    - IBC NOU Policy states that both are responsible.

Alexander Freiberg, PhD

Dr. Freiberg submitted an amendment to his work with Lassa fever, Lujo, Machupo, Guanarito, Sabia, Junin, and Chapare viruses **to add recombinant work; NIH Guidelines: D4.** This NOU amendment was **approved with the following conditions:**

- Section I.8.c.ii, provide contact time for 5% MicroChem.

Thomas Geisbert, PhD

Dr. Geisbert submitted an amendment to his work with Nipah, Angavokely, and Langya viruses **to add work with Sosuga and Ghanaian bat viruses; NIH Guidelines: D1, D2, D4.** This NOU amendment was **approved with the following conditions:**

- Section I.4, upload approval letter from NIH Office of Science Policy for work with full-length clones of Nipah virus at BSL2.
- Section I.A.1.d, answer Yes and provide an explanation, regarding the potential of chimeric viruses to enhance the agent's ability to disseminate.
- Section I.A.1.e, if chimeric viruses will include exchange or modification of surface proteins that may alter host range, answer Yes and provide an explanation.
- Section II.13, answer Yes and answer the subsequent question regarding chimeric viruses.

Amendment: BSL3/4 CDC/USDA Regulated Agent NOUs – tabled by eVote

Gary Kobinger, PhD and Dennis Bente, PhD

Dr. Kobinger submitted an amendment to his work with mpox virus (Clade II), SARS-CoV-2, and HIV genes (*vif*, *vpr*, *vpu*, *tat*, *nef*, *rev*) **to add to the scope of work (an additional two rounds of passage on transfected cells). NIH Guidelines: D1, D2.** This NOU amendment was **tabled with the following conditions:**

- Section I.4, provide phylogenetic tree with appropriate trimming of 5' and 3' ends.
- Section I.6, delete "N95s will only be used when PAPRs are not available and when not working with SARS-CoV-2" and instead state "When working with mpox virus, either N95s or PAPRs may be used."
- Section I.6, clearly describe downstream work that will be performed with material that is passaged. Specifically, will all material be inactivated? Will any material undergo additional characterization prior to inactivation?
- Section I.8.g, update information on mechanisms of transmission of SARS-CoV-2.
- Section I.8.g, update information on infectious dose of mpox virus.

- Section V.1.B, under Training at Other Institutions, Dr. Bente's information is duplicated from another column.

The IBC discussed the following:

- What is the value of the additional passages, as a single passage has already identified a change in a virulence factor?
- What will happen with the material?
- Are passages with the genes of interest likely to increase, decrease, or have no effect on virulence of the agent?
- The provided phylogenetic tree is of insufficient quality.
- No information was provided about the fate of the mutants. Will they be characterized?
    - If they are all inactivated, then 2 extra rounds is fine.
    - If they will be further characterized, then 2 extra rounds is a problem.

Biological Agents and rDNA/RNA NOUs for review

Alan Barrett, PhD

Dr. Barrett submitted a renewal NOU for Biological Agents and rDNA/RNA to work at BSL2 with **Dengue (serotypes 1, 2, 3, 4), Langat, Zika, yellow fever vaccine (17D-204, 17D-213, 17DD, French neurotropic strains), Japanese encephalitis vaccine (SA14-2-8, SA14-14-2, SA14-5-3 strains) viruses; NIH Guidelines: D2, D4.** This NOU was **approved with the following conditions:**

- Permit Process Questions, update project title to reflect the project, not simply the agents on the NOU.
- Section I.8.c.i, move information on susceptibility to chemicals to Section I.8.c.ii.
- Section I.8.d, also select Animal bite.
- Section I.8.g, where infectious dose for an agent is unknown, state whether the amounts used in the NOU are likely to be infectious to a human.
- Section I.9, answer Yes and provide inactivation SOP for extraction of viral RNA, as this is described in Section I.6.
- Section II.3, specify the NOU that chimeric flaviviruses may be generated under.
- Section III.5, describe the work that will be performed using agent administered via subcutaneous, intradermal, and intramuscular routes, as these are selected in Section III.4. If the agents or recombinant agents listed on this NOU are not being administered via these routes, unselect in Section III.4.
- Section III.5 describes looking for evidence of neurovirulence in brains; if this will involve inactivation (e.g., formalin fixation), upload inactivation SOP in Section I.6.
- Section III.5, state that tissue homogenization will not be performed, or answer Yes to Section III.7.
- Section III.9, if recombinant agents will be administered to animals, answer Yes.

Sara Dann-Grice, PhD

Dr. Dann-Grice submitted a renewal NOU for Biological Agents and rDNA/RNA to work at BSL2 with ***Cryptosporidium parvum*** **and** ***Giardia lamblia*****; NIH Guidelines: N/A.** This NOU was **approved with the following conditions:**

- Section I.8.a.v, provide units of volume.
- Section I.8.c.i, provide additional information on the timeframe of the stability of trophozoites and sporozoites (e.g., is survival measured in minutes, hours, days?).
- Section I.8.d, also select Aerosol.
- Section I.9, answer Yes and provide SOPs for inactivation of tissues and secretions that will be examined by histological, biochemical, and molecular approaches, as this is described in Section I.6 (e.g., formalin fixation, nucleic acid extraction, protein extraction).

- Section I.B.3, answer No, as the listed PPE is not for handling agent in vitro.
- Section III.5, also describe work with knockout mice, as this is mentioned in Section I.6.

Matthieu Gagnon, PhD

Dr. Gagnon submitted a renewal NOU for Biological Agents and rDNA/RNA to work at BSL2 with **large scale use of genomic material from *Francisella tularensis*; NIH Guidelines: D2, D6.** This NOU was **approved with the following conditions:**

- Section I.1, change biosafety level to BSL2.
- Section I.3, also list *Francisella tularensis*, risk group 3, select agent, status Recombinant.
- Section I.6, state that sufficient absorbent material will be kept in the lab for up to 2 L of material in case of a spill.
- Section I.6, clarify the original source of genomic DNA from *F. tularensis*.
- Section I.8.c.i, delete text and instead provide stability of the non-pathogenic *E. coli* that will be used for cloning.
- Section I.8.c.ii, delete text and instead provide information of the non-pathogenic *E. coli* that will be used for cloning.
- Section I.A.2.a, answer Yes.
- Section II.26, answer No.

Matthieu Gagnon, PhD

Dr. Gagnon submitted a renewal NOU for Biological Agents and rDNA/RNA to work at BSL1 with **large scale use of genomic material from non-pathogenic strains of *Escherichia coli*; NIH Guidelines: D6.** This NOU was **approved with the following conditions:**

- Section I.6, state that sufficient absorbent material will be kept in the lab for up to 2 L of material in case of a spill.
- Section I.6, specify that the genes that will be cloned are from non-pathogenic strains of *E. coli*.
- Section I.A.2.a, answer Yes.
- Section II.26, answer No.
- Section II.31, answer No.

Juan Rojo, PhD

Dr. Rojo submitted a new NOU for Biological Agents and rDNA/RNA to work at BSL2 with ***Naegleria fowleri*; NIH Guidelines: N/A.** This NOU was **approved with the following conditions:**

- Section I.8.a.vi states agent will be cultured to 3x10^5 amoebae/mL, but then Section I.8.a.vi states the agent will be concentrated to 2x10^5 *N. fowleri* cells/mL. Please rectify these concentrations and use consistent units of measure.
- Section I.8.c.i, provide additional information on the stability of agent in the laboratory setting (e.g., at room temperature).
- Section I.8.c.ii, please delete the sentence regarding spill cleanup. Please refer to the UTMB Safety Manual regarding biohazardous spill response with a minimum of a 30-minute disinfectant contact time.
- Section I.9.d, select Yes and answer subsequent questions.
- Section I.B.3, specify if the additional PPE is to be worn whenever handling the parasite, or if it is only during certain procedures.
- Section I.B.7, confirm bleach will be used to disinfect BSC surfaces. If another disinfectant will be used for this step, please provide that information in the table.
- Section III.2, change temporary IACUC Protocol # to "pending".

- Section III.3, confirm that a BSC will be used for rabbit work, or consider also selecting downdraft table.
- Section III.4, confirm that intracranial injections will be conducted within primary containment (e.g., inside a BSC or on a downdraft table). If injections will be performed outside primary containment, answer Yes to Section I.8.b and provide scientific justification.
- Section III.5, define PAM on first use.
- Section III.5, please specify if the double syringe method will involve a sharp or provide a product sheet for this information.
- Section V.1.B, please specify who will be performing the animal work, and provide their experience under Animal and Arthropod Experience. If the Animal Resource Center will perform the animal work, coordinate this with ARC and in Section III.5, state that ARC will perform the animal work (do not list ARC members in Section V.1.B).
- Section V.1.B, under Laboratory Techniques, summarize experience with the listed equipment.
- Section V.1.B, under Laboratory Techniques, move experience with animals to the column Animal and Arthropod Experience.
- Section V.1.B, as additional personnel work on this project, add them to this NOU.

BSL3/4 CDC/USDA Regulated Agent NOUs for review

Alan Barrett, PhD

Dr. Barrett submitted a renewal NOU for BSL3/4 CDC/USDA Regulated Agents to work at BSL3 with **Japanese encephalitis, Murray Valley encephalitis, Powassan encephalitis, Saint Louis encephalitis, and West Nile viruses; NIH Guidelines: D1, D2, D4.** This NOU was **approved with the following conditions:**

- Permit Process Questions, update project title to reflect the project, not simply the agents on the NOU.
- Section I.4, change risk group of West Nile virus and St. Louis encephalitis virus to RG2.
- Section I.8.c.i, move information on susceptibility to chemicals to Section I.8.c.ii.
- Section I.8.d, also select Animal bite.
- Section I.8.f, expand on the pathogenicity of the listed agents
- Section I.9, answer Yes and list inactivation for extraction of viral RNA, as this is described in Section I.6. Submit inactivation SOP using this form: https://utmb.us/b16.
- Section I.A.2.b.iv, list bacteria used for recombinant work.
- Section I.B.4, delete specific room number and instead list "BSL3".
- Section II.3, specify the NOU that chimeric flaviviruses may be generated under.
- Section II.12.a, b, and c, if work may include mutagenesis of Japanese encephalitis virus infectious clone, as described in Section II.3, also list JEV here.
- Section III.4, under Routes of Administration, also select Intravenous, as this is described in Section III.5.
- Section III.5, describe the work that will be performed using agent administered via subcutaneous, intradermal, and intramuscular routes, as these are selected in Section III.4. If the agents or recombinant agents listed on this NOU are not being administered via these routes, unselect in Section III.4.
- Section III.5 describes looking for evidence of neurovirulence in brains; if this will involve inactivation (e.g., formalin fixation), submit inactivation SOP: https://utmb.us/b16.
- Section III.5, state that tissue homogenization will not be performed, or answer Yes to Section III.7.

Alan Barrett, PhD

Dr. Barrett submitted a renewal NOU for BSL3/4 CDC/USDA Regulated Agents to work at BSL3 with **yellow fever virus; NIH Guidelines: D2, D4.** This NOU was **approved with the following conditions:**

- Permit Process Questions, update project title to reflect the project, not simply the agents on the NOU.
- Section I.6, specify the NOU for genetic manipulation studies.
- Section I.8.c.i, move information on susceptibility to chemicals to Section I.8.c.ii.
- Section I.8.d, also select Animal bite.
- Section I.9, answer Yes and list inactivation for extraction of viral RNA, as this is described in Section I.6. Submit inactivation SOP using this form: https://utmb.us/b16.
- Section I.B.4, delete specific room number and instead list "BSL3".
- Section II.3, in the third sentence, delete "If yes,", as this appears to be a typo.
- Section II.6 describes site-directed mutagenesis of YFV. If this work is under this NOU, describe in Section II.3 and answer Yes to Section II.12. If this work is not being performed under this NOU, answer No to Section II.6.a.
- Section III.5, describe the work that will be performed using agent administered via subcutaneous, intradermal, and intramuscular routes, as these are selected in Section III.4. If the agents or recombinant agents listed on this NOU are not being administered via these routes, unselect in Section III.4.
- Section III.5 describes looking for evidence of neurovirulence in brains; if this will involve inactivation (e.g., formalin fixation), submit inactivation SOP: https://utmb.us/b16.
- Section III.5, state that tissue homogenization will not be performed, or answer Yes to Section III.7.
- Section III.9, if recombinant agents will be administered to animals, answer Yes.

Alan Barrett, PhD

Dr. Barrett submitted a renewal NOU for BSL3/4 CDC/USDA Regulated Agents to work at BSL3 with **yellow fever virus chimeras (wild-type Asibi and live-attenuated 17D vaccine strain); NIH Guidelines: D1, D2, D4.** This NOU was **approved with the following conditions:**

- Permit Process Questions, update project title to reflect the project, not simply the agents on the NOU.
- Section I.5, delete text and instead describe the goal of the project.
- Section I.6, specify the NOU for genetic manipulation studies.
- Section I.8.c.i, move information on susceptibility to chemicals to Section I.8.c.ii.
- Section I.8.d, also select Animal bite.
- Section I.9, answer Yes and list inactivation for extraction of viral RNA, as this is described in Section I.6. Submit inactivation SOP using this form: https://utmb.us/b16.
- Section I.A.1.a, also state that it is not likely that the chimeric viruses will be more virulent than wild type YFV strains.
- Section I.A.1.e, if it is not likely that the host range or tropism of the chimeric viruses will be enhanced when compared to the wild type YFV, answer No.
- Section I.A.1.f, if it is not likely that the susceptibility of a host population to the chimeric viruses will be enhanced when compared to the wild type YFV, answer No.
- Section I.A.2.b.iv, list bacteria used for recombinant work.
- Section II.3, define acronym FNV on first use.
- Section II.3, specify the NOU that chimeric flaviviruses may be generated under.
- Section III.5, describe the work that will be performed using agent administered via subcutaneous, intradermal, and intramuscular routes, as these are selected in Section III.4. If the agents or

recombinant agents listed on this NOU are not being administered via these routes, unselect in Section III.4.

- Section III.5 describes looking for evidence of neurovirulence in brains; if this will involve inactivation (e.g., formalin fixation), submit inactivation SOP: https://utmb.us/b16.
- Section III.5, state that tissue homogenization will not be performed, or answer Yes to Section III.7.

Xuping Xie, PhD

Dr. Xie submitted a new NOU for BSL3/4 CDC/USDA Regulated Agents to work at BSL3 with **MERS-CoV; NIH Guidelines: D1, D2, D4.** This NOU was **approved with the following conditions:**

- Section I.6, state that only PAPR will be used with this agent in vitro.
- Section I.8.c.i, in the explanation text box, provide an explanation for why both Yes and Unknown are selected.
- Section I.9.c.ii, delete SOPs and instead upload the approval letters.
- Section II.3, state that the proposed mutations are not likely to increase the virulence of the agent. If any of the proposed mutations are likely to enhance the harmful consequences of the agent, answer Yes to Section I.A.1.a, and provide an explanation.
- Section III.3, consider also listing downdraft table for flexibility.

Amendment: Biological Agents and rDNA/RNA NOUs for review

Xuping Xie, PhD

Dr. Xie submitted an amendment to his work with Zika virus **to add scope of work (Zika virus engineered with HSV or host genes); NIH Guidelines: D1, D2, D4.** This NOU amendment was **approved with the following conditions:**

- **Work in animals with agent engineered with mammalian immunomodulators or mammalian cytokines may not commence until additional information has been provided to the IBC and this amendment has received full approval.**
- Section I.4, the IBC would like additional information related to the expected phenotypes of the proposed mutants where agent is engineered with mammalian immunomodulators or mammalian cytokines, and whether these will result in enhancement of the agent. Please upload relevant studies from literature and/or a cover letter addressing these concerns.
- Section I.6, describe the expected fate of any adapted or engineered viruses that display increased viral replication or pathogenesis. Will they be destroyed, undergo additional study, be stored, etc.?
- Section II.13.b, remove mammalian expression vectors.
- Section II.26, answer No.
- Section II.31, answer No.
- Section III.2, provide IACUC protocol number and approval date.

Xuping Xie, PhD

Dr. Xie submitted an amendment to his work with adenovirus type 5 vector **to add scope of work (expression of Cas9 and sgRNA to knock down expression of DAZAP2); NIH Guidelines: D4.** This NOU amendment was **approved.**

Amendment: BSL3/4 CDC/USDA Regulated Agent NOUs for review

Bryan Johnson, PhD and Chien-Te Kent Tseng, PhD

Dr. Johnson submitted an amendment to his work with SARS-CoV-2 **to add work with hamsters; NIH Guidelines: D1, D2, D4.** This NOU amendment was **approved with the following conditions:**

- Speak with the BSL3 Laboratory Director and Department of Biosafety regarding the PPE worn in the lab.
- Section I.6, describe proposed work with hamsters.
- Section I.6, consider deleting specific room number when discussing work with RNA.

- Section I.6, delete the sentence "Tissue culture work will be conducted using either a PAPR or N95" and instead state that only PAPR will be used.
- Section I.6, also state that if any strains exhibit an increase in virulence, the IBC will be immediately notified.
- Section I.7.e.ii, update with current information.
- Section I.8.a.i and ii, confirm that the maximum volume and number of containers is measured in conical tubes (vs. tissue culture flasks).
- Section I.8.f, update information regarding pathogenicity of the agent.
- Section I.8.g, update information regarding infectious dose.
- Section I.A.1.a, d, and e, where additional information is known, update explanations regarding whether it is likely that each effect will occur.
- Section I.A.1.a, d, and e, where appropriate, also provide information on proposed hamster studies.
- Section I.B.4, consider also listing [redacted]
- Section II.3, consider deleting specific room number when discussing work with RNA.
- Section III.5, the second to last sentence states that oral swabs may be conducted on scruffed hamsters. If infected animals will be manipulated without the animal under anesthesia, answer Yes to Section III.6 and answer the subsequent questions.
- Section III.9.b, confirm that viral vectors (e.g., lentiviral or adenoviral vectors) will be used in this project. If they will, describe in Section III.5.

1 recused.

Shannan Rossi, PhD

Dr. Rossi submitted an amendment to her work with BSL2 Viruses and Arboviruses (Dengue (serotypes 1-4), Chikungunya 181Clone25, Zika, Mayaro, Ilheus, Ross river, VSV (attenuated), VSV vaccine vector, Modoc, Yellow fever vaccine (17D), Sindbis, Una and cDNA infectious clones, Venezuelan equine encephalitis vaccine (TC-83 and V3526), O'Nyong-Nyong, and Rio Bravo viruses), and nanoparticle and mRNA-VLP vaccines **to add work with Oropouche virus; NIH Guidelines: D1, D2, D3, D4.** This NOU amendment was **approved with the following conditions:**

- Section I.4, Summary of Work for Individual Viruses, update to current agents.
- Section I.8.a.vi, the more concentrated agent is the same concentration as listed in Section I.8.a.iii. Confirm this is accurate.
- Section I.8.c.i, provide additional information on the timeframe of the stability of viruses outside the host (e.g., is survival measured in minutes, hours, days?).
- Section I.A.2.b.iii, update NOU to #2024011.

1 recused.

Scott Weaver, PhD

Dr. Weaver submitted an amendment to his work with Semliki Forest virus, Chikungunya virus, Western equine encephalitis virus, West Nile virus, St. Louis encephalitis virus, Everglades virus, Japanese encephalitis virus, yellow fever virus **to add recombinant work Western equine encephalitis virus; NIH Guidelines: D1, D2, D3, D4.** This NOU amendment was **approved with the following conditions:**

- Section I.B.1 and Section I.B.6 list PPE and waste for BSL3E (in addition to BSL3), but Section I.B.4 lists only BSL3. Rectify.

1 recused.

Response to Conditions: Biological Agents and rDNA/RNA NOUs for review

Xuping Xie, PhD

Dr. Xie submitted a response to conditions for his work with **West Nile virus; NIH Guidelines: D1, D2.** This NOU response to conditions was **approved with the following conditions:**

- Section I.6, also describe the expected fate of any mutants that display increased escape potential. Will they be destroyed, undergo additional study, be stored, etc.?
- Section I.6, state that if a mutant with increased escape potential or virulence is observed, we will immediately notify the IBC, pause any new work with the mutant strain, and secure the mutant strain in a locked freezer until the IBC and PI have assessed the risk of the mutant.
- Section II.3, state that if a mutant with increased escape potential or virulence is observed, we will immediately notify the IBC, pause any new work with the mutant strain, and secure the mutant strain in a locked freezer until the IBC and PI have assessed the risk of the mutant.
- Section II.6.a, state that if a mutant with increased escape potential or virulence is observed, we will immediately notify the IBC, pause any new work with the mutant strain, and secure the mutant strain in a locked freezer until the IBC and PI have assessed the risk of the mutant.
- Section II.12.c, state that if a mutant with increased escape potential or virulence is observed, we will immediately notify the IBC, pause any new work with the mutant strain, and secure the mutant strain in a locked freezer until the IBC and PI have assessed the risk of the mutant.

Response to Conditions: BSL3/4 CDC/USDA Regulated Agent NOUs for review
Dennis Bente, PhD

Dr. Bente submitted a response to conditions for his work with **Bourbon, Thogoto, Dhori, and Oz viruses; NIH Guidelines: D3, D4.** This NOU response to conditions was **approved with the following conditions:**

- **Work with animals and ticks may commence.**
- Section I.6, for transmission and infection studies using barcoded viruses, please describe the expected fate of any mutants that display increased lethality. Will they be destroyed, undergo additional study, be stored, etc.?
- Section I.A.2.b.ii, if the listed primary cells are other than blood, serum, and tissue (which are already listed in NOU #2023104), please amend NOU #2023104 to include these primary cells.
- Section I.A.2.b.iii, please update NOU to #2023104.
- Section IV.3, clarify where infested rabbits will be housed, as guinea pigs are the largest animals that can be worked with in the [redacted]

Response to conditions may be administratively reviewed.

Response to Conditions: Arthropod Containment Level 2 (ACL2) SOPs for review
Dennis Bente, PhD and Maureen Laroche, PhD

Drs. Bente and Laroche submitted a response to conditions for their Arthropod Containment Level 2 (ACL2) standard operating procedures (SOPs) for work with ticks and rabbits in [redacted]. This SOP response to conditions was **not reviewed.**

The IBC discussed the following:

- These SOPs were only meant for the temporary housing of ticks in an ACL2 in [redacted] while the other [redacted] ACL2 was going through its annual shutdown. Given that the other ACL2 will be re-opening shortly, is it necessary to review these SOPs?
- The [redacted] has reopened and the ACL2 is ready to reopen; ARC has cleaned that space. Where reopening stands for the ACL2 Directors is uncertain.
- Why were these SOPs submitted?
    - The PIs needed a facility to rear ticks during the months-long shutdown of the ACL2.
    - Are the PIs anticipating rotating back into the [redacted] ACL2 in the future?
        - If the PIs intend to return to the [redacted] ACL2, it needs to be brought up to the ARC Director immediately. The intention is that these rooms will be re-converted to normal animal housing.
- Suggest this be clarified with the PIs and the ARC Director and put off the review indefinitely, as there are still problems with the SOPs.

- The PIs have arthropods in this space now. Should the SOPs simply not be reviewed during this meeting? The PIs could be permitted a month's grace period to continue work. If they will extend work beyond the month, the SOPs could undergo expedited review. They were not close to meeting the conditions.
    - Include a request that the PIs inform the IBC of when they plan to return to the [redacted] ACL2.

III. OLD BUSINESS

Biological Agents and rDNA/RNA NOUs – Conditions Met

Robert Abbott, PhD – Mayaro virus (strain CH [IQT4235]) and Venezuelan equine encephalitis virus (vaccine strain TC-83); NIH Guidelines: N/A (#2023074)

Mark Endsley, PhD – Influenza A virus (H1N1 A/PR/8/34); NIH Guidelines: N/A (#2024046)

Mark Endsley, PhD – Respiratory syncytial virus (RSV); NIH Guidelines: N/A (#2024047)

Alexander Freiberg, PhD – Reverse genetics and minigenome systems for Nipah, Hendra, Cedar, Ghanaian bat, Mojiang, and Langya viruses; NIH Guidelines: D1, D2 (#2022108)

Salim Hayek, MD – Adeno-associated virus (AAV) (serotype 8); NIH Guidelines: D4 (#2024048)

Agenor Limon-Ruiz, PhD – Human immunodeficiency virus (HIV); NIH Guidelines: N/A (#2024049)

Slobodan Paessler, DVM, PhD – RNA vaccines and *Saccharomyces cerevisiae* containing RNA vaccines; NIH Guidelines: D4 (#2024061)

Xuping Xie, PhD – Adenovirus type 5 vector; NIH Guidelines: D4 (#2024062)

Amendment: Biological Agents and rDNA/RNA NOUs – Conditions Met

Perenlei Enkhbaatar, PhD – *Pseudomonas aeruginosa* (ATCC-27317, IVISbrite *Pseudomonas aeruginosa* Xen41) and *Staphylococcus aureus* (BAA-1721, BAA-1717, ATCC 49525 (Xen36)); NIH Guidelines: D4 (#2021076)

Thomas Geisbert, PhD – Recombinant vesicular stomatitis virus (rVSV) (Indiana or New Jersey strain) vaccine vectors expressing proteins of ebolaviruses, marburgviruses, arenaviruses, paramyxoviruses, phleboviruses, nairoviruses, hantaviruses, coronaviruses, flaviviruses, or HIV; cell lines stably expressing a single protein from henipaviruses (F/H) or the glycoprotein of rVSV; NIH Guidelines: D1, D2, D3, D4 (#2020110)

Thomas Geisbert, PhD – Recombinant vesicular stomatitis virus (rVSV) (Indiana or New Jersey strain) vaccine vectors expressing proteins of ebolaviruses, marburgviruses, arenaviruses, paramyxoviruses, phleboviruses, nairoviruses, hantaviruses, coronaviruses, flaviviruses, or HIV; cell lines stably expressing a single protein from henipaviruses (F/H) or the glycoprotein of rVSV; RNA vaccines; NIH Guidelines: D1, D2, D3, D4 (#2020110)

Junki Maruyama, PhD – Pseudotyped vesicular stomatitis virus (VSV) (replication competent and incompetent); NIH Guidelines: D1, D2, D3, D4 (#2023057)

Shannan Rossi, PhD – BSL2 Viruses and Arboviruses (Dengue (serotypes 1-4), CHIK 181Clone25, Zika, Mayaro, Ilheus, Ross river, VSV (attenuated), VSV vaccine vector, Modoc, Yellow fever vaccine (17D), Sindbis, Una and cDNA infectious clones, VEEV vaccine TC-83 and V3526, O'Nyong-Nyong, and Rio Bravo viruses), and nanoparticle and mRNA-VLP vaccines; NIH Guidelines: D1, D2, D3, D4 (#2019072)

Amendment: BSL3/4 CDC/USDA Regulated Agents NOUs – Conditions Met

Janice Endsley, PhD – *Mycobacterium tuberculosis* (H37RV, Erdman, CDC1551, HN878 [Beijing]) and *M. bovis* (Karlson and Lessel); NIH Guidelines: N/A (#2021067)

Shannan Rossi, PhD – Chikungunya, Japanese encephalitis, Powassan, Rocio, and St. Louis encephalitis viruses; NIH Guidelines: D2, D3, D4 (#2020126)

NOU Transfer: Human and NHP Products NOUs – Conditions Met

Bryan Johnson, PhD and Chien-Te Kent Tseng, PhD – Human and NHP Products (#2022127)

NOU Transfer: Biological Agents and rDNA/RNA NOUs – Conditions Met

Bryan Johnson, PhD and Chien-Te Kent Tseng, PhD – Lentivirus; NIH Guidelines: D1 (#2020018)

Bryan Johnson, PhD and Chien-Te Kent Tseng, PhD – Human coronaviruses (HCoV-229E, HCoV-OC43, HCoV-HKU1, HCoV-NL63, CCoV-HuPn-2018); NIH Guidelines: D1, D2, D3 (#2022122)

NOU Transfer: BSL3/4 CDC/USDA Regulated Agents NOUs – Conditions Met

Bryan Johnson, PhD and Chien-Te Kent Tseng, PhD – SARS-CoV-2; NIH Guidelines: D1, D2, D4 (#2020014)

Bryan Johnson, PhD and Chien-Te Kent Tseng, PhD – MERS-CoV and group 2C bat-CoVs; NIH Guidelines: D1, D2, D3, D4 (#2022115)

Bryan Johnson, PhD and Chien-Te Kent Tseng, PhD – SARS-CoV2 delORF3678; NIH Guidelines: D1, D2, D3 (#2023014)

Chien-Te Kent Tseng, PhD and Bryan Johnson, PhD – Group 2b coronaviruses (SARS-CoV, SARS-CoV-2, Group 2b Bat-CoVs); NIH Guidelines: D1, D2, D3, D4 (#2022102)

NOU Inactivation

David Beasley, PhD – Yellow fever virus; NIH Guidelines: D2 (#2019037) – NOU expired

Yashoda Hosakote, PhD – Respiratory syncytial virus (RSV) and human metapneumovirus (hMPV); NIH Guidelines: D1, D2 (#2022140) – PI left UTMB

Yashoda Hosakote, PhD – Human and NHP products (#2023011) – PI left UTMB

Slobodan Paessler, DMV, PhD – Lymphocytic choriomeningitis virus (LCMV) (Armstrong Clone 13); NIH Guidelines: N/A (#2019046) – NOU expired

Richard Rupp, MD – BNT162a1 (BNT162 RNALNP vaccine utilizing uRNA), BNT162b1 (BNT162 RNALNP vaccine utilizing modRNA), BNT162b2 (BNT162 RNALNP vaccine utilizing modRNA), BNT162c2 (BNT162 RNALNP vaccine utilizing saRNA); NIH Guidelines: C1 (#2020088) – at PI's request

Richard Rupp, MD – mRNA-1273 SARS-CoV-2 Vaccine, adults aged 18 years and older; NIH Guidelines: C1 (#2020105) – at PI's request

Richard Rupp, MD – Ad26.COV2.S (A PHASE 1/2 Study of Delayed Heterologous SARS-CoV-2 Vaccine Dosing (Boost) after Receipt of EUA Vaccines); NIH Guidelines: C1 (#2021062) – at PI's request

Richard Rupp, MD – SARS-CoV-2 vaccine (mRNA-1273): A Phase 3, Randomized, Double-blind, Placebo-controlled Study to Evaluate the Safety, Tolerability, and Immunogenicity of the Concomitant Administration of Either 23-Valent Pneumococcal Polysaccharide Vaccine or 15-Valent Pneumococcal Conjugate Vaccine with a Booster Dose of SARS CoV-2 mRNA Vaccine in Healthy Adults 50 Years of Age or Older. (V110-911); NIH Guidelines: C1 (#2021106) – at PI's request

Richard Rupp, MD – mRNA-1273 (prototype), mRNA-1273.351 (Beta), mRNA-1273.617.2 (Delta), mRNA-1273.529 (Omicron) (up to 50 mcg per dose); BNT162b2 (wildtype), BNT162b2 (B.1.351) (Beta), BNT162b2 (B.1.1.529) (Omicron), BNT162b (B.1.1.529 Omicron BA.1), BNT162b2 (B.1.1.529 BA.4/BA.5), and bivalent formulations of approved materials (up to 30 mcg per dose); NIH Guidelines: C1 (#2022031) – at PI's request

Richard Rupp, MD – BNT162b2 RNA-Based COVID-19 Vaccine (Original/Omicron BA.4/BA.5) (up to 10 mcg per dose); NIH Guidelines: C1 (#2022134) – at PI's request

IV. DISCUSSION

New IBC Member

A new member to the IBC was introduced, [redacted]. He previously worked with [redacted] and his research focuses on immune pathogenesis of SARS-CoV-2 and other coronaviruses.

Responsibility, Liability, and Authority of Co-Investigators on NOUs

Discussion was postponed to a subsequent meeting.

Human and NHP product NOUs

NOU applications are being developed for use in InfoEd. The current Human and/or NHP Products NOU asks that the applicant list each cell line that will be used. Does the IBC find this information is helpful for risk assessments? Or would grouping together all commercial, established, and primary cells be sufficient?

- The individual cell lines are not helpful, especially for commercial cell lines.
- The IBC was supportive of this change.

V. ADJOURNMENT

The meeting was adjourned at 4:54 PM.

[redacted]

[redacted]

[redacted]

Institutional Biosafety Committee
301 University Blvd.
Galveston, TX 77555-0192
O 409.772.1781

MINUTES
September 6, 2024

The Institutional Biosafety Committee met virtually on Friday, September 6, 2024 using Microsoft Teams. The meeting was called to order at 2:00 PM and was chaired by [redacted]

MEMBERS PRESENT

[redacted]

MEMBERS ABSENT

[redacted]

CONSULTANTS

[redacted]

GUESTS

[redacted]

I. APPROVAL OF MINUTES

The minutes of the August 2, 2024 meeting were approved.

II. NEW BUSINESS

Biological Agents and rDNA/RNA NOUs – approved by eVote

Alexander Bukreyev, PhD

Dr. Bukreyev submitted a new NOU for Biological Agents and rDNA/RNA to work at BSL2 with **Dengue virus (serotypes 1, 2, 3, 4); NIH Guidelines: N/A.** This NOU was **approved**.

Biological Agents and rDNA/RNA NOUs for review

Dustin Green, PhD

Dr. Green submitted a new NOU for Biological Agents and rDNA/RNA to work at BSL2 with **uropathogenic *Escherichia coli* (UTI89, CFT073); NIH Guidelines: N/A.** This NOU was **approved with the following conditions:**

- Section I.4, also upload a PSDS from Canadian website for *E. coli* (any one of those available for EHEC, EIEC, EPEC, or ETEC).
- Section I.6, specify any assays will be performed on animal samples downstream.
- Section I.6, expand on the source of the *E. coli*. Will the agent be grown in the laboratory? Will it be grown by a collaborator and shipped in individual aliquots ready-to-use?
- Section I.8.a.i, confirm that the maximum volume of cultured or handled *E. coli* is 50 uL.
- Section I.8.a.iii, provide units of concentration.
- Section I.8.a.iv-vii, answer questions.
- Section I.8.g, provide information on the infectious dose in humans.
- Section I.A.2.a, confirm that *E. coli* will not be grown in vitro at UTMB, or answer Yes.
- Section V.1.B, under Laboratory Techniques (In Vitro), list any experience with downstream assays that will be performed on animal samples.

Maureen Laroche, PhD

Dr. Laroche submitted a new NOU for Biological Agents and rDNA/RNA to work at BSL2 with ***Bartonella* spp., *Borrelia* spp., *Ehrlichia* spp., *Rickettsia amblyommatis*, *R. felis*, and *R. parkeri*; NIH Guidelines: N/A.** This NOU was **tabled with the following conditions:**

- Section I.3, also list *Bartonella*, *Ehrlichia*, and *Borrelia* species that are expected to be obtained.
- Section I.3, if a specific strain of *Rickettsia parkeri* will be used, list under Strains or Generations.
- Section I.4, remove uploaded PSDS documents and instead upload peer-reviewed publications describing the agents. For *Bartonella quintana*, upload the PSDS available from the Government of Canada. Once submitted PSDS documents have been reviewed and posted to Canadian website, they can be included in the NOU.
- Section I.4, upload decision trees for field and clinical samples for receiving samples in either the BSL2 or BSL3 laboratory. Risk group 3 pathogens have been described in the areas where field samples will be collected; include whether and how field and clinical samples will be tested for these agents.
- Section I.4, upload homogenization SOP for processing of initial samples of whole blood or suspension of tissue.
- Section I.6, provide additional details on the types of animals and arthropods from which samples will be obtained.
- Section I.6, provide additional details on the human and animal samples that will be obtained, including whether they are exhibiting symptoms of disease.
- Section I.6, expand on any screening that is performed on samples prior to their arrival at UTMB.
- Section I.6, specify the source(s) of *Rickettsia parkeri* (field, clinical, commercial, or collaborator). Provide scientific justification for handling this agent at BSL2. Documents may be uploaded to Section I.4.
- Section I.6, specify the source(s) of *Rickettsia felis* (field, clinical, commercial, or collaborator). Provide scientific justification for handling this agent at BSL2. Documents may be uploaded to Section I.4.
- Section I.6, define the metrics for an agent to have "virulence higher than expected" in vitro.

- Section I.6, the BMBL recommends that work with *Rickettsia* spp. at BSL2 be conducted by personnel with competency. Clarify whether only the PI will perform the work at BSL2, or update Section V.1.A to indicate other personnel with experience and competency handling *Rickettsia* spp.
- Section I.8.c.i, expand on the stability for *Rickettsia* and *Ehrlichia*.
- Section I.8.h, provide infectious dose for *Rickettsia parkeri* in animal models.
- Section I.9, an Inactivation SOP approval letter for another PI has been uploaded. Submit the SOPs and inactivation data here (https://utmb.us/b16) so that the PI can obtain an independent approval letter.
- Section I.9.d, if samples containing the agents listed on this NOU other than *Rickettsia* will be inactivated to work on the benchtop, provide Inactivation SOPs for these agents.
- Section I.A.2.b.iii, for any personnel on this NOU who will handle human and/or NHP products, amend NOU #2023104 to add them.

The IBC discussed the following:

- Concerned about experience of the laboratory personnel with infectious agents, especially if they will characterize field samples that contain unknown *Rickettsia*.
- There is a strain of *R. parkeri* that the UTMB IBC has approved for work at BSL2, as the PI showed characterization data regarding the strain. Is there reason to believe that field samples would be less virulent that this lab strain? Or should field samples of *R. parkeri* be handled at BSL3?
- All current NOUs with *R. felis* at UTMB are approved for working at BSL3, not at BSL2.
- The description discusses obtaining field samples from arthropods. There are many agents that could be reasonably be expected to be found in arthropods from these areas.
- The PI states that they have not found any BSL3 pathogens in the areas they work in the field and that none have been described. However, there are plenty of RG3 pathogens that have been described in this area, and there are publications (even from UTMB) about pathogens found in this area.

William Lawrence, PhD

Dr. Lawrence submitted a renewal NOU for Biological Agents and rDNA/RNA to work at BSL2 with ***Bacillus anthracis*** **Sterne strain (pX02-deficient); NIH Guidelines: N/A.** This NOU was **approved with the following conditions:**

- Section I.6, expand on the in vitro studies.
- Section I.6 describes growing up to 1 L of spores, but the responses in Section I.8.a.i and ii suggest that up to 12 L may be cultured. Please clarify in Sections I.6, I.8.a.i, and I.8.a.ii.
- Section I.6, from the third paragraph, delete "and in vivo".
- Section I.6, expand on how agent is removed from the BSL3E to BSL2, or upload SOP in Section I.4.
- Section I.6, expand on how decontamination of the bioreactor/fermenter in BSL3E is documented to ensure there is no cross-contamination with other strains of *B. anthracis*.
- Section I.6, expand on the reasoning for using this agent to test for leaks in aerosol equipment compared to an agent like *Bacillus cereus*.
- Section I.8.c.ii, delete "either" or complete the sentence.
- Section I.8.c.ii, provide contact time required for inactivation of agent with 50% bleach.
- Section I.B.1, if any work will be performed in BSL3E, select the appropriate BSL3E PPE.
- Section I.B.1, if any work will be performed in the ABSL3 Aerobiology facility, select "Other" and write "Standard PPE for the ABSL3 Facility" in the text box.
- Section I.B.4, also list [redacted] and [redacted]
- Section I.B.4, please confirm that work with this agent will be performed in [redacted]

- Section I.B.5, under Other Lab Equipment, also list bioreactor and/or fermenter if one is used.
- Section I.B.6, if any work will be performed in BSL3E also select BSL3E waste disposal.
- Section I.B.6, if any work will be performed in ABSL3, also select BSL3 waste disposal.
- Section I.B.7, CaviCide is selected as a method of decontamination. If this will be used, provide information on susceptibility of agent to CaviCide in Section I.8.c.ii. If CaviCide will not be used, unselect here.
- Section V.1.B, under Proposed Role on this NOU, unselect In Vivo for all personnel.

Slobodan Paessler, DVM, PhD

Dr. Paessler submitted a renewal NOU for Biological Agents and rDNA/RNA to work at BSL2 with **adenovirus type 5; NIH Guidelines: D1, D2, D4.** This NOU was **approved with the following conditions:**

- Section I.8.c.i, delete the last sentence, or edit to complete the sentence.
- Section I.8.d, unselect Other and delete text, as this information is captured by potential route of infection (ingestion) and potential route of exposure (feces).
- Section II.6, answer Yes for generation of adenovirus clones and answer subsequent questions.
- Section III.5, also describe work with vaccine vector expressing influenza virus, filovirus, and other arenavirus proteins. If all work is similar, instead generalize the description of vaccines expressing Lassa virus proteins.
- Section V.1, update training for personnel who have started BSL4 training.

Tracy Toliver-Kinsky, PhD

Dr. Toliver-Kinsky submitted a renewal NOU for Biological Agents and rDNA/RNA to work at BSL2 with ***Pseudomonas aeruginosa*; NIH Guidelines: N/A.** This NOU was **approved with the following conditions:**

- Section I.8.c.i, move the information on susceptibility to chemicals and heat to Section I.8.c.ii.
- Section III.7, Tissue homogenization protocol, revise SOP to reflect necropsies must be performed in BSC.

BSL3/4 CDC/USDA Regulated Agent NOUs for review

Alexander Bukreyev, PhD and Alexander Freiberg, PhD

Drs. Bukreyev and Freiberg submitted a renewal NOU for BSL3/4 CDC/USDA Regulated Agents to work at BSL3, ABSL4, and BSL4 with **Andes, Dobrava, Hantaan, Puumala, and Sin Nombre viruses; NIH Guidelines: N/A.** This NOU was **approved with the following conditions:**

- Section I.6, if vaccination will occur at UTMB, expand on the type of experimental vaccines that will be tested (e.g., antigen-based, viral vector based, RNA). If the vaccine work is described in an NOU, reference the NOU.
- Section I.9.c.i, delete names of Inactivation SOPs held by other PIs and instead list the relevant Inactivation SOPs that are held by Dr. Bukreyev.
- Section I.9.c.ii, remove Inactivation SOP Approval Letter held by other PIs and instead upload relevant Inactivation SOP approval letters for Dr. Bukreyev.
- Section I.9.d, delete uploaded inactivation SOPs, as these have been approved.
- Section III.4, under Route of Administration, for hamster, also select IV route, as this is described in Section III.5.
- Section III.5, in the second-to-last paragraph, delete the sentence "Animals will be checked and weighed at least daily."
- Section III.5, delete last paragraph.

1 recused.

Slobodan Paessler, DVM, PhD

Dr. Paessler submitted a renewal NOU for BSL3/4 CDC/USDA Regulated Agents to work at BSL3 with **Eastern Equine Encephalitis virus (EEEV); NIH Guidelines: N/A.** This NOU was **approved with the following conditions:**

- Section I.4, upload homogenization SOP for TissueLyser.
- Section I.6, expand on the therapeutics and vaccines that will be tested.
- Section I.6, clarify the meaning of "testing for the presence of … different alphaviruses", as only one agent is listed on this NOU.
- Section I.6, expand on the organ samples provided by collaborators, including the animal species, and whether these are from field samples, samples from an animal infected in a research setting, etc.
- Section I.8.c.i, also provide information on stability of other alphaviruses.
- Section I.8.c.ii, clarify "at concentration" in the first sentence ("… inactivated by exposure to 50% ethanol or at concentration for 60 minutes.").
- Section I.8.c.ii, provide information on susceptibility to heat inactivation, including contact time.
- Section I.8.d, unselect Animal bite and Arthropod bite, as work with animals and arthropods is not described in this NOU.
- Section I.8.e, confirm whether there is existing stock for this agent.

Slobodan Paessler, DVM, PhD

Dr. Paessler submitted a renewal NOU for BSL3/4 CDC/USDA Regulated Agents to work at BSL3 with **Venezuelan Equine Encephalitis virus (VEEV); NIH Guidelines: N/A.** This NOU was **approved with the following conditions:**

- Section I.4, upload homogenization SOP for TissueLyser.
- Section I.6, expand on the therapeutics and vaccines that will be tested.
- Section I.6, delete "All viruses that will be used on this NOU are available upon request."
- Section I.6, clarify the meaning of "testing for the presence of … different alphaviruses", as only one agent is listed on this NOU.
- Section I.6, expand on the organ samples provided by collaborators, including the animal species, and whether these are from field samples, samples from an animal infected in a research setting, etc.
- Section I.7.e, confirm whether this vaccine remains available.
- Section I.8.c.i, also provide information on stability of other alphaviruses.
- Section I.8.d, unselect Animal bite, as work with animals is not described in this NOU.
- Section I.8.e, confirm whether there is existing stock for this agent.

Slobodan Paessler, DVM, PhD

Dr. Paessler submitted a renewal NOU for BSL3/4 CDC/USDA Regulated Agents to work at BSL4 with **Marburg virus; NIH Guidelines: N/A.** This NOU was **approved with the following conditions:**

- Section I.8.e, delete text and instead state NIH-supported repository.
- Section I.9.d.i, submit Inactivation SOPs, Validation SOPs, and Validation Data online: https://utmb.us/bfl.
- Section III.7, Homogenization SOP, specify which steps are performed in the biosafety cabinet.
- Section V.1.A, update training for personnel who have started BSL4 training.

Xuping Xie, PhD

Dr. Xie submitted a new NOU for BSL3/4 CDC/USDA Regulated Agents to work at BSL3 with **Powassan virus; NIH Guidelines: D2.** This NOU was **approved with the following conditions:**

- Section I.9.d.i, submit Inactivation SOPs, Validation SOPs, and Validation Data online: https://utmb.us/bfl.
- Section II.8.d, answer Yes and describe generation of replication competent virus in the text box.

Amendment: Biological Agents and rDNA/RNA NOUs for review

Alison Coady, PhD

Dr. Coady submitted an amendment to her work with *Aspergillus fumigatus*, *Fusarium solani*, and *Mucor circinelloides* **to add work with *Apophysomyces trapezifomis*; NIH Guidelines: D4.** This NOU amendment was **approved with the following conditions:**

- Section I.B.8, answer No, or describe flow cytometry of live samples in Section I.6.
- Section III.2, if an IACUC protocol has been obtained, provide Protocol Number and Approval Date.
- Sections III.4 and III.5 provide measurements of agent in spores/mL or spores, whereas Section I.8.a.iii and I.8.a.vi provide measurements of agent in CFU/mL. Please harmonize.

Alison Coady, PhD

Dr. Coady submitted an amendment to her work with *Candida albicans*, *C. auris*, *C. glabrata*, *C. parapsilosis*, *C. tropicalis*, and *C. krusei* **to add work with clinical isolates of *Candida* spp. and *C. albicans* expressing an antimicrobial peptide; NIH Guidelines: D1, D2, D4.** This NOU amendment was **approved with the following conditions:**

- Section I.3, for *Candida auris*, under Strains or Generation, delete specific locations of clinical isolates.
- Section I.6, update referenced NOU for bacteria (NOU #2023027).
- Section I.6, expand on how clinical isolates will be screened prior to arrival in the lab, including for any antimicrobial resistance.
- Section I.8.b, expand scientific justification for *Candida* spp. (other than *Candida auris*) to be manipulated outside of the BSC.
- Section I.8.e, if clinical isolates will be obtained from UTMB, also list Galveston, TX.
- Section I.8.h, in the first sentence, specify the units for 10^5-10^6.
- Section I.B.4, before work is performed with these agents in [redacted], confirm that *Candida* spp. are listed on the door sign.
- Section III.2, if an IACUC protocol has been obtained, provide Protocol Number and Approval Date.
- Section III.7, Homogenization SOP, recommend replacing specific labs [redacted] and [redacted] with "BSL2".
- Section V.1, under Training at UTMB, please delete Class III BSC training.

1 abstained.

The IBC discussed:

- *Candida auris* is an emerging pathogen noted to contaminate hospital settings. Would recommending regular swab tests of the laboratory be appropriate?
- There is specific CDC guidance for decontamination of *C. auris* for clinical spaces.
- Is the work performed outside the biosafety cabinet sufficiently scientifically justified?

Jun Yang, PhD

Dr. Yang submitted an amendment to his work with adenoviral vectors **to add work with animals; NIH Guidelines: D2, D3, D4.** This NOU amendment was **approved with the following conditions:**

- Section I.6, expand on the downstream assays that will be performed with animal samples.
- Section II.3, clearly state oncogenes will not be cloned for transgene expression.
- Section III.5, clarify if the project will include co-infection of animals with adenoviral vector and RSV.
- Section III.5, delete "(days 0.5, 1, 2, 4, and 7)".
- Section III.5, please confirm that in the adenoviral vectors that will be administered to animals, no oncogenes are associated with the expression of the transgenes, as Section III.9.b.iii is answered No.
- Section III.7.b, Tissue homogenization protocol, revise SOP to reflect that necropsies must be performed in BSC.
- Section V.1.B, in the Lab Techniques column, expand techniques that personnel have experience performing.
- Section V.1.B, in the Animal Experience column, specify techniques that personnel have experience performing, especially any experience relevant to this amendment (intranasal administration, BAL, necropsy, etc.).

Amendment: BSL3/4 CDC/USDA Regulated Agent NOUs for review

Tetsuro Ikegami, DVM, PhD

Dr. Ikegami submitted an amendment to his work with Bhanja virus, Dabie bandavirus, Heartland virus, and Oropouche virus **to add animal work; NIH Guidelines: D1, D2.** This NOU amendment was **approved with the following conditions:**

- Section III.10, change to No, or answer Section III.10.a-e.

2 recused.

Tetsuro Ikegami, DVM, PhD and Thomas Ksiazek, PhD

Drs. Ikegami and Ksiazek submitted an amendment to their work with Rift Valley fever virus **to add work with ferrets and additional studies with mouse; NIH Guidelines: D1, D2, D4.** This NOU amendment was **approved.**

2 recused.

Gary Kobinger, PhD and Dennis Bente, PhD

Drs. Kobinger and Bente submitted an amendment to their work with mpox virus (Clade II), SARS-CoV-2, and HIV genes (*vif, vpr, vpu, tat, nef, rev*) **to add to the scope of work (an additional two rounds of passage on transfected cells); NIH Guidelines: D1, D2.** This NOU amendment was **tabled for discussion by a subcommittee.**

Conditions proposed by the reviewers:

- Section I.6, specify that any subsequent viral kinetics studies will not be performed in the presence of antivirals.
- Section I.6, specify that there will be no further expansion of mutants beyond viral kinetics.

The IBC discussed:

- The study proposes evaluation of the aliquot for viral kinetics. The group needs to add a definition of viral kinetics; it could mean growth kinetics. They should specify the cell type that will be used (will it be the same transfected cell line?) and confirm that this will not be in the presence of antivirals.

    - There should be a go-no go for the experiment, where after sequencing the isolate, the group decides whether or not to proceed with an assay for growth kinetics.
    - The group should also confirm that there will be no expansion of the mutants after the kinetics experiment.
- Are there optics issues with the proposed work?
- The expected interaction between APOBEC3, HIV genes, and the agents are not clearly described in the application.
    - APOBEC3 causes mutations in viral genomes; inhibiting APOBEC3 with the transfected *vif* may yield fewer mutations in the agents than without *vif*.
- Could the group perform these experiments with attenuated strains of SARS-CoV-2 instead?
- This could be discussed in more detail by a subcommittee and with the PIs.

Response to Conditions: Biological Agents and rDNA/RNA NOUs for review
Xuping Xie, PhD
Dr. Xie submitted a response to the conditions for approval for his amendment to his NOU for Zika virus **to add scope of work (Zika virus engineered with HSV or host genes); NIH Guidelines: D1, D2, D4.** This NOU amendment was **approved.**

III. OLD BUSINESS

Biological Agents and rDNA/RNA NOUs – Conditions Met
Salim Hayek, MD – Influenza A, B, and C viruses; NIH Guidelines: N/A (#2024059)
Juan Rojo, PhD – *Naegleria fowleri*; NIH Guidelines: N/A (#2024069)
Xuping Xie, PhD – West Nile virus; NIH Guidelines: D1, D2 (#2024058)

BSL3/4 CDC/USDA Regulated Agents NOUs – Conditions Met
Xuping Xie, PhD – MERS-CoV; NIH Guidelines: D1, D2, D4 (#2024073)

IV. DISCUSSION

Sharps Incidents
There were two clean needlesticks in the BSL4 and a clean sharps injury in the BSL2. The incident at BSL2 involved decontaminating a sharp by hand using a CaviCide wipe. The Department of Biosafety and the Lab Directors decided to address this in the facility manuals and to develop extra awareness training for sharps. New sharps guidance has been drafted in the BSL4 manual.

At BSL4, one incident occurred while uncapping a clean needle, due to recoil of the laboratorian's arms. The second incident occurred while the laboratorian was unpacking clean needles and one of the caps had come loose within the packaging. There was no violation of processes as described in the manuals. Instead, the manual is being updated to describe safe practices for uncapping needles and unpacking sharps.

The goal is to update all facility manuals and to develop a one-page sharps safety flyer that can be distributed to all biosafety levels.

Bioethics Practicum Students
A PI from the UTMB Bioethics program has a Research Ethics Practicum for Fall 2024. They have requested that up to five students attend upcoming IBC meetings as guests. The goal of the class is to let students see how research ethics and regulations are operationalized in different research environments. The students will write a reflection about an ethical issue of importance; the students are asked not to include identifiable information.

There are other institutional roles that the committee serves in addition to its role as the IBC, including as the IRE and discussing personnel suitability. This means there may be some disruption to the committee during reviews, as discussion regarding these issues will need to be separated out. DOB may reach out to Legal to discuss the expectations for students at UTMB.

An IBC member recommended that the students attend from a conference room, which would also allow them to ask questions in person afterward. The same group of students will be interacting with ARC to view a vivarium. Students from an animal models course have attended IACUC meetings in the past. There is more protection for IACUC and IRB, as they are medical committees where confidentiality agreements are the norm.

An IBC member noted that it's good for the University for trainees and students to see how these committees function and the discussions that are held.

[redacted] BSL2 Lab Spot Checks

The Department of Biosafety has been performing spot checks of [redacted] BSL2 lab, as requested by the IBC, for the last year. DOB asked whether the IBC wants the spot checks to continue. The IBC requested that this be discussed with [redacted] at the next IBC meeting to get his input.

Matthieu Gagnon – NOU Not Required

Last month, an NOU for Dr. Gagnon was approved with conditions for experiments involving more than 10 liters of culture: cloning nucleic acids from risk group 1 agents into lab-strain *E. coli*. The work needed to be reviewed and approved by the IBC because the work fell under the NIH Guidelines for large-scale work (III-D-6). Specifically, the PI proposed to culture up to 12 L of lab-strain *E. coli* across 6 containers (up to 2 L each).

DOB obtained clarification from NIH Office of Science Policy: this section of the Guidelines applies when greater than 10 L of agent is in one container; it does not apply if the agent is split across multiple containers, none of which hold greater than 10 L of agent. The biosafety implications are related to the spilling and clean-up of very large volumes.

As the work described in the NOU no longer falls under the scope of the IBC, the committee **approved inactivating the NOU.**

New Biosafety Members

[redacted] is a new member of DOB. He will be training to take over some of the IBC-related functions. [redacted] is another new team member, who came to DOB from within UTMB.

V. ADJOURNMENT

The meeting was adjourned at 4:49 PM.

[redacted]

[redacted]

Institutional Biosafety Committee
301 University Blvd.
Galveston, TX 77555-0192
O 409.772.1781

MINUTES
October 4, 2024

The Institutional Biosafety Committee met virtually on Friday, October 4, 2024 using Microsoft Teams. The meeting was called to order at 2:00 PM and was chaired by [redacted]

MEMBERS PRESENT

[redacted]

MEMBERS ABSENT

[redacted]

CONSULTANTS

[redacted]

GUESTS

[redacted]

I. APPROVAL OF MINUTES

The minutes of the September 6, 2024 meeting were approved.

II. NEW BUSINESS

Human and Nonhuman Primate Products NOUs approved administratively

Patricia Aguilar, PhD

Dr. Aguilar submitted a renewal NOU for Human and Nonhuman Primate Products to work at BSL2 and BSL3 with **human primary and commercial cells (blood, PBMCs, monocytes, macrophages), commercial cells (THP-1, neuroprogenitor cells, HeLa, HeLa expressing mCherry or mCherry SFTSV NSs, HMEC-1, HUVEC, HEP G2, HEK293), NHP commercial cells (Vero, Vero E6).**

William Calhoun, MD
Dr. Calhoun submitted an NOU for Human and Nonhuman Primate Products to work at BSL2 with **human bodily fluids.**

Amendment: Human and Nonhuman Primate Products NOUs approved administratively
Xiang Fang, MD, PhD
Dr. Fang submitted an amendment to his work with Human and Nonhuman Primate Products to **add human bodily fluids.**

Amendment: Biological Agents and rDNA/RNA NOUs approved by eVote
Linda Kenney, PhD
Dr. Kenney submitted an amendment for her work at BSL2 with *Salmonella enterica* serovar typhi (strains H58, Ty2, and CT18) **to add work with mice; NIH Guidelines: D1, D2, D4.**

Amendment: BSL3/4 CDC/USDA Regulated Agents NOUs approved administratively
Xuping Xie, PhD and Donald Bouyer, PhD
Dr. Xie submitted an amendment to his work with SARS-CoV-2 **to add work with hamsters; NIH Guidelines: D1, D2, D4.**

Biological Agents and rDNA/RNA NOUs for review
William Fagg, PhD
Dr. Fagg submitted a new NOU for Biological Agents and rDNA to work at BSL2 with **adeno-associated virus (serotype 9); NIH Guidelines: D3, D4.** This NOU was **approved with the following conditions:**

- Section I.8.a.i and ii, harmonize tubes vs culture dishes.
- Section I.8.c.i, describe the agent stability for AAV.
- Section I.8.d., include sharps.
- Section I.9.b, delete "disposing of waste".
- Section I.A.2.i, include mouse myoblast (C2C12 cells).
- Section II.3, expand the description of work to include creation of recombinant materials, use of *E. coli*, plasmid vectors engineered to contain a transgene, and cell systems.
- Section V.1.B, under Animal and Arthropod Experience, please expand on experience that personnel who will perform in vivo work have.

Tetsuro Ikegami, DVM, PhD
Dr. Ikegami submitted a new NOU for Biological Agents and rDNA/RNA to work at BSL2 with **mRNA vaccines (RVFV and SFTSV); NIH Guidelines: D4.** This NOU was **approved with the following conditions:**

- Section I.6, correct NOU# 2022013 to 2022113.
- Section I.7.b, was answered no, the following should be left unanswered and proceed on question 8.
- Section I.8.c.ii, if CaviCide will be used to disinfect agent, please list and provide contact time.
- Section I.8.h, two symbols have been rendered incorrectly by EHSA, please modify for readability ("with 10 ?g of mRNA-GN-LNP" and "with 100 ?g of mRNA-GnGc").
- Section III.2, under "If Other, describe:", delete text.
- Section III.5, describe any downstream assays that will be performed.
- Section III.5, several symbols related to volume have been rendered incorrectly by EHSA, please modify for readability (e.g., "100 ?l").
- Section III.5, correct NOU# 2022013 to 2022113.

2 recused.

Shannan Rossi, PhD

Dr. Rossi submitted a renewal NOU for Biological Agents and rDNA/RNA to work at BSL2 with **BSL2 Viruses and Arboviruses (Dengue [serotypes 1-4], CHIK 181Clone25, Zika, Mayaro, Ilheus, Ross river, VSV [attenuated], VSV vaccine vector, Modoc, Yellow fever vaccine [17D], Sindbis, Una and cDNA infectious clones, VEEV vaccine TC-83 and V3526, O'Nyong-Nyong, Rio Bravo, Oropouche viruses and West Nile viruses), nanoparticle and mRNA-VLP vaccines, IRES-containing vaccines (Chikungunya, Mayaro, VEEV); NIH Guidelines: D1, D2, D4.** This NOU was **approved with the following conditions:**

- Section I.4, "Summary of Work for Individual Viruses (Updated September 2024)", remove the text detailing the studies for individual viruses, and only upload the summary table.
- Section I.4, upload ACL2 SOPs for feeding mosquitoes on NHPs, as this is described in Section IV.
- Section I.7.c.i, more clearly delineate which agents can cause disease in healthy humans and which do not.
- Section I.7.c.ii, more clearly delineate which agents can cause disease in immunocompromised humans and which do not.
- Section I.7.e.ii, also state that ACIP recommends chikungunya vaccination for laboratory workers.
- Section I.7.e.iii, answer Yes.
- Section I.B.4, if these viruses will be used in the fume hoods, describe that work in Section I.6. If the viruses will not be used in fume hoods, please remove.
- Section I.B.5, please define ECIS on first use.
- Section II.3, please provide a brief description of any animal or arthropod work associated with the recombinant material.
- Section II.4, for all containment locations, delete specific room number and state "ABSL2" or "BSL3" as appropriate.
- Section III.2, remove individual NHP species and simply state "NHP".
- Section III.8, if pads will be disinfected prior to placing in biohazard bag, pour disinfectant. Spraying can generate aerosols.
- Section III.10.b, for all containment locations, delete specific room number and state "ABSL2" or "BSL3" as appropriate.
- Section V.1.B, confirm that the listed personnel will work on the project.

1 recused

Parimal Samir, PhD

Dr. Samir submitted a new NOU for Biological Agents and rDNA/RNA to work at BSL2 with **Chandipura virus; NIH Guidelines: D1, D2.** This NOU was **approved with the following conditions:**

- **Add a Co-PI with experience with virology and access to the BSL3/ABSL3.**
- **Work may be performed at BSL2 with BSL3 practices (minimize the use of sharps, all work with the agent is performed in the biosafety cabinet, PPE: double gloves, closed-front gown, face-shield, and respiratory protection).**
- **Limit personnel in the BSL2 labs to those >21 years.**
- **Perform initial animal experiments at ABSL3. Report back to the IBC regarding viremia found in the animals and shedding of virus into the animal bedding. After this information is provided, the IBC will reconsider whether additional animal studies can be performed at ABSL2.**
- Section I.6, expand on the work that will be performed, including for animal studies.
- Section I.6, expand on the work that will be performed using a sonicator, as this is selected in Section I.B.5.

- Section I.7.c.i, also select Yes, and in the text box, delineate disease in adults compared to disease in children.
- Section I.8.c.ii, add reference for the last sentence.
- Section I.8.d, also select animal bite.
- Section I.8.f, expand on the symptoms of disease in children.
- Section I.8.g, state whether the amount of virus that will be used in this study are expected to cause infection in healthy adults.
- Section I.9.d, provide an SOP for inactivation using UV treatment.
- Section I.9.d, if other inactivation methods will be used (e.g., heat inactivation, formalin, nucleic acid extraction), list these and upload SOPs.
- Section I.B.1, unselect BSL2 PPE and instead select BSL2E PPE.
- Section I.B.8, confirm that all flow cytometry and/or cell sorting of live samples will be performed in an instrument in a biosafety cabinet.
- Section I.B.8, ensure the Flow Core Director is aware that the IBC is recommending use of BSL3 practices for handling this agent.
- Section II.3, if recombinant virus will be generated, as described in Section I.6, also describe here and answer Yes to Section II.6, and answer the subsequent questions.
- Section II.17, if any recombinant material will be administered to animals, answer Yes.
- Section III.5, change physicians to veterinarians.
- Section III.5, expand on the assays that will be performed downstream of animal infection.
- Section III.7, Homogenization SOP, state the type of homogenizer.
- Section III.7, Homogenization SOP, clearly state which steps are performed in a biosafety cabinet or other primary containment device.
- Section V.1.B, when a Co-PI is identified, add them to this Personnel Table.
- Section V.1.B, under Proposed Role on this NOU, unselect Supervisor for all personnel except the PI.
- Section V.1.B, under Agents, remove HP and NHP for all personnel.
- Section V.1.B, under Agents, list any other infectious agents that personnel have experience with, especially any experience with viruses.

The IBC discussed:

- This agent is an emerging pathogen and causes significant mortality in children. The potential benefits of researching this agent are substantial.
- The Canadian PSDS for vesicular stomatitis virus lists Chandipura virus as risk group 3. However, the BMBL recommends work with this agent at BSL2.
- The agent particularly affects those under 15 years. Could the personnel in the lab be limited by age?
    - There are policies at UTMB for not working in the lab based on age.
    - Consider asking the PI to limit access to anyone under the age of 21 years.
- Should a Co-PI be required until additional information is obtained?
    - The PI has extensive experience with influenza viruses. He does not have access to the BSL3 or ABSL3.
- If the work at BSL2 will have additional PPE, will that carry over to the animal side?
    - Need to assume that the animals will shed virus and the same increased PPE should be used.
    - This would likely require a dedicated animal room in the ABSL2.
    - The first time an animal experiment was performed, the PI could test the bedding and for viremia. If the animal is not shedding virus into the bedding, the risk is lower. Then consider dropping the extra BSL3 practices.

- Notifying ARC of the experiment starting will be complicated.
- Instead, could ask the that initial experiment be performed at ABSL3. This would be easier to manage the risk.
- The PI would then need a collaborator with BSL3 lab space to process the samples. This could be the Co-PI.

Xuping Xie, PhD

Dr. Xie submitted a renewal NOU for Biological Agents and rDNA/RNA to work at BSL2 with **replicon systems for human coronaviruses (SARS-CoV-2, MERS-CoV, OC43, 229E, HKU01, and NL63), flaviviruses (Dengue virus, Zika virus, West Nile virus, Powassan virus, YFV vaccine strain 17D, Japanese encephalitis virus vaccine strain 14-14-2), and alphaviruses (Chikungunya and Venezuelan Equine encephalitis virus); NIH Guidelines: D1, D2.** This NOU was **approved with the following conditions:**

- Section I.3, use separate lines for coronaviruses and flaviviruses for the risk group 2 and risk group 3 agents.
- Section I.4, please remove CDC fact sheet and replace with Canadian PSDS.
- Section I.6, explain if the deletion of structural genes is partial deletion of selected structural genes or a complete deletion of all structural genes.
- Section I.6, if these replicons will be used in a chemical fume hood, please describe. If the replicons will not be used in chemical fume hoods, please unselect in Section I.B.4.
- Section II.9. answer Yes, then answer Section II.9.a No.
- Section V.1.B, under Years of Experience, specify the years of BSL3 experience for staff that have completed BSL3 training.

Xuping Xie, PhD

Dr. Xie submitted a new NOU for Biological Agents and rDNA/RNA to work at BSL2 with **lentiviral vectors; NIH Guidelines: D1, D2.** This NOU was **approved with the following conditions:**

- Section I.5, clarify the goal of generating pseudotyped VSV with coronavirus glycoproteins.
- Section I.6, correct "start" to "study" in the first sentence.
- Section I.A.2.a, answer Yes.
- Section II.13.a, clarify use of "expect" in this sentence.

1 abstained.

BSL3/4 CDC/USDA Regulated Agent NOUs for review

Dennis Bente, PhD and Hugues Fausther Bovendo, PhD

Drs. Bente and Fausther Bovendo submitted a new NOU for BSL3/4 CDC/USDA Regulated Agents to work at BSL3 with **mpox virus (Clade II); NIH Guidelines: N/A.** This NOU was **approved with the following conditions:**

- Section I.9, confirm that no material will be inactivated to remove to a lower biosafety level. If inactivation SOPs are developed, please submit online: https://utmb.us/bfl.
- Section I.A.2.b.iii, remove [redacted] NOU, as he is not listed on this NOU.
- Section I.A.2.b.iii, ensure that all personnel listed on this NOU are listed on at least one of the NOUs held by Dr. Bente or Dr. Fausther Bovendo.
- Section III.5, remove specification of challenge with "up to 1x10^6 PFU of virus", as maximum volume and concentration are already listed in the table in Section III.4, and this value does not match.
- Section V.1.A, Personnel Table, for Dr. Fausther Bovendo, update Years of Experience to include experience at BSL3.
- Section V.1.A, Personnel Table, if any personnel have experience with mpox virus, please list under Agent Experience.

Shinji Makino, DVM, PhD
Dr. Makino submitted a renewal NOU for BSL3/4 CDC/USDA Regulated Agents to work at BSL3 with **SARS-CoV-2 virus; NIH Guidelines: D1, D2.** This NOU was **approved.**

Shannan Rossi, PhD
Dr. Rossi submitted a renewal NOU for BSL3/4 CDC/USDA Regulated Agents to work at BSL3 with **Eastern equine encephalitis virus; NIH Guidelines: D2, D4.** This NOU was **approved with the following conditions:**

- Section I.8.c.ii, please provide contact time for at least CaviCide, 10% bleach, and 5% MicroChem, as these are listed in Section I.B.7 as disinfectants.
- Section I.8.h, please clarify the last sentence, which states "Virus can be present in the virus for a few days …"
- Section I.9.d, remove inactivation SOPs that have been approved.
- Section I.B.2, answer No, as PPE at BSL3 already includes respiratory protection.
- Section I.B.4, under Lab/Room, delete specific containment room numbers and instead list BSL3 or ACL3, as necessary. Consider adding [redacted].
- Section I.B.5, Will a Homogenizer be Used, answer No, or provide a homogenization SOP that is unrelated to your work already described in Sections III and IV.
- Section I.B.6, select BSL3 and BSL3E disposal to cover both the wild-type virus and RNA waste material disposal methods.
- Section II.3.a, answer No.
- Section II.4, if all recombinant work at BSL2 is with BSAT, delete [redacted]
- Section II.4, list [redacted] for BSAT BSL2 work.
- Section II.12, answer "Yes" and answer subsequent questions related to genetics studies.
- Section II.24.a, change to "No"
- Section III.3, under PPE that Will Be Worn, unselect Full/half-face respirator and PAPR and delete Tyvek suit, as these are standard for the animal facility.
- Section III.3, under Lab Equipment that will be used, unselect Other and delete text.
- Section III.4, confirm IP route of injection for NHP.
- Section III.5, in the third paragraph, please delete the symbols around "vaccine".
- Section III.5, delete last three sentences, starting at "No more than …".
- Certification Page, update date of submission.

Amendment: BSL3/4 CDC/USDA Regulated Agent NOUs for review
William Lawrence, PhD
Dr. Lawrence submitted an amendment to his work with *Bacillus anthracis* (Ames) **to add work with antibiotic resistant strains (ASC 149 [NR-36091], ASC 282 [NR-36104]); NIH Guidelines: N/A.** This NOU amendment was **approved with the following conditions:**

- Section I.6, add a rationale for using two penicillin-resistant strains and clearly describe if any new studies will be performed with the newly added strains.
- Section I.7.e.iii, confirm that ACIP does not recommend vaccination for laboratorians.
- Section I.9.c.ii, remove inactivation SOP and instead upload approval letter.
- Section III.2, update the IACUC protocol numbers and approval dates.

Response to Conditions: BSL3/4 CDC/USDA Regulated Agent NOUs for review

Slobodan Paessler, DVM, PhD

Dr. Paessler submitted a response to conditions for his work with Marburg virus; **NIH Guidelines N/A.** This NOU response to conditions was **approved with the following conditions:**

- Section III.7, Homogenization SOP, Step 8.1, state that all manipulation of infected tissues, including necropsy, but excluding homogenization step at BSL4, will be performed in a biosafety cabinet or on a downdraft table.
- As this SOP is uploaded to other NOUs, amendments to other NOUs to update this SOP to comply with this condition may be administratively reviewed and approved.

III. OLD BUSINESS

Biological Agents and rDNA/RNA NOUs – Conditions Met

Alan Barrett, PhD – Dengue (serotypes 1, 2, 3, 4), Langat, Zika, yellow fever vaccine (17D-204, 17D-213, 17DD, French neurotropic strains), Japanese encephalitis vaccine (SA14-2-8, SA14-14-2, SA14-5-3 strains) viruses; NIH Guidelines: D2, D4 (#2024065)

Sara Dann-Grice, PhD – *Cryptosporidium parvum* and *Giardia lamblia*; NIH Guidelines: N/A (#2024066)

Dustin Green, PhD – Uropathogenic *Escherichia coli*; NIH Guidelines: N/A (#2024076)

Matthieu Gagnon, PhD – Large scale use of genomic material from *Francisella tularensis*; NIH Guidelines: D2 (#2024067)

Salim Hayek, MD – SARS-CoV-2; NIH Guidelines: N/A (#2024060)

Slobodan Paessler, DVM, PhD – Adenovirus type 5; NIH Guidelines: D1, D2, D4 (#2024079)

BSL3/4 CDC/USDA Regulated Agents NOUs – Conditions Met

Alan Barrett, PhD – Yellow fever virus; NIH Guidelines: D2, D4 (#2024071)

Alan Barrett, PhD – Yellow fever virus chimeras (wild-type Asibi and live-attenuated 17D vaccine strain); NIH Guidelines: D1, D2, D4 (#2024072)

Alexander Bukreyev, PhD and Alexander Freiberg, PhD – Andes, Dobrava, Hantaan, Puumala, and Sin Nombre viruses; NIH Guidelines: N/A (#2024081)

Slobodan Paessler, DVM, PhD – Eastern Equine Encephalitis virus (EEEV); NIH Guidelines: N/A (#2024082)

Slobodan Paessler, DVM, PhD – Venezuelan Equine Encephalitis virus (VEEV); NIH Guidelines: N/A (#2024083)

Xuping Xie, PhD – Powassan virus; NIH Guidelines: D2 (#2024085)

Amendment: Biological Agents and rDNA/RNA NOUs – Conditions Met

Linda Kenney, PhD – *Salmonella enterica* serovar Typhi (strains H58, Ty2, and CT18); NIH Guidelines: D1, D2, D4 (#2022110)

Jun Yang, PhD – Adenoviral vectors; NIH Guidelines: D2, D3, D4 (#2023100)

Amendment: BSL3/4 CDC/USDA Regulated Agents NOUs – Conditions Met

Bryan Johnson, PhD and Chien-Te Kent Tseng, PhD – SARS-CoV-2; NIH Guidelines: D1, D2, D4 (#2020014)

Tetsuro Ikegami, DVM, PhD – Bhanja virus, Heartland virus, Dabie bandavirus, Oropouche virus; NIH Guidelines: D1, D2 (#2022004)

Scott Weaver, PhD – Semliki Forest virus, Chikungunya virus, Western equine encephalitis virus, West Nile virus, St. Louis encephalitis virus, Everglades virus, Japanese encephalitis virus, yellow fever virus; NIH Guidelines: D1, D2, D3, D4 (#2021060)

NOU Inactivation

Amina El Ayadi, PhD – Human Products (#2019039) – NOU expired

Antonella Casola, MD – Influenza A and B (H1N1 A/California/7/2009, H3N2 A/Victoria/361/2011 and B/Brisbane/60/2008); NIH Guidelines: N/A (#2019057) – NOU expired

Irma Cisneros, PhD – HIV-1 Group M subtype B, HIV-1 Group M_CRF01_AE, HIV-1 (BA/L, SF162, JRSCF, JRFL); NIH Guidelines: D1 (#2019058) – NOU expired

Traver Wright, PhD – Human Products (#2022125) – PI left UTMB

IV. DISCUSSION

Guests of the IBC

Two UTMB students from the Research Ethics Practicum attended the IBC to gain insight into how research ethics and regulations are operationalized at UTMB.

Sharing Inactivation SOP, Validation SOP, and Validation Data and Data Downgrading Agents to Lower Biosafety Levels Based on Attenuation with UTMB PIs

An IBC chair proposed:

- Based on FSAP regulations, the IBC requires that Inactivation SOPs be validated and approved locally. Each PI who submits inactivation SOPs must submit their own validation data or validation data from another UTMB PI for the same SOP.
- Similarly, for downgrading an agent, the IBC requires data in an NOU submission, including the rationale for why downgrading is justified. Each PI submits that request individually. If it is a recombinant protocol, NIH OSP must also review the request for each PI.
- New applicants can have trouble getting approval from other investigators. The new PI will end up repeating validation experiments and wasting institutional resources. There are limited reasons for anyone to object to another PI using their protocol and validation data; it is a collegial act to do so. Barring intellectual property, there is little justification to not share with colleagues.
- When the Subcommittee receives protocols and validation data, they should be put into a database that is accessible to all UTMB scientists, and who can use them without further permission.
- There will be significant reduction in administrative time spent trying to coordinate sharing of Inactivation SOPs and validation data.

Further discussion:

- An IBC member agreed that sharing Inactivation SOPs would be a positive. Another PI shared inactivation SOPs and data with this IBC member, saving months of work.
- The BSO noted that this would also save time and effort by the Department of Biosafety.
- A concern that has been expressed by PIs who are asked to share validation data, is that the inactivation SOP will be used inappropriately or with the incorrect matrix. However, PIs are responsible for their labs and should be able to correctly follow an SOP. May be able to address this concern in an acknowledgement that there will be no deviations from the approved SOP without coming back to the IBC Subcommittee for review.
- Should also have an acknowledgement that data from another investigator cannot be published without their permission.
- If two inactivation SOPs are identical except for the time of incubation, can the shorter SOP be used?
    - Yes, if the PI decides to follow the shorter inactivation SOP.
- Will verification of the inactivation SOP be required?
    - No, we have to trust that the data submitted to the Subcommittee has been thoroughly reviewed.
- Will training of the laboratorians on the SOP be verified?
    - No, we count on the PIs to train their personnel appropriately for everything they do. We do not require this currently if an Inactivation SOP is shared with another PI.

- The Inactivation SOP Subcommittee asks for very detailed protocols that cover the minutiae of each procedure. It should be easy for new labs to follow the directions.
- Our procedures require that inactivation SOPs be reviewed and approved at UTMB. A PI may not use an Inactivation SOP that was approved at another institution without also undergoing review at UTMB.
- New Inactivation SOPs must still be validated at UTMB.
- Could get pushback from one or two PIs who do not want to share data. People will quickly adapt to this process. Should insist on everyone sharing. It will look bad for a PI to object to sharing. There should be exceptions for objections due to intellectual property that will be considered.
- What information is required for requests to lower the biosafety level?
    - In the NOU submission, the PI needs to provide *in vitro* or *in vivo* data showing attenuation. Data published in the literature will be considered.
- Will put together a statement that will be further reviewed at the next IBC meeting. The basics are:
    - When a PI submits an Inactivation SOP or a request to downgrade the biosafety level of an agent, the PI is agreeing to share this Inactivation SOP, validation SOP, and validation data, or data justifying downgrading the biosafety level of an agent, with all UTMB PIs.
    - Concerns regarding sharing data that may be intellectual property will be considered.
    - Data from another investigator cannot be published without their permission.
    - All data is confidential and cannot be shared outside of UTMB.

Harmonize language between Inactivation SOP Subcommittee Policy and SARS-CoV-2 Guidelines
The Inactivation SOP Subcommittee policy states that inactivation SOPs are reviewed for Select Agents or material that is handled at BSL3 or BSL4 that will be removed from primary containment. The SARS-CoV-2 Research Laboratory Biosafety Guidelines do not match this policy. Specifically, there is a note that "All specimens/samples subjected to an inactivation procedure must have UTMB IBC approval for method specific inactivation, verification, and validation data protocols." This would not match the Subcommittee Policy when samples have been approved to be worked with at BSL2 or BSL2E.

The SARS-CoV-2 Research Laboratory Biosafety Guidelines will be updated to match the Subcommittee Policy.

There was a recent NOU from Dr. Salim Hayek for clinical samples containing SARS-CoV-2 (#2024060). As part of the review, he was asked to generate Inactivation SOPs with validation data for moving those samples outside of primary containment. This requirement will be removed.

Subcommittee meeting summary
A subcommittee met earlier this week with Drs. Kobinger and Bente regarding their project that had been previously tabled. This was a project with cell lines expressing APOBEC, an antiviral factor that causes hypermutation of viruses, and expressing the HIV protein Vif, which counteracts APOBEC.

The rationale for the study is that several of the variants of concern that arose during the COVID-19 pandemic were first detected in South Africa. There is a population of untreated HIV patients in this area, which causes immunosuppression, and could permit SARS-CoV-2 a longer time to replicate and mutate. The group is testing this using *in vitro* studies, by infecting cell lines that express combinations of APOBEC, Vif, or both, and examining the number of mutations that occur.

The group was initially approved for one passage and had returned to the IBC to request two additional passages. The subcommittee met with Drs. Kobinger and Bente and discussed how to mitigate the risk. Dr. Kobinger offered to increase the biosafety level to BSL4 and to delay any other assays until after sequencing the third passage and the IBC had reviewed the results.

During the meeting, it was noted that the lab members of Dr. Kobinger and Dr. Bente are [redacted]

The IBC will return the subcommittee's recommendations to the PIs with the amendment as tabled, but will perform an expedited vote when it is returned. The subcommittee's recommendations were:

- The three requested passages may be performed at BSL4.
- When an aliquot of passaged material is sequenced, the remaining aliquots of that material may be kept in the freezer for later downstream analysis.
- Return to the IBC for next steps via amendment of the NOU, including replication kinetics of the remaining frozen aliquots, additional passages, and any other assays.

Specific changes to be made to the NOU:

- Section I.6, state that the three rounds of passage will be performed at BSL4.
- Section I.6, state that aliquots that are not sequenced will be kept in the freezer until additional amendments to this NOU to perform replication kinetics, additional passages, or other assays have been reviewed by the IBC.
- Section I.B.1, also select BSL4 PPE.
- Section I.B.4, also list a BSL4 lab.
- Section I.B.6, also select BSL4 waste disposal.

V. ADJOURNMENT

The meeting was adjourned at 4:22 PM.

[redacted]

Institutional Biosafety Committee
301 University Blvd.
Galveston, TX 77555-0192
O 409.772.1781

MINUTES
November 1, 2024

The Institutional Biosafety Committee met virtually on Friday, November 1, 2024, using Microsoft Teams. The meeting was called to order at 2:07 PM and was chaired by [redacted].

MEMBERS PRESENT

[redacted]

MEMBERS ABSENT

[redacted]

CONSULTANTS

[redacted]

GUESTS

[redacted]

I. APPROVAL OF MINUTES

The minutes of the October 4, 2024, meeting were approved.

II. NEW BUSINESS

Human and Nonhuman Primate Products NOUs approved administratively

Amina El Ayadi, PhD

Dr. El Ayadi submitted a renewal NOU for Human and Nonhuman Primate Products to work at BSL2 with **Human blood, body fluids, serum, tissue, and commercial cells (HUVEC, HeLa, THP-1, fibroblasts, mast cell line [LUVA], adipose stem cell).**

Gisela Andrea Camacho Hernandez, PhD
Dr. Camacho Hernandez submitted a new NOU for Human and Nonhuman Primate Products to work at BSL2 with **human commercial cell lines (HEK293).**

Alessandro Bonifazi, PhD
Dr. Bonifazi submitted a new NOU for Human and Nonhuman Primate Products to work at BSL2 with **human commercial cell lines (HEK293).**

Xiaoyong Bao, PhD
Dr. Bao submitted a new NOU for Human and Nonhuman Primate Products to work at BSL2 with **human primary cells (induced pluripotent stem cells), established cells (LUHMES, CCF-STTG1, HMC3).**

Ajay Israni, MD
Dr. Israni submitted a new NOU for Human and Nonhuman Primate Products to work at BSL2 with **human blood, stool, saliva, urine, and commercial cell lines (Huh-7, Hep3B, Caco-2).**

Daniel O'Reilly, PhD
Dr. O'Reilly submitted a new NOU for Human and Nonhuman Primate Products to work at BSL2 with **human commercial and/or primary cell lines (HeLa, HEK293, cardiomyocyte, THP-1, HUVEC, macrophages, SH-SY5Y, fibroblasts, A2780, HEL, NCI-H510A, HL-60-CCL-240, HaCAT, MV-4-11, U937, LS513, HTR-8/Svneo, MDA-MB-468, U87 MG, endothelial cells, hTERT, WT4-iPS, WT 9-7, astrocytes, CHO-K1, A549, H1793, glioblastoma cells, Daudi, SK-N-SH, BG03, human mesenchymal stem cells, NHDF0, SJCRH30, 786-O, A-431, hepatocytes, endothelial cells, epithelial cells, neurons, glial cells, oligodendroglioma cell line, cardiac stem cells, myocardial contractile cells, sarcoma cancer cells, testicular cancer cells, ovarian cancer cells), NHP commercial cell lines (Vero, Vero E6, DBS-FRhL-2, endothelial cells, epithelial cells, fibroblasts, smooth muscle cells, cardiomyocytes, neuronal like cells).**

Sonia Robazetti, MD
Dr. Robazetti submitted a new NOU for Human and Nonhuman Primate Products to work at BSL2 with **human blood and body fluids.**

Sanja Sever, PhD
Dr. Sever submitted a new NOU for Human and Nonhuman Primate Products to work at BSL2 with **human blood, body fluids, and serum.**

Amendment: Human and Nonhuman Primate Products NOUs approved administratively
Scott Weaver, PhD
Dr. Weaver submitted an amendment to his work with Human and Nonhuman Primate Products to **add additional human commercial and/or established cell lines (A549, HEP2, HeLa, RD, VR602, HEL299) and NHP commercial and/or established cell lines (LLC-MK2, CV1, COS7, MA104).**

Disinfectant for review
Ajay Israni, MD
Dr. Ajay Israni requested to use **BacDown Detergent Disinfectant** for disinfection of surfaces when working with **human products (stool).** The request to use this disinfectant was **tabled:**

- Project Information, question 10, provide additional information:
    - Will disinfectant be used only for surface decontamination of spills? Or will disinfectant also be used as a method for chemical disinfection of stool samples before disposal?
    - Are stool samples expected to be more liquid or more solid? Has this disinfectant been tested against solid matrices? Is the disinfectant known to penetrate this matrix?

- What contact time will be used for decontamination?
- How often will fresh solution be made?
- What is the maximum volume (or weight) of stool sample that is expected to be handled at one time?
- Has this disinfectant been shown to be effective against other enteric pathogens?

Biological Agents and rDNA/RNA NOUs for review

Sara Dann-Grice, PhD

Dr. Dann-Grice submitted a renewal NOU for Biological Agents and rDNA to work at BSL2 with ***Clostridioides difficile*; NIH Guidelines: N/A.** This NOU was **approved with the following conditions:**

- Section I.6, specify which secretions will be collected and delete the last two sentences.
- Section I.8.c.ii, provide susceptibility to freezing, formalin, and chaotropes.
- Section I.9.d.ii, Inactivation SOPs, for each method, specify if bacteria is expected to be in a vegetative state, spores, or both.
- Section I.9.d.ii, Inactivation SOPs, in section 5.2.2, list the minimum liquid nitrogen freezing time required to inactivate the bacteria.
- Section III.4, Dose Per Animal, Maximum Concentration, provide dose in units of concentration (e.g., CFU/mL).
- Section III.5, provide a description of what will be done with blood collected from tail bleeds and what will be done with the collected secretions.
- Section III.5, provide more detail on the mutant mice and hamsters, including whether they will be purchased or generated, and specify if a colony will be maintained at UTMB.
- Section III.10.a, specify if animals will be euthanized prior to removal from vivarium.
- Section III.10.b, delete room number for [redacted] and state "ABSL2".

Laura Dickson, PhD

Dr. Dickson submitted a new NOU for Biological Agents and rDNA to work at BSL2 with **Rift Valley fever virus (MP12 strain); NIH Guidelines: N/A.** This NOU was **approved with the following conditions:**

- Discuss maintenance of *Aedes vexans* colony and maintenance of mosquitoes for vertical transmission studies with the ACL Directors.
- Section I.8.b, answer No, as the insertion of blood meal in the hemotek must be done in a BSC, the feeding of the mosquitos with a hemotek must be done within a glovebox, and intrathoracic injections are performed within primary containment.
- Section I.8.d, delete "contact with infected bedding".
- Section I.8.e, confirm that the lab has existing stocks of the agent. If agent will be obtained from another source (e.g., collaborator or reference collection), please indicate.
- Section I.8.g, reformat the first sentence to be clearer ("few individuals had detectable viremia, although some did").
- Section I.8.h, answer Yes.
- Section I.9.d.i and ii, upload inactivation protocols for review when they are available.
- Section IV.3, describe source of *Aedes vexans*, as these are listed in Section IV.2, and state that the ACL Directors will be notified regarding maintenance of this colony.
- Section IV.3, shorten description of project slightly for conciseness.
- Section IV.7, Homogenization SOPs, specify time of homogenization and RPM. Clarify that cold-anesthetized mosquitos will be handled inside a glove box or other primary containment.

- Section V.1.B, in the column "Animal & Arthropod Exp.", specify if the YFV is a vaccine strain or wild-type strain.

Maria Giraldo, PhD

Dr. Giraldo submitted a renewal NOU for Biological Agents and rDNA to work at BSL2 with **influenza virus A/California/4/09 (H1N1), A/Wyoming/3/2003 (H3N2), A/Swine/Texas/4199-2/98 (H3N2), A/Panama/2007/99 (H3N2), A/Texas/36/1991 (H1N1); NIH Guidelines: N/A.** This NOU was **approved with the following conditions:**

- Section I.9, answer Yes and provide inactivation SOPs (e.g., plaque assay, co-IP, qPCR, western blot from tissues).
- Section I.A.2.iii, amend NOU #2020003 to include A549 and 2FTGH cells.
- Section III.4, Dose Per Animal, Maximum Concentration, provide units of concentration.
- Section III.5, expand on imaging, as this is mentioned in Section III.10.a.
- Section III.10.a, confirm that animals will be transported between buildings (e.g., to or from [redacted]) by lab personnel instead of by ARC. If lab personnel will perform this, add a justification for not complying with ARC Policy (https://intranet.utmb.edu/research/arc/transfer-of-animals).
- Section III.10.b, add location where imaging will occur.
- Section III.10.c., if animals will be transported between buildings, clarify how they will be moved safely by lab personnel.

Maria Giraldo, PhD

Dr. Giraldo submitted a renewal NOU for Biological Agents and rDNA to work at BSL2 with **influenza virus A/PR/8/1934 (H1N1) (PR8); NIH Guidelines: D4.** This NOU was **approved with the following conditions:**

- Section I.4, if members of the PI's laboratory will perform IVIS imaging, upload an SOP for use and decontamination of the equipment.
- Section I.6, if flow cytometry will be performed, specify whether this is with live samples, fixed samples, or both.
- Section I.6, briefly describe animal work.
- Section I.9, answer Yes and provide inactivation SOPs (e.g., plaque assay, co-IP, qPCR, western blot from tissues).
- Section I.A.2.iii, amend NOU #2020003 to include A549 and 2FTGH cells.
- Section I.B.8, if flow cytometry of live samples will be performed, either answer Yes or describe containment measures in the text box.
- Section III.10.a, confirm that animals will be transported between buildings (e.g., to or from [redacted]) by lab personnel instead of by ARC. If lab personnel will perform this, add a justification for not complying with ARC Policy (https://intranet.utmb.edu/research/arc/transfer-of-animals).
- Section III.10.b, add location where IVIS imaging will occur.
- Section III.10.c, if animals will be transported between buildings, clarify how they will be moved safely by lab personnel.
- Section V.1.B, if a collaborator will handle animals to perform IVIS imaging, add them to the NOU.

Maria Giraldo, PhD

Dr. Giraldo submitted a renewal NOU for Biological Agents and rDNA to work at BSL2 with **vesicular stomatitis virus (VSV) (Indiana strain); NIH Guidelines: D3.** This NOU was **approved with the following conditions:**

- Permit Process Questions, remove "NOU number 2014082" from the title of the project.
- Section I.3, in the List of Agents, under Recombinant Status change from Wild-type to Recombinant.
- Section I.6, expand on the role of HeLa cells in this study, as these are listed in Section I.A.2.b.ii.
- Section I.8.c.ii, please add susceptibility to heat, including temperature and time.
- Section I.8.d, unselect inhalation.
- Section I.9, answer Yes and provide inactivation SOPs (e.g., fixation for confocal microscopy).
- Section I.A.2.b.iii, correct or remove "[redacted]".
- Section II.3, correct the spelling of CRISPR in the last sentence.

Vladimir Motin, PhD

Dr. Motin submitted a renewal NOU for Biological Agents and rDNA to work at BSL2 with ***Francisella tularensis*** **(RG2 subspecies); NIH Guidelines: N/A.** This NOU was **approved with the following conditions:**

- Section I.3, under Strains or Generation, specify the strains that will be used.
- Section I.4, provide updated version of the PSDS from PHAC.
- Section I.7.c.ii, confirm that it is unknown whether agent causes disease in immunocompromised humans.
- Section I.8.b, answer No, as the centrifugation described is within primary containment.
- Section I.8.c.ii, confirm if "1% bleach" is correct or if it should be 10% bleach.
- Section I.8.c.ii, Add "%" to 70 ethanol.
- Section I.9.c, if inactivation SOPs that have been approved by the Subcommittee will be used, answer Yes, list the titles and upload approval letters in Section I.9.c.i and ii.
- Section I.9.d, if inactivation SOPs that have not been approved by the Subcommittee will be used, answer Yes, list the titles and upload SOPs in Section I.9.d.i and ii.
- Section I.B.7, uncheck box and delete text concerning 70% ethanol.

1 abstained

Daniel O'Reilly, PhD

Dr. O'Reilly submitted a new NOU for Biological Agents and rDNA to work at BSL1 with **synthetic nucleic acids; NIH Guidelines: D4.** This NOU was **approved with the following conditions:**

- Section I.8.a.ii., Is agent abortive?, answer Yes and remove responses for Sections I.8.a.iii-vi.
- Section I.8.d., unselect Animal bite.
- Section I.B.1, unselect BSL2 PPE.
- Section II.1.b., though the question only asks about recombinant material, please answer Yes.
- Section III.9.a., though the question only asks about recombinant material, please answer Yes.
- Section III.9.c., answer Yes.

Wenbo Zhang, PhD

Dr. Zhang submitted a renewal NOU for Biological Agents and rDNA to work at BSL2 with **Zika virus; NIH Guidelines: D2, D4.** This NOU was **approved with the following conditions:**

- Section I.3., if mutant Zika virus will be derived from the reverse genetics assay, add a second row to the table for Zika virus, and select Recombinant in the column Recombinant Status.
- Section I.8.c.i, update information on stability of agent, especially regarding temperature.
- Section I.8.f, delete the last two sentences.
- Section I.8.f, update information on person-to-person transmission.
- Section I.8.g, update information on infectious dose in humans.
- Section I.8.h, either provide information on infectious dose in humans in Section I.8.g, or update information on infectious dose in relevant animal models here.

- Section I.9.d.ii, Inactivation SOPs, if the SOPs have been validated, please update SOPs. Consider using inactivation SOPs that have been validated already.
- Section II.31, answer No.
- Section V.1.B, if the PI has obtained experience with Zika virus, list in Agent Experience column.

2 abstained

BSL3/4 CDC/USDA Regulated Agent NOUs for review

Chien-Te Kent Tseng, PhD

Dr. Tseng submitted a renewal NOU for BSL3/4 CDC/USDA Regulated Agents to work at BSL3 with **SARS-CoV-2; NIH Guidelines: D4.** This NOU was **approved with the following conditions:**

- Section I.8.c.i, update information on agent stability.
- Section I.B.2, answer No.
- Section II.4, under Lab/Room, delete specific lab suites and instead state "BSL3".
- Section II.4, consider also listing [redacted] and [redacted] for flexibility.
- Section III.8, in the last sentence, change "followed by autoclave sterilization" to "disposed down the drain".

Amendment: Biological Agents and rDNA/RNA NOUs for review

Alexander Bukreyev, PhD

Dr. Bukreyev submitted an amendment to his work with RNA vaccines (Ebola, Marburg, Lassa, Rift Valley fever, Andes, and SARS-CoV-2 viruses) **to add vaccines for additional viruses (Sin Nombre, Hantaan, Puumala, and Dobrava viruses); NIH Guidelines: D2, D4.** This NOU amendment was **tabled with the following conditions:**

- Section I.3, in the column Category, for all agents change to "RNA" or "nucleic acid".
- Section I.3, in the column Recombinant Status, change from Wild-type to Recombinant for the newly listed agents.
- Section I.6, in the last paragraph, reference the NOUs that will be used for challenge studies.
- Section I.8.ii, Is agent Abortive?, answer Yes.
- Section I.8.c.i, provide information on stability of RNA vaccines.
- Section I.8.c.ii, provide information on susceptibility of RNA vaccines to decontamination.
- Section I.A.b.i, specify cells of arthropod or animal origin that will be used with the RNA vaccines, or delete "cells".
- Section I.B.4, confirm that RNA vaccines will be handled or administered in [redacted] ABSL4 and BSL3. If they are not handled in these spaces, remove them.
- Section I.B.7, confirm that CaviCide is not used for surface decontamination at BSL2.
- Section II.4, confirm that RNA vaccines are generated in [redacted] ABSL4 and BSL3. If they are not generated in these spaces, remove them.
- Section III.3, confirm that RNA vaccines are administered at ABSL3 and ABSL4 for guinea pigs.

The IBC discussed the following:

- The references to viruses and challenges complicate the description. It is unclear when reading this NOU alone that only the work with RNA vaccines is approved under this NOU.
- For all vaccines listed on this NOU, the PI holds NOUs for the relevant agents. These should be listed in the relevant section of this NOU to clarify that challenge work is performed under those NOUs.

This NOU amendment may undergo eVote when it is resubmitted.

1 recused

Matthieu Gagnon, PhD

Dr. Gagnon submitted an amendment to his work with *Pseudomonas* spp. (PAO1) and *Francisella tularensis* (LVS) **to add work with *Mycobacterium tuberculosis* H37Ra and to remove a Co-PI [redacted]; NIH Guidelines: D2.** This NOU amendment was **approved with the following conditions:**

- Section I.6, plates should be incubated for at least 3 weeks to confirm the absence of living *Mycobacterium tuberculosis* H37Ra.
- Section I.7.e, answer Yes, and list the BCG vaccine in Section I.7.e.ii.
- Section I.8.b, list the piece of equipment instead of describing as a 250-lb instrument.
- Section I.8.c.ii, provide contact time for chemical disinfectants.
- Section I.8.c.ii, provide information on heat inactivation of *Mycobacterium tuberculosis* H37Ra, including contact time.
- Section I.B.4, confirm that none of the listed equipment types will be used in [redacted] or [redacted].
- Section V.1.B, under Years of Experience, update personnel experience where appropriate.

Amendment: BSL3/4 CDC/USDA Regulated Agent NOUs for review

Rong Fang, PhD

Dr. Fang submitted an amendment to her work with BSL3 Non-Select Agent *Rickettsia* spp. (*Rickettsia felis*, *R. africae*, *R. akari*, *R. australis*, *R. conorii*, *R. rhipicephali*, *R. rickettsii*, *R. parkeri*, *R. typhi*, *Orientia tsutsugamushi*) **to add scope of work (plasma from canids); NIH Guidelines: D4.** This NOU amendment was **approved with the following conditions:**

- **Material may not be removed from the BSL3 to a lower biosafety level until Inactivation SOPs have been approved by the Inactivation Subcommittee.**
- Section I.6, provide additional detail on the plasma samples obtained from collaborators, including the purpose of testing, the species of *Rickettsia* expected to be present, and the stage of infection.
- Section I.6, change "The specimens without live rickettsiae" to "Purified samples" and specify the inactivation method used for these samples.
- Section I.6, correct "plasm" to "plasma".
- Section I.B.2, change response to No.
- Section I.B.3, uncheck Other and delete "gown and gloves".
- Section II.1.b, please confirm that *Rickettsia* mutants will not be created at UTMB, or answer Yes.
- Section II.3, if recombinant material will not be created at UTMB, please clarify whether the recombinant work described in the last sentence ("Recombinant protein will be generated by constructing a plasmid to express a rickettsial surface membrane or effector protein…") is performed by a collaborator.
- Section II.5, if recombinant material will not be created at UTMB, answer No here or clarify.
- Section III.6.a, delete "since we have been well trained".
- Section III.6.b, SOP for Mouse IP Injections, remove images of animals.

Chien-Te Kent Tseng, PhD

Dr. Tseng submitted an amendment to his work with highly pathogenic avian influenza virus (HPAIV): A/Whooper swan/Mongolia/244/2005, A/Cambodia/R0405050/2007 (H5N1), A/Thailand/676/2005 (H5N1), A/cattle/Texas/56283/2024 (H5N1) **to add generation of recombinant virus by reverse genetics; NIH Guidelines: D1, D2, D4, D7.** This NOU amendment was **tabled with the following conditions:**

- **Meet with the Department of Biosafety and BSL3 Lab Director regarding implementing the requirements specified in the NIH Guidelines for working with Risk Group 3 Influenza Viruses, as detailed in Appendix G-II-C-5-a.**
- Section I.3, for recombinant influenza work, add additional rows to the table for the relevant strains, with Recombinant selected in the column Recombinant Status.
- Section I.8.c.ii., include the susceptibility of the agent to Cavicide, including contact time.

- Section I.A.1.a-g, for the addition of recombinant work, confirm that all responses remain No, or answer Yes and provide an explanation.
- Section I.A.2.b.iv, if bacteria will be used for cloning, please list.
- Section I.B.2, answer No.
- Section II.3, clarify if the LNA therapeutics will be administered to animals, or answer No to Section II.17.
- Section II.3, expand on why attenuation of mutated virus is expected (as indicated in Section II.12.c).
- Section II.8.d, answer Yes, as replication-competent virus will be generated, and explain in the text box below.
- Section II.23, answer Yes.
- Section II.25 and II.31, answer No.
- Section III.9.a is answered No, but Section II.17 is answered Yes. Please rectify.
- Section V.1.B, under Years of Experience, please also list experience at BSL3E.

Response to Conditions: Amendment: Biological Agents and rDNA/RNA NOUs for review
Alison Coady, PhD

Dr. Coady submitted a response to conditions for her amendment to her work with *Candida albicans*, *C. auris*, *C. glabrata*, *C. parapsilosis*, *C. tropicalis*, and *C. krusei* **to add work with clinical isolates of *Candida* spp. and *C. albicans* expressing an antimicrobial peptide (expanded scientific justification for handling agents outside of a BSC); NIH Guidelines: D1, D2, D4.** This NOU response to conditions was **approved.**

III. OLD BUSINESS

Biological Agents and rDNA/RNA NOUs – Conditions Met

Tetsuro Ikegami, DVM, PhD – mRNA vaccines (RVFV and SFTSV); NIH Guidelines: D4 (#2024095)

William Fagg, PhD – Adeno-associated virus (serotype 9); NIH Guidelines: D3, D4 (#2024087)

William Lawrence, PhD – *Bacillus anthracis* Sterne strain (pX02-deficient); NIH Guidelines: N/A (#2024078)

Xuping Xie, PhD – Lentiviral vectors; NIH Guidelines: D1, D2 (#2024091)

Xuping Xie, PhD – Replicon systems for human coronaviruses (SARS-CoV-2, MERS-CoV, OC43, 229E, HKU01, and NL63), flaviviruses (Dengue virus, Zika virus, West Nile virus, Powassan virus, YFV vaccine strain 17D, Japanese encephalitis virus vaccine strain 14-14-2), and alphaviruses (Chikungunya and Venezuelan Equine encephalitis virus); NIH Guidelines: D1, D2 (#2024090)

BSL3/4 CDC/USDA Regulated Agents NOUs – Conditions Met

Alan Barrett, PhD – Japanese encephalitis, Murray Valley encephalitis, Powassan encephalitis, Saint Louis encephalitis, and West Nile viruses; NIH Guidelines: D1, D2, D4 (#2024070)

Dennis Bente, DVM, PhD and Hughes Fausther Bovendo, PhD – Mpox virus (Clade II); NIH Guidelines: N/A (#2024092)

Amendment: Biological Agents and rDNA/RNA NOUs – Conditions Met

Alison Coady, PhD – *Aspergillus fumigatus* (wild type CSB144.89 and C3 [luciferase-expressing]), *Fusarium solani* (wild type and luciferase-expressing), *Mucor circinelloides* (R7B, wild type and luciferase-expressing), *Apophysomyces trapezifomis*; NIH Guidelines: D4 (#2023065)

Hugues Fausther Bovendo, PhD – Enterovirus 68 (strains USA 2020-23335, USA/2018-23089, US/KY/14-18953, USA/TX/2001-23223) and enterovirus 71 (strains Tainan/4643/1998, USA/WA/2016-19522, USA/2018-23082); NIH Guidelines: D4 (#2023075)

IV. DISCUSSION

Introduction of a new IBC member

[redacted] has joined the IBC. [redacted] studies arboviruses and SARS-CoV-2.

Proposal to require sharing of Inactivation SOP, Validation SOP, and Validation Data with all UTMB PIs

A group met and developed language for a communication to UTMB PIs to inform them that, barring intellectual property claims, inactivation SOPs will be shared with all UTMB PIs. The language was presented to the IBC for consideration. Based on a member's recommendation, language was added: "Inactivation Data or Validation Data will not be reproduced and published without permission of the original PI".

The proposal will be finalized in the coming week and sent out to UTMB PIs. The deadline to submit exceptions related to intellectual property will be 1 week after the email is sent

The IBC voted to **approve** this proposal.

The proposal to require sharing of data supporting downgrading of agents to a lower biosafety level will be developed further and considered by the IBC at a later date.

ABSL3 Incident

This incident was a clean needle stick in ABSL3. The individual was going to administer treatment to a *Bacillus anthracis* infected rabbit. These animals have a venous access port (VAP) implanted subcutaneously and therefore are removed from their caging and treatment is administered without anesthesia. One individual, who removed the animal from the cage and restrained it, was wearing armored gloves and a leather apron, in addition to the other ABSL3 PPE. The other individual, who was holding the sharp to administer treatment, was wearing normal ABSL3 PPE for that room, including double gloves, PAPR, and coverall. This individual approached the animal to administer treatment via the VAP, when the animal kicked; this resulted in a needlestick to the thumb with the clean needle.

The individual followed appropriate exiting and reporting procedures. Appropriate medical experts and Employee Health performed a risk assessment regarding post exposure treatment. Due to the type of cage used and work on the open bench in the ABSL3, the room is considered the primary containment, and the relevant regulatory agencies were notified. The individual has not developed signs or symptoms of infection with the agent.

Department of Biosafety is working with the ARC veterinarians to discuss reducing the likelihood of this incident. One idea is to develop a device to assist with securing the VAP that creates more distance between the hand with the sharp and the hand that is securing the VAP, something like a handle for the VAP. The second idea is to add additional PPE. The current plan is to focus on securing the VAP, and to implement it before the next study with this animal model starts.

PI working without a human products NOU

During a recent laboratory inspection, the Department of Biosafety identified a PI who was working without a human products NOU. The laboratory performs clinical research with human blood and body fluids.

This laboratory space was run by a PI who left UTMB a couple years ago. It was then headed by a second PI, who was responsible for it for less than six months before also leaving UTMB. The space reverted back to the Department Chair and at that time work had paused due to the rapid changes. The new PI submitted

a human products NOU, but it was sent back to them due to not identifying personnel who would perform work on the NOU.

The laboratory was then inspected in the last month, at which time the failure to get the NOU approved was noted. The NOU application was quickly resubmitted with the required changes and obtained approval. In addition, oversight of the NOU and of the laboratory was transferred to another PI who is more consistently present in the laboratory space.

V. ADJOURNMENT

The meeting was adjourned at 4:32 PM.

[redacted]

[redacted]

Institutional Biosafety Committee
301 University Blvd.
Galveston, TX 77555-0192
O 409.772.1781

MINUTES
December 6, 2024

The Institutional Biosafety Committee met virtually on Friday, December 6, 2024, using Microsoft Teams. The meeting was called to order at 2:00 PM and was chaired by [redacted]

MEMBERS PRESENT

[redacted]

MEMBERS ABSENT

[redacted]

CONSULTANTS

[redacted]

GUESTS

[redacted]

I. APPROVAL OF MINUTES

The minutes of the November 1, 2024, meeting were approved.

II. NEW BUSINESS

Inactivation approved by the Inactivation Review Subcommittee

Dennis Bente, PhD

Family/Genus: Nairoviridae

Inactivation Method(s): 4046 - Inactivation of nairovirus infected cells for FACs Removal (formalin)

Sample Matrix: Cell monolayer

Gregory Gray, MD, MPH
Family/Genus: Picornaviridae
Inactivation Method(s): SOP.A10001 Field Sample Inactivation with TRIzol LS
Sample Matrix: Liquid culture

Chien-Te Kent Tseng, PhD
Family/Genus: Orthomyxoviridae
Inactivation Method(s): Heat Inactivation of Influenza Virus
Sample Matrix: Liquid

Human and Nonhuman Primate Products NOUs approved administratively
Perenlei Enkhbaatar, MD, PhD
Dr. Enkhabaatar submitted a renewal NOU for Human and Nonhuman Primate Products to work at BSL2 with **human tissue, body fluids, established and/or commercial cell lines (HMEC-1, dermal microvascular cells, HUVEC, EA.hy926).**

Younghwan Jung, PhD
Dr. Jung submitted a new NOU for Human and Nonhuman Primate Products to work at BSL2 with **human commercial cell lines (A2780, fibroblasts, SH-SY5Y, macrophages, THP-1, cardiomyocyte, HEK293, HeLa, HUVEC, HEL, NCI-H510A, HL-60-CCL-240, HaCAT, MV-4-11, U937, LS513, HTR-8/Svneo, MDA-MB-468, U87 MG, endothelial, telomerase reverse transcriptase-immortalized primary cells, WT4-iPS, WT 9-7, astrocyte, A549, H1793, glioblastoma cells, Daudi, SK-N-SH, BG03, human mesenchymal stem cells, NHDF0, SJCRH30, 786-O, A431, hepatocytes, endothelial, epithelial, neurons, glial, oligodendroglioma, cardiac stem cells, myocardial contractile cells, myocardial conducting cells, sarcoma, testicular cancer) and NHP commercial cell lines (Vero, Vero#6, DBS-FRhL-2, endothelial, epithelial, fibroblast, smooth muscle cell, cardiomyocytes, neuronal like).**

Linda Kenney, PhD
Dr. Kenney submitted a renewal NOU for Human and Nonhuman Primate Products to work at BSL2 with **human commercial cell lines (HeLa, THP-1, MDA-MB-231).**

Balaji Krishnan, PhD
Dr. Krishnan submitted a renewal NOU for Human and Nonhuman Primate Products to work at BSL2 with **human tissue, serum, induced pluripotent stem cells (iPSCs) and commercial cells (HEK cell).**

Vijaya Murthy, MD
Dr. Murthy submitted a renewal NOU for Human and Nonhuman Primate Products to work at BSL2 with **human blood, serum, and commercial cells (HUVEC).**

Slobodan Paessler, DVM, PhD
Dr. Paessler submitted a renewal NOU for Human and Nonhuman Primate Products to work at BSL2 with **human commercial (HEK293, normal human astrocytes (NHA), human cortical neuronal (HCN), U3A-STAT1-GFP, U3A-STAT1-CC-GFP, U3A-GFP, Huh7, Huh7.5, Huh7-Bsr, Huh7-TLR3, Huh7.5-iRIGI-17, primary lung epithelial, human microglia, human neuronal, HUVEC, A549, HEK293T, THP-1, SW-13, HeLa, Calu-3, Caco-2, HAE, Expi293), NHP Commercial (Vero, Vero E6, Vero CCL-81).**

Li-av Segev Zarko, PhD
Dr. Segev Zarko submitted a new NOU for Human and Nonhuman Primate Products to work at BSL2 with **human commercial cell lines (human foreskin fibroblasts, MC116, SH-SY5Y).**

Giulio Taglialatela, PhD
Dr. Taglialatela submitted a renewal NOU for Human and Nonhuman Primate Products to work at BSL2 with **human tissue, plasma, commercial cell lines (SY5Y, Tau RD P301S FRET biosensor cells).**

Amendment: Human and Nonhuman Primate Products NOUs approved administratively
Yunfeng Chen, PhD
Dr. Chen submitted an amendment to his work with Human and Nonhuman Primate Products to **add work on the benchtop with human blood and platelets.**

Salim Hayek, MD
Dr. Hayek submitted an amendment to his work with Human and Nonhuman Primate Products to **add additional human commercial and/or primary cell lines (HPAEC, HAEC, HCAEC, PBMC, CD19+ B-cells, CD4+ T-cells, CD8+ T-cells, HCASMC, HASMC, iMV-4-11, SC, AML-193, AC10, AC16, hs 782(C).M, RAW).**

Amendment: BSL3/4 CDC/USDA Regulated Agents NOUs – administratively approved
Yuejin Liang, PhD
Dr. Liang submitted an amendment to his NOU for *Orientia tsutsugamushi* (Karp) **to add work with an additional strain of *Orientia tsutsugamushi* (Gilliam); NIH Guidelines: N/A.**

Amendment: BSL3/4 CDC/USDA Regulated Agents NOUs – approved by eVote
Gary Kobinger, PhD and Dennis Bente, PhD
Drs. Kobinger and Bente submitted an amendment to their NOU for Mpox virus (Clade II), SARS-CoV-2, and HIV genes (*vif*, *vpr*, *vpu*, *tat*, *nef*, *rev*) **to add to the scope of work (an additional two rounds of passage on transfected cells); NIH Guidelines: D1, D2.**

NOU Transfer for review
Cornelis Elferink, PhD to Casey Wright, PhD
Dr. Wright requested transfer of Dr. Elferink's NOU for plasmid DNA (#2023106). This NOU transfer request was **administratively approved:**

- Section V.1.B, update personnel.

Biological Agents and rDNA/RNA NOUs for review
David Beasley, PhD
Dr. Beasley submitted a new NOU for Biological Agents and rDNA to work at BSL2 with **ChAdOx1-Junin vaccine; NIH Guidelines: D4.** This NOU was **approved with the following conditions:**

- Section I.8.c.ii, provide susceptibility to heat decontamination, including time and temperature.
- Section I.B.4, delete "ANIMAL RESOURCE CENTER" and replace with specific building number(s).
- Section II.2, provide a goal for the recombinant work.
- Section II.4, delete "ANIMAL RESOURCE CENTER" and replace with specific building number(s).
- Section III.5, please provide the NOU number for the challenge.

1 recused.

Alexander Bukreyev, PhD

Dr. Bukreyev submitted a renewal NOU for Biological Agents and rDNA to work at BSL2 with **recombinant highly attenuated strain MVA of vaccinia virus expressing the T7 polymerase; MVA parental virus (empty MVA) and recombinant MVA vaccines containing GP and VP40 genes from Ebola, Sudan, Bundibugyo and Marburg viruses; NIH Guidelines: D4.** This NOU was **approved with the following conditions:**

- Permit Process Questions, provide a title for the project, instead of listing the agent.
- Section I.3, under Category, list as "virus" or as "viral vector".
- Section I.5, in the third sentence, add "full-length", to clarify that vaccinia virus expressing the T7 polymerase is used to recover full-length recombinant Ebola viruses from DNA.
- Section I.6, in project (1), clarify the virus or viruses that are referred to in the first sentence ("to better understand mechanisms of immuno-pathogenesis of the disease caused by this virus…").
- Section I.6, in project (1), clarify if vaccinia virus expressing T7 polymerase is used only to rescue Ebola virus (under NOU #2020120), or if it is also used to rescue other wild-type or recombinant viruses.
- Section III.2, please confirm that animal protocols are still pending, or update IACUC protocol number and approval date.
- Section III.9.b.i, please confirm whether MVA viral vectors that will be administered to animals are replication-deficient, as the agent is listed as replicative in Section I.7.c.
- Section V.1.A, confirm whether the last person listed on the NOU will perform *in vivo* work (as indicated under Roles on this NOU), as this is in contrast with statement that ARC will perform all *in vivo* work in Section I.6.

1 abstained.

Laura Dickson, PhD

Dr. Dickson submitted a new NOU for Biological Agents and rDNA to work at BSL2 with **Oropouche virus; NIH Guidelines: N/A.** This NOU was **approved with the following conditions:**

- Section I.8.c.ii, provide susceptibility to heat decontamination, including time and temperature.
- Section I.8.d, also select Sharps.

Linda Kenney, PhD

Dr. Kenney submitted a new NOU for Biological Agents and rDNA to work at BSL2 with ***Vibrio parahaemolyticus*; NIH Guidelines: D1, D2.** This NOU was **approved with the following conditions:**

- Section I.8.a.iv, confirm that agent will be concentrated, as the concentrations listed in Sections I.8.a.iii and I.8.a.vi are nearly identical.
- Section I.8.b, answer No, as the activity described is not outside primary containment.
- Section I.8.c.ii, clarify if the statement regarding not using CaviCide due to development of VBNC bacteria only applies to liquid decontamination of *Vibrio* cultures, or if it applies to decontamination of surfaces (e.g., biosafety cabinets). If the statement applies to surfaces, then uncheck CaviCide in Section I.B.7.
- Section II.12.a-c, answer questions, or answer No to Section II.12.
- Section II.15, answer Yes, and answer subsequent questions regarding cloning nucleic acids from *Vibrio* into *E. coli*.

Shinji Makino, DVM, PhD

Dr. Makino submitted a new NOU for Biological Agents and rDNA to work at BSL2 with **lentiviral vectors; NIH Guidelines: D2.** This NOU was **approved with the following conditions:**

- Section II.3, specify genes or types of genes that will be targeted for knockout.

Ramkumar Menon, PhD

Dr. Menon submitted a new NOU for Biological Agents and rDNA to work at BSL2 with ***Streptococcus agalactiae*; NIH Guidelines: N/A.** This NOU was **approved with the following conditions:**

- Section I.5, define GBS on first use.
- Section I.6, define E15 on first use.
- Section I.6, delete the sentence that starts "The animals will be monitored in a satellite facility …".
- Section I.8.a.ii, answer No.
- Section I.8.d, also select Ingestion and Sharps.
- Section I.8.g, EHSA can have issues with scientific notation and symbols. Please clarify the numbers provided in the sentence starting with "In experimental animal studies".
- Section I.B.5, answer No.
- Section I.B.7, uncheck Other and delete text about 70% ethanol.
- Section III.2, please confirm that infected animal will not present a human health risk.
- Section III.3, please confirm that a Chemical Fume Hood will be used.
- Section III.4, under Sampling, select Organs.
- Section III.5, delete the sentence that starts "The animals will be monitored in a satellite facility…".
- Section III.5, provide more detail on the types of tissues collected and the types of assays done.
- Section V.1.B, also list the PI.
- Section V.1.B, under Agents, specify the bacteria that personnel have experience with.

Li-av Segev Zarko, PhD

Dr. Segev Zarko submitted a new NOU for Biological Agents and rDNA to work at BSL2 with ***Toxoplasma gondii*; NIH Guidelines: D1, D2.** This NOU was **tabled with the following conditions:**

- Permit Process Questions, consider updating the title to reflect the goals listed in Section I.5.
- Section I.6, the description clearly states that no mutants are expected to display enhanced virulence. How will virulence be evaluated, and how is enhanced virulence defined?
- Section I.6, add the following statement regarding mutants: If an unexpected increase in virulence is observed, the IBC and Department of Biosafety will be notified immediately.
- Section I.6, describe the expected fate of any mutants that display increase virulence. Will they be destroyed, undergo additional study, be stored, etc.?
- Section I.6, add the following statement: When active work is being performed with the agent, a sign stating "Toxoplasma gondii work in progress" will be posted on lab doors.
- Section I.7.d, delineate if proposed medical surveillance is for serum banking (e.g., to store and test only if there is a potential exposure event) or for testing titers.
- Section I.7.d, clarify whether laboratorians who may become pregnant will be permitted to work with the agent.
- Section I.8.b, confirm that transfection must be performed outside of primary containment (e.g., outside a closed cuvette for electroporation).
- Section I.8.b, delete sample preparation for CryoEM, as this should be performed inside a biosafety cabinet.
- Section I.8.b, also describe the protective measures that will be employed for the safe handling of agent outside primary containment.
- Section I.8.g, also provide infectious dose of oocytes.

- Section I.B.5, also list location of the CryoEM and CryoET rooms.
- Section II.3, expand on the methods used for library construction.
- Section II.6.c, remove name of collaborator.
- Section II.7.h, provide additional detail on the function of the genes that will be modified/silenced.

The IBC discussed the following regarding the PI's proposed initial and ongoing medical surveillance:

- The PI is proposing actively testing the titer for the agent, whereas typically serum is banked and only tested after a potential exposure event or symptoms present.
- Department of Biosafety has reached out to Employee Health regarding the feasibility of testing titers.
- An IBC member previously worked with this agent at large-scale; their institute performed serum banking, only testing the sample after a potential exposure. Many personnel were positive from pets at home instead of due to an exposure at work.
    - Education for personnel working with this agent will be important, as it can also be a risk to those who are immune suppressed.
- An IBC member noted that there are multiple ways for a person to be exposed to this agent; a lab exposure is not the only route.
- An IBC member noted that it is not unreasonable to do screening, and that anyone who is seropositive does not need to be screened again, even if they later become pregnant or immune suppressed. For those who are already seropositive, the risk is of reactivation instead of exposure.

BSL3/4 CDC/USDA Regulated Agent NOUs for review

Slobodan Paessler, DVM, PhD

Dr. Paessler submitted a renewal NOU for BSL3/4 CDC/USDA Regulated Agents to work at BSL4 with **Ebola Virus; NIH Guidelines: N/A.** This NOU was **approved with the following conditions:**

- Section I.7.e, answer Yes and list information for new Ebola vaccine.
- Section I.8.a.ii, Is Agent Abortive, answer No.
- Section I.8.c.ii, also list MicroChem and provide contact time.
- Section I.A.2.b.ii, list any cells or human or NHP origin that will be used.

Scott Weaver, PhD and Laura Dickson, PhD

Dr. Weaver and Dr. Dickson submitted a new NOU for BSL3/4 CDC/USDA Regulated Agents to work at BSL3 with **Rift Valley fever virus; NIH Guidelines: N/A.** This NOU was **approved with the following conditions:**

- **Work may not commence until FSAP approval has been secured.**
- Section I.4, upload ACL3 SOP(s) for:
    - Housing mosquito eggs and pupa.
    - Counting and tracking infected eggs and pupa (must including tracking infected arthropods from cradle to grave).
- Section I.6, expand on the field samples of RVFV that will be obtained (as noted in Section I.8.e). Are these samples known to only contain RVFV? Are these samples from human, animal, or environmental sources? If from humans or animals, did the subjects show signs of disease?
- Section I.8.d, also select inhalation and mucous membrane.
- Section I.8.e, if known, also provide country-level source for field samples.
- Section I.9.d.i, when Inactivation SOPs, Validation SOPs, and Validation Data are ready for review, submit online: https://utmb.us/bfl.
- Section I.B.5, if homogenization is only for work already described in Section IV, answer No.
- Section IV.7, Homogenization SOP, provide greater detail (e.g., name of buffers, concentrations, volumes, type of tubes, the amount of tissue, homogenization time and RPM).

- Section V.1.B, clarify whether personnel have experience handling RVFV or other phleboviruses.

1 recused

Amendment: Biological Agents and rDNA/RNA NOUs for review

Matthieu Gagnon, PhD

Dr. Gagnon submitted an amendment to his work with *Pseudomonas* spp. (PAO1), *Francisella tularensis* (LVS), and *Mycobacterium tuberculosis* H37Ra **to add *Salmonella enterica* serovar Typhimurium; NIH Guidelines: D1, D2.** This NOU amendment was **approved with the following conditions:**

- Section I.6, confirm if the growth time used is sufficient for the *Francisella tularensis* strain used.
- Section I.8.c, correct misspellings, "tubersulosis" to "tuberculosis", "SURVICAL" to "SURVIVAL", "entica" to "enterica"
- Section I.B.4, please add the location for the CryoEM.

Tetsuro Ikegami, DVM, PhD

Dr. Ikegami submitted an amendment to his work with Risk Group 2 Bunyaviruses (Rift Valley fever virus [MP-12 strain and delNSs-delNSm-ZH501 strain], Punta Toro virus [Adames strain and Balliet strain], Toscana virus, Sandfly fever Sicilian virus, Icoaraci virus, Frijoles virus, Arumowot virus, Bunyamvera virus, La Crosse virus, Lone Star virus, Prospect Hill virus, Oropouche virus, Iquitos virus, Alenquer virus, Oriximina virus) **to broaden the scope of work to all agents listed on the NOU and to expand recombinant work (add vaccinology experiments); NIH Guidelines: D1, D2, D3, D4.** This NOU amendment was **approved with the following conditions:**

- Section I.6, also describe work that will be performed with reporter virus.
- Section I.6, remove the last sentence ("The transfer will be overseen by the UTMB Department of Biosafety and documented with a witness transfer form.") as this process has been completed.
- Section II.3, where appropriate, list the relevant NOUs for the risk group 3 agents from which genes will be obtained.
- Section II.3, project (1)(b) describes MP-12 strains engineered to encode NSs genes from heterologous phleboviruses or orthobunyaviruses. Clarify if all phleboviruses and orthobunyaviruses that will be used for this testing are listed in the next sentence (i.e., AMTV, PTV, HRTV, LSV, etc.), or if there are additional viruses.
- Section III.7, Homogenization SOP, specify that the homogenization step is performed in a BSC.

2 recused

Balaji Krishnan, PhD

Dr. Krishnan submitted an amendment to his work with Adeno-associated viral vectors (AAV) (serotypes 2 and 5) **to add scope of work (WT Tau and P301S Tau expression) and work with rats; NIH Guidelines: D4.** This NOU amendment was **approved with the following conditions:**

- Section I.5, expand the goal to include new transgene and animal model.
- Section I.B.4, ensure that AAV is listed on the door sign of [redacted] before commencing work in that space.
- Section I.B.7, CaviCide is listed as a disinfectant, but Section I.8.c.ii states that the agent is resistant to CaviCide. Harmonize.
- Section II.8.a, answer Yes, as Tau is an oncogene.
- Section III.9.c, answer Yes.

Amendment: BSL3/4 CDC/USDA Regulated Agent NOUs for review

Dennis Bente, DVM, PhD and Hugues Fausther Bovendo, PhD

Dr. Bente and Dr. Fausther Bovendo submitted an amendment to their work with mpox virus **to add scope of work (recombinant work, i.n. route of infection, specified countermeasures, and work with**

gamma-irradiated agent); NIH Guidelines: D4. This NOU amendment was **approved with the following conditions:**

- Section I.6, add the description of the isolation of DNA-encoded antibodies (performed in BSL-2 with non-infectious material) and subsequent testing at BSL-3, as described in the summary for changes made in this amendment.
- Section I.A.2.ii, also list the primary cells described in Section I.6. If primary cells are of arthropod or animal origin, but not of human or NHP origin, list in Section I.A.2.i instead.
- Section II.5, correct "optimed" to "optimized".
- Section III.4, under Route of Administration, also select intranasal, as this is described in Section III.5.
- Section V.1.A, if personnel have obtained experience with mpox virus, please update.

Chien-Te Kent Tseng, PhD

Dr. Tseng submitted an amendment to his work with Highly pathogenic avian influenza virus (HPAIV): A/ Whooper swan/Mongolia/244/2005, A/Cambodia/R0405050/2007 (H5N1), A/Thailand/676/2005 (H5N1), A/cattle/Texas/56283/2024 (H5N1) **to add generation of recombinant virus by reverse genetics; NIH Guidelines: D1, D2, D4, D7.** This NOU amendment was **approved with the following conditions:**

- **Approval to work with recombinant agent is limited to work necessary to establish susceptibility to antiviral agents. Once antiviral susceptibility is established, report the results to the IBC and to request approval to perform the remaining work.**
- Section I.4, upload SOP "Research Work with Recombinant HPAI virus".
- Section I.6, state that work with recombinant HPAI virus will be performed consistent with the NIH Guidelines, as described in the uploaded SOP "Research Work with Recombinant HPAI virus".
- Section I.7.e.i and ii, list the seasonal influenza vaccine.

In addition, the IBC confirms that the following practices shall be implemented:

- As described in SOP "Research Work with Recombinant HPAI virus", 2.4.4, good biosafety decontamination practices shall include decontamination of surfaces, equipment, and biosafety cabinet surfaces, and a 30-minute wait period after decontamination before equipment is used for experiments with any other influenza A viruses.
- As described in SOP "Research Work with Recombinant HPAI virus", 2.4.5, between experiments with different influenza viruses in the same work area, lab gowns will not be re-used and will be disposed of appropriately.

The IBC discussed:

- To avoid cross-contamination, SOP will implement surface decontamination procedures, followed by a 30-minute wait period.
    - IBC confirmed that this a reasonable practice and should be required.
- Biosafety asked IBC to confirm that replacing lab gowns should be required during steps that require a complete facility dedicated scrub change and complete PAPR disinfection, i.e., changing strains.
    - The IBC confirmed that when a change in PPE and scrubs is required, gowns should not be reused.
- Biosafety is waiting on a response from UDSA/APHIS to determine if shower out is required when switching influenza strains.
- Internal UTMB policies have been updated to include required medical surveillance procedures in the event of a potential exposure.
- Lab personnel will be provided medical cards and exposure control plans have been developed.

- The lab needs approval to work with the recombinant virus to perform the required antiviral susceptibility testing.

Response to Conditions: Biological Agents and rDNA/RNA NOUs for review
Parimal Samir, PhD and Alexander Freiberg, PhD

Drs. Samir and Freiberg submitted a response to conditions for their work with **Chandipura virus; NIH Guidelines: D1, D2.** This NOU response to conditions was **approved with the following conditions:**

- Section I.6, update to reflect the following restriction: No personnel under the age of 21 will be allowed in a lab while the agent is being actively manipulated.
- Section I.9.d.ii, "Formalin and PFA fixation_updated" SOP, (A) Tissues (a) Formalin fixation, step (iii), add a step to create an opening in the skull to allow penetration of fixative to the brain.
- Section I.9.d.ii, "Using ultraviolet light to inactivate virus" SOP, provide additional details on whether maintenance of the instrument is required for efficacy of inactivation (e.g., does the instrument require regular maintenance and calibration of dose of the UV bulb? Does the UV bulb require replacement? Is the UV dose measured?).
- Section III.5, clarify if the behavioral assessments will be done in primary containment.

Response to Conditions: Amendment: BSL3/4 CDC/USDA Regulated Agents NOUs for review
Thomas Geisbert, PhD

Dr. Geisbert submitted a response to conditions for his amendment to work with Nipah, Angavokely, Langya **to add work with Sosuga virus and Ghanaian bat virus NIH Guidelines: D1, D2, D4.** This NOU response to conditions was **approved with the following conditions:**

- Section I.6, add the following statements in this section, as responses within Comments Regarding This Submission are typically replaced with every amendment:
    - Section I.A.1.d. was left as "no", as the chimeric viruses we intend to generate should not enhance the ability of the agent to disseminate.
    - Section I.A.1.e. was left as "no" as the chimeric viruses we intend to generate are not expected to alter host range.
- Section II.3 states that chimeric mutants will be generated among the listed paramyxoviruses, but Section II.13 describes genetic manipulation only within the same agent (e.g., only NiV genes/mutations will be inserted into NiV FL clones). Please clarify.

III. OLD BUSINESS

Biological Agents and rDNA/RNA NOUs – Conditions Met

David Beasley, PhD – Yellow fever virus vaccine (17D and substrains) (#2024053)
Sara Dann-Grice, PhD – *Clostridioides difficile*; NIH Guidelines: N/A (#2024106)
Maria Giraldo, PhD – Influenza virus A/PR/8/1934 (H1N1) (PR8); NIH Guidelines: D4 (#2024108)
Daniel O'Reilly, PhD – Synthetic nucleic acids; NIH Guidelines: D4 (#2024104)

Amendment: Biological Agents and rDNA/RNA NOUs – Conditions Met

Matthieu Gagnon, PhD – *Pseudomonas* spp. (PAO1), *Francisella tularensis* (LVS), *Mycobacterium tuberculosis* H37Ra; NIH Guidelines: D2 (#2020115)
William Lawrence, PhD – *Bacillus anthracis* (Ames, ASC 149 [NR-36091], ASC 282 [NR-36104]); NIH Guidelines: N/A (#2022114)

Amendment: BSL3/4 CDC/USDA Regulated Agents NOUs – Conditions Met

Rong Fang, MD, PhD – BSL3 Non-Select Agent *Rickettsia* spp. (*Rickettsia felis*, *R. africae*, *R. akari*, *R. australis*, *R. conorii*, *R. rhipicephali*, *R. rickettsii*, *R. parkeri*, *R. typhi*, *Orientia tsutsugamushi*); NIH Guidelines: D4 (#2022123)

NOU Inactivation

Richard Rupp, MD – V181; Dengue quadrivalent vaccine rDENVΔ30 (live, attenuated); doses up to 3×10^4 PFU per serotype; NIH Guidelines: C1 (#2022069) – closed at PI's request

Richard Rupp, MD – V181; Dengue quadrivalent vaccine rDENVΔ30 (live, attenuated) (doses up to 2.7×10^4 PFU per serotype; NIH Guidelines: C1 (#2024028) – closed at PI's request

IV. DISCUSSION

Inactivation SOPs

The Department of Biosafety met with Inactivation Subcommittee. The subcommittee has approved a naming scheme to share inactivation SOPs. An internal database is planned, biosafety will work on cataloging and redacting approved inactivation SOPs.

Incident - PI working without a biological agents NOU

During a recent laboratory inspection, the Department of Biosafety identified a PI, [redacted], who was working without an NOU. The laboratory has been working with a rabies virus vector under an NOU that expired in January 2023; the PI initially obtained the NOU in 2012 and renewed it in 2018. Biosafety spoke with the PI, who did not realize that the NOU has expired.

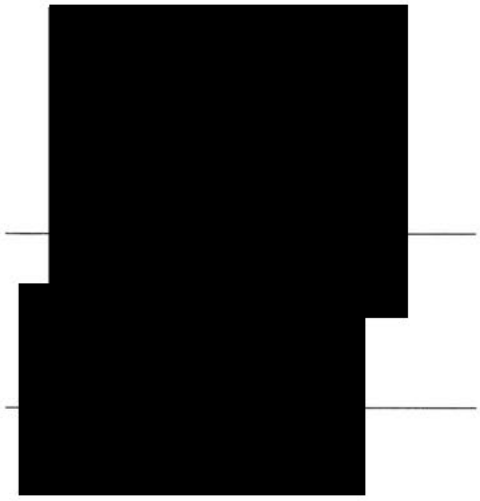
Biosafety reviewed the previously reviewed NOU with the PI to confirm that the PI's lab has not made changes to their practices. Specifically, they are still working with same SAD strand of rabies virus that has a deleted glycoprotein, which makes it incapable of infecting subsequent cells. They do not generate the agent, they received it in 5 microliter aliquots from a commercial source. Two microliters of the agent (up to $1x10^9$ PFU) are used for neuron tagging in mice via intracranial injection during stereotactic surgery. The agent is handled with BSL-2 PPE, follow BSL-2 waste practices, and use bleach and cavicide for chemical decontamination. Post inoculation, animals is housed using ABSL-2 practices for 72 hours, then ABSL-1 housing and practices. Infected animals are not moved between vivariums. Brains are harvested and organs are fixed with paraformaldehyde. The laboratory staff is composed of the PI and three members that are all trained in ABSL-2 practices and are current with annual biosafety trainings. Staff has been trained in handling this material and they have a written SOP for the intracranial injection. Having been informed that the NOU expired, they have stopped working with the material.

Biosafety will report the incident to NIH-OSP within the 30-day deadline.

- The IACUC will also be notified.
- IBC member asked, how the conversation about the NOU expiring was missed given the diligent notification that biosafety offers.
    - Biosafety is uncertain. IBC administrators provided three notices: six months before, two months before, and when the NOU expired. Implementing a phone call for NOUs that have expired is an option.
- IBC member asked, about the implications to the PI's funding and work from NIH.
- IBC member asked, about the potential repercussion to institution from NIH.
- IBC member mentioned that IBC needs to decide on an action plan that will go into report.
- IBC will send a letter to PI, and Department Chair, stressing that the PI is responsible to adhering to policies. Committee will request a written response from PI, to include the PI's plan to prevent this from happening again, that will become part of the action plan, which will go into the report to the NIH.

V. ADJOURNMENT

The meeting was adjourned at 4:25 PM.



Institutional Biosafety Committee
301 University Blvd.
Galveston, TX 77555-0192
O 409.772.1781

MINUTES
January 10, 2025

The Institutional Biosafety Committee met virtually on Friday, January 10, 2025, using Microsoft Teams. The meeting was called to order at 2:00 PM and was chaired by [redacted]

MEMBERS PRESENT

[redacted]

MEMBERS ABSENT

[redacted]

CONSULTANTS

[redacted]

GUESTS

[redacted]

I. APPROVAL OF MINUTES

The minutes of the January 10, 2025, meeting were approved.

II. NEW BUSINESS

Inactivation approved by the Inactivation Review Subcommittee

Slobodan Paessler, DVM, PhD

Family/Genus: Arenaviridae

Inactivation Method(s): 4024 - Formalin Fixation of Animal Tissue

Sample Matrix: Tissue

Family/Genus: Filoviridae
Inactivation Method(s): 4024 - Formalin Fixation of Animal Tissue
Sample Matrix: Tissue

Family/Genus: Filoviridae
Inactivation Method(s): SOP-LAB-002-007-v01 - Inactivation of Liquid Samples Containing Virus Using Trizol, Tri-Reagent and TriPure Reagent
Sample Matrix: Liquid culture

Xuping Xie, PhD
Family/Genus: Flaviviridae
Inactivation Method(s): Inactivation of POWV by TRIzol reagent
Sample Matrix: Liquid culture

Family/Genus: Picornaviridae
Inactivation Method(s): SOP.A10001 Field Sample Inactivation with TRIzol LS
Sample Matrix: Liquid culture

Family/Genus: Orthomyxoviridae
Inactivation Method(s): Heat Inactivation of Influenza Virus
Sample Matrix: Liquid culture

Human and Nonhuman Primate Products NOUs approved administratively
Karl Anderson, MD
Dr. Anderson submitted a renewal NOU for Human and Nonhuman Primate Products to work at BSL2 with **Human tissue, blood, serum, and body fluids.**

Tatiana Fonseca, PhD
Dr. Fonseca submitted a new NOU for Human and Nonhuman Primate Products to work at BSL2 with **human tissue, blood, established and/or commercial cell lines (iPSC, HEK293).**

Claudia Marino, PhD
Dr. Marino submitted a new NOU for Human and Nonhuman Primate Products to work at BSL2 with **human tissue, body fluids, blood, serum, established and/or commercial cell lines (iPSC, HEK293, human neuroblastoma), and non-human primate blood and body fluids.**

Bartosz Szczesny, PhD
Dr. Szczesny submitted a new NOU for Human and Nonhuman Primate Products to work at BSL2 with **human tissue, body fluids, established and/or commercial cell lines (BEASE-2B, Murine, and Rat).**

Tracy Toliver-Kinsky, PhD
Dr. Toliver-Kinsky submitted a new NOU for Human and Nonhuman Primate Products to work at BSL2 with **human tissue, body fluids, established and/or commercial cell lines (BEASE-2B, Murine, and Rat).**

Amendment: Human and Nonhuman Primate Products NOUs approved administratively
Maria Giraldo, PhD
Dr. Giraldo submitted an amendment to her work with Human and Nonhuman Primate Products to **add additional human commercial and/or primary cell lines (a549 and 2FTGH).**

Biological Agents and rDNA/RNA NOUs for review

Tatiana Fonseca, PhD

Dr. Fonseca submitted a new NOU for Biological Agents and rDNA to work at BSL1 with **E. coli k12 and DH5alpha; NIH Guidelines: E, F.** This NOU was **approved with the following conditions:**

- Permit Process Questions section, update title to reflect the use of *E. coli* for this project.
- Contact Information section, provide professional title, instead of the project title.
- Section I.3, in the agents table under select agents, please change the response to no.
- Section I.4, replace documents with EPA *Final Risk Assessment of Escherichia coli K-12 Derivatives* (https://www.epa.gov/sites/default/files/2015-09/documents/fra004.pdf).
- Section I.6, please describe how the hepatic organoids will be used.
- Section I.7.b and c, change the response to yes.
- Section I.A.2.b.iii, update to newly approved NOU#.
- Section I.B.7, remove 70% ethanol and select approved disinfectants like cavicide or microchem.
- Section II.3, include details on downstream analyses to be performed after transfection.
- Section II.6, answer "No".
- Section II.7.d, unselect "non-human primate" and instead list "mouse" under "Other, please specify".
- Section II.7.f, specify the delivery method for generating polymorphic animals.
- Section II.7.k, provide a description of known off-target effects associated with the CRISPR system, referencing published studies or reports from the external vendor.
- Section III.1, answer "No", based on the description of work in Section I.6.

The IBC discussed the following:
The recombinant work follows exempt categories; cloning mammalian genes into K-12 *E. coli* and breeding BSL-1 transgenic rodents. This work requires notifications to the IBC once. IBC was asked if we should give it a standard NOU process that has a five-year expiration date or change our process. IBC will discuss it later.

Jonathan Hommel, PhD

Dr. Hommel submitted a new NOU for Biological Agents and rDNA to work at BSL2 with **Rabies Virus (attenuated): SADdeltaG-EGFP; NIH Guidelines: D4.** This NOU was **approved with the following conditions:**

- Section I.4, provide the current pathogen safety data sheet.
- Section I.5, please describe alternatives that SADdeltaG-EGFP virus is superior to.
- Section I.6, delete "with a 4% paraformaldehyde solution to fix all tissue. Brains will then be removed and post-fixed in 4% paraformaldehyde solution."
- Section I.6, clarify whether the viral vector core located within the institution or is external.
- Section I.6, state that any QA/QC and safety documents provided by the vendor indicating that each aliquot is abortive will be kept on record in the laboratory.
- Section I.8.c.ii, correct the spelling "cavacide" to "cavicide".
- Section I.8.c.d, also select mucous membranes and ingestion.
- Section I.8.f, replace "incompetent" with "abortive".
- Section I.8.h, describe the pathogenicity and data of the wild-type rabies infection in humans.
- Section I.B.4, please clarify if any work will be done in a biosafety cabinet, e.g., loading syringes for intracranial injection.
- Section II.14, if cloning is done by a collaborator, then answer "no".

- Section III.3, ABSL2 and ABSL1 are both listed, in Section III.5, please explain if you are inoculating in ABSL2 and then moving to ABSL1.
- Section III.5, provide more detail on the needle and syringe you will be using for intracranial injection, e.g., an SOP that explains if it is glass, reusable and/or requires a specific decontamination procedure. An SOP may be uploaded to Section I.4.
- Section III.8, paraformaldehyde and bleach solutions are incompatible and generate toxic byproduct. The leftover liquid containing paraformaldehyde can be collected as chemical waste.
- Section V.1.B, under the "Animal & Arthropod Exp. column remove names and names of institutions.

The IBC discussed the following:
The use chemical fume hood and the absence of biosafety cabinets. Will preparatory procedures also be done in a fume hood or will those be done in a BSC? The animal facilities in that building do not have chemical fume hood. It was noted that the stereotactic procedures cannot be done in a biosafety cabinet, due to the size of the equipment. IBC will clarify if any work will be done in a biosafety cabinet.

An IBC member asked about this work being done under both ABSL2 and ABSL1. It was noted that we do not have this specific vector under the institutional viral vector guide, in which we outline specific level and if we allow movement from ABSL2 to ABSL1. IBC noticed this is a standard practice for work with some lentiviral vectors. IBC member stated that with replication deficient vectors that once the vector has entered cells, after a few hours, the risk to staff is low. It is a determined that reasonable approach is to administer the vector in ABSL2, treat as infectious for a set time, and then move down to ABSL1.

1 abstained.

Kyle Koss, PhD
Dr. Koss submitted a new NOU for Biological Agents and rDNA to work at BSL2 with **lentiviral vectors; NIH Guidelines: D1, D2.** This NOU was **tabled with the following conditions:**

- Please reach out to the Department of Biosafety for assistance with completing the application.
- Permit Process Questions section, update the project title to reflect the use of lentivirus for this study.
- Section I.3, delete rows for murine, rat, and HEK293.
- Section I.3, change Category of lentiviral vectors to "Virus".
- Section I.4, delete PSDSs and instead upload ABSA Lentiviral vector fact sheet (https://absa.org/wp-content/uploads/2018/05/LentivirusVectorFactSheet.pdf). If you would like to upload plasmid maps, those can be helpful.
- Section I.6, expand on the work involving lentiviral vectors.
- Section I.8.a.i, delete text and instead provide the maximum volume of lentiviral vector to be handled at one time.
- Section I.8.a.iii, define IFU on first use.
- Section I.8.c.i, move information on chemical susceptibility to Section I.8.c.ii.
- Section I.8.c.i, provide information on stability of lentiviral vector stability on a surface.
- Section I.8.e, define sp on first use.
- Section I.8.g, provide the infectious dose in humans for lentivirus.
- Section I.9.d, answer Yes and answer the subsequent questions.
- Section I.A.2.b.iii, state "pending".

- Section II.2, move this text to Section II.3 (Description of recombinant work) and instead provide a 1-2 sentence goal.
- Section II.3, delete descriptions of PPE and waste, as this is described in a different section of the NOU.
- Section II.3, expand on recombinant work associated with lentiviral vectors.
- Section V.1.B, in the column Training at Other Institutions, delete the names of institutions and instead provide the type/name of training obtained.

The IBC discussed the following:

- The application does not appear clear and should be refocused on the lentiviral vector.
- The applicant would benefit from mentoring.

Li-av Segev Zarko, PhD

Dr. Segev Zarko submitted a new NOU for Biological Agents and rDNA to work at BSL2 with ***Toxoplasma gondii*; NIH Guidelines: D1, D2.** This NOU was **approved with the following conditions:**

- Section I.6, explain rationale for storing mutants with enhanced virulence and how long they will be stored.
- Section I.8.c.i, remove mention of detergents, because the selected disinfectants are not detergents.
- Section I.8.c.ii, remove information for 70% ethanol and replace with information on cavicide.
- Section I.A.2.b.iii, update to NOU #2024119.
- Section II.7.i, state that if mutants display increased virulence, experiments will be paused and the IBC and Department of Biosafety will be immediately informed.

Silvana Valdebenito-Silva, PhD

Dr. Valdebenito-Silva submitted a new NOU for Biological Agents and rDNA to work at BSL2 with **human immunodeficiency virus (strains ADA, JR0CSFM JR-FL, Bal, 92UG-021); NIH Guidelines: D2.** This NOU was **approved with the following conditions:**

- Section I.3, under Strains, confirm whether "JR0CSFM JR-FL" is meant to be "JR-CSF, JR-FL".
- Section I.6, also describe transfection that was mentioned in Section II.2.
- Section I.6, expand on latency model in more detail than "our described model".
- Section I.8.d, also select ingestion and injection.
- Section I.A.2.b.ii, if molecular cloning will be performed to propagate virus plasmids, also list mammalian cell lines that will be used.
- Section I.B.3, explain when additional PPE is worn.
- Section II.3, provide a description of the procedures, including methods for transfection, imaging, and data analysis after the proteins are expressed.
- Section II.8.d, change to yes.
- Section II.16, is answered Yes, indicating that recombinant HIV will be propagated. Describe this work in Section I.6 and II.3 or answer No to Section II.16.
- Section V.1.B, under Animal and Arthropod Experience, delete "1" and instead provide the requested information or state "N/A".

BSL3/4 CDC/USDA Regulated Agent NOUs for review

Thomas Geisbert, PhD

Dr. Geisbert submitted a renewal NOU for BSL3/4 CDC/USDA Regulated Agents to work at BSL4 with **Ebola virus NIH Guidelines: D1, D2, D4.** This NOU response to conditions was **approved with the following conditions:**

- Section I.6, describe how viral vectors (e.g., lentiviral vector, adenoviral vector) will be used, or answer No to Section III.9.b. If this is covered by a different NOU, provide the NOU number.
- Section I.7.e.iii, answer "Yes".
- Section I.8.c.ii, add susceptibility to heat.
- Section I.8.h, shorten by removing sentences after the Leroy *et al.* reference.
- Section I.A.2.b.i, remove "Any mammalian cell lines" and add in arthropod or non-primate animal cell lines.
- Section II.3, clarify the types of gene modifications, e.g., point mutation, deletion, etc.
- Section II.12, if the project includes introducing point mutations, then answer "Yes".
- Section II.15.d, answer "No" or describe this work in Section II.3.
- Section II.23, answer "Yes".
- Section III.4, confirm up to 2 mL will be administered to mice.
- Section V.1.A, upload personnel table with updated Training at UTMB for the last six individuals listed on the NOU.
- Section V.1.A, in the column Years of Experience, clarify if [redacted] has obtained ABSL4 experience, as necropsy is listed in Animal Experience column.

Thomas Geisbert, PhD

Dr. Geisbert submitted a renewal NOU for BSL3/4 CDC/USDA Regulated Agents to work at BSL4 with **Nipah, Angavokely, Langya, Sosuga virus and Ghanaian bat virus NIH Guidelines: D1, D2, D4.** This NOU response to conditions was **approved with the following conditions:**

- Section V.1.A, for personnel who do not have BSL4 training listed in the column Training at UTMB, please update training and experience, or confirm that they have not completed these trainings.

Bryan Johnson, PhD and Chien-Te Kent Tseng, PhD

Dr. Johnson and Dr. Tseng submitted a renewal NOU for BSL3/4 CDC/USDA Regulated Agents to work at BSL3 with **SARS-CoV-2; NIH Guidelines: D1, D2, D4.** This NOU was **approved with the following conditions:**

- Section I.3, specify the strains studied or write "all strains".
- Section I.8.e, remove the names of institutions and repositories.
- Section I.9.c.i, "Formaldehyde inactivation of coronavirus RNA" SOP is listed. If this SOP describes formaldehyde treatment of material that has already been subjected to an approved inactivation SOP (e.g., RNA extracted from samples using Trizol), delete name of SOP. If this SOP is used to inactivate material so that it can be removed from containment, submit SOP for review and approval by the Inactivation Subcommittee (https://utmb.us/bfl).
- Section I.A.1.a, since the provided explanation describes the experiments as not likely to enhance the harmful consequences of the agent, answer No.
- Section I.A.1.d, since the provided explanation describes the experiments as not likely to increase the stability, transmissibility, or ability to disseminate the agent, answer No.
- Section I.A.1.e, since the experiments to adapt the agent to mouse have already been performed, if no further work to alter the host range will be performed, answer No.

- Section I.A.1, include the standard language that outlines what steps will be taken if strains increase virulence are encountered.
- Section I.B.3, remove additional PPE and answer "No". Any PPE used beyond IBC recommendations and/or the facility manual is considered optional.
- Section I.B.4, confirm if work will be performed in [redacted]
- Section I.B.4, change room number for [redacted] to BSL3.
- Section V.1.B, update the animal experience in the personnel table for [redacted], [redacted] and [redacted], and remove institutional name under "Animal & Arthropod Experience" for [redacted]

1 recused.

Tian Wang, PhD

Dr. Wang submitted a renewal NOU for BSL3/4 CDC/USDA Regulated Agents to work at BSL3 with **SARS-CoV-2, human metapneumovirus (hMPV), respiratory syncytial virus (RSV); NIH Guidelines: N/A.** This NOU was **approved with the following conditions:**

- Section I.3, specify the strains studied or write "all strains".
- Section I.6, for project #1 remove the name of collaborator in project #1
- Section I.6, for project #4 remove the second sentence.
- Section I.6, project #5b, describes infection with RSV and/or HMPV using BSL2 PPE. If this work occurs at ABSL2, instead of ABSL3, then state that the work occurs at ABSL2.
- Section I.7.e.ii, state that a vaccine not available for hMPV.
- Section I.8.c.ii, for RSV and HMPV, also list susceptibility for CaviCide.
- Section I.8.c.ii, for RSV and HMPV, provide the contact time for chemical inactivation.
- Section I.8.c.ii, for SARS-CoV-2, provide information on heat inactivation, including contact time.
- Section I.8.g, update infectious dose of SARS-CoV-2.
- Section I.A.2.b.i, provide a description of what cell types are used.
- Section V.1.B, if personnel have obtained experience with hamsters, please update Animal & Arthropod Experience.

Courtney Woolsey, PhD and Thomas Geisbert, PhD

Dr. Woolsey submitted a new NOU for BSL3/4 CDC/USDA Regulated Agents to work at BSL4 with **Lassa fever virus; NIH Guidelines: D1, D2, D4.** This NOU was **approved with the following conditions:**

- **No work can commence until [redacted] Inactivation SOP approval letters will also be provided at that time.**
- Section I.4, upload SOP for cell sorting, as this is described in Section I.B.8.
- Section I.6, describe the recombinant work and what will be done with wild-type strains for this project.
- Section I.6, remove last sentence as this is a new submission and has not received prior IBC approval.
- Section I.B.4, remove chemical fume hood for BSL4 locations.
- Section I.B.8, reword the reasoning for not performing cell sorting in the BSC, less on the size of the flow cytometer, and instead to focus on the PPE and room-level containment of the BSL4.
- Section I.9.c, once Inactivation SOP approval letters have been provided, answer Yes.
- Section I.9.c.ii, once Inactivation SOP approval letters have been provided, upload.
- Section I.9.d, once Inactivation SOP approval letters have been provided, answer No.
- Section II.4, add BSL4 labs.
- Section II.6.a, state that rescue will be performed at BSL4.

- Section V.1.A, for personnel who do not have BSL4 or ABSL4 training listed in the column Training at UTMB, please confirm that their Proposed Role on this NOU will include in vitro and/or in vivo work.

The IBC discussed the following:

- [redacted]
- Unable to provide Inactivation SOP approval letters, [redacted]
- [redacted]

Amendment: Biological Agents and rDNA/RNA NOUs for review

Jun-Ho La, PhD

Dr. La submitted an amendment to his work with adeno-associated viral vectors (AAV1, AAV2, AAV5, AAV9, AAVrg, and AAV-PHP.S) **to add a new AAV serotype (AAV8); NIH Guidelines: D4.** This NOU was **approved with the following conditions:**

- Section I.4, upload the UTMB IBC Viral Vector Guidance Document (available here: https://utmb.us/6gc).
- Section III.8, specify the perfusion solution (e.g., PBS, formalin).

The IBC discussed the following:

Section I.7 does not require c and d to have responses if the agent is abortive. IBC members had initial concerns that these were left blank.

1 abstained.

III. OLD BUSINESS

Biological Agents and rDNA/RNA NOUs – Conditions Met

Laura Dickson, PhD – Rift Valley fever virus (MP12 strain); NIH Guidelines: N/A (#2024105)

Linda Kenney, PhD – *Vibrio parahaemolyticus*; NIH Guidelines: D1, D2 (#2024124)

Maria Giraldo, PhD – Influenza virus A/California/4/09 (H1N1), A/Wyoming/3/2003 (H3N2), A/Swine/Texas/4199-2/98 (H3N2), A/Panama/2007/99 (H3N2), A/Texas/36/1991 (H1N1); NIH Guidelines: N/A (#2024107)

Maria Giraldo, PhD – Vesicular stomatitis virus (VSV) (Indiana strain); NIH Guidelines: D3 (#2024109)

Shinji Makino, DVM, PhD – Lentiviral vectors; NIH Guidelines: D2 (#2024125)

Ramkumar Menon, PhD – *Streptococcus agalactia*; NIH Guidelines: N/A (#2024126)

Vladimir Motin, PhD – *Francisella tularensis* (RG2 subspecies); NIH Guidelines: N/A (#2024110)

BSL3/4 CDC/USDA Regulated Agents NOUs – Conditions Met

Thomas Geisbert, PhD – Nipah, Angavokely, Langya, Sosuga virus and Ghanaian bat virus; NIH Guidelines: D1, D2, D4 (#2020065)

Slobodan Paessler, DVM, PhD – Ebola virus; NIH Guidelines: N/A (#2024128)

Amendment: Biological Agents and rDNA/RNA NOUs – Conditions Met

Alexander Bukreyev, PhD – Recombinant highly attenuated strain MVA of vaccinia virus expressing the T7 polymerase; MVA parental virus (empty MVA) and recombinant MVA vaccines containing GP and VP40 genes from Ebola, Sudan, Bundibugyo and Marburg viruses; NIH Guidelines: D4 (#2024122)

Matthieu Gagnon, PhD – *Pseudomonas* spp. (PAO1), *Francisella tularensis* (LVS), *Mycobacterium tuberculosis* H37Ra, *Salmonella enterica* serovar Typhimurium; NIH Guidelines: D2 (#2020115)

Tetsuro Ikegami, DVM, PhD – Risk Group 2 Bunyaviruses (Rift Valley fever virus [MP-12 strain and delNSs-delNSm-ZH501 strain], Punta Toro virus [Adames strain and Balliet strain], Toscana virus, Sandfly fever Sicilian virus, Icoaraci virus, Frijoles virus, Arumowot virus, Bunyamvera virus, La

Crosse virus, Lone Star virus, Prospect Hill virus, Oropouche virus, Iquitos virus, Alenquer virus, Oriximina virus); NIH Guidelines: D1, D2, D3, D4 (#2021017)

Balaji Krishnan, PhD – Adeno-associated viral vectors (serotypes 2 and 5); NIH Guidelines: D4 (#2023086)

IV. DISCUSSION

New Community Member

[redacted] is a biological safety manager at [redacted] He has over 23 years of IBC experience.

SARS-CoV-2 reclassification

CDC is updating its biosafety guidance, now recommending that work with SARS-CoV-2 be conducted at BSL2 at a minimum, and NIH is aligning by rescinding the interim RG classification such that SARS-CoV-2 should be considered a RG2 agent. In the *NIH Guidelines for Research Involving Recombinant or Synthetic Nucleic Acid Molecules* (*NIH Guidelines*), other than SARS-CoV and Middle East Respiratory Syndrome (MERS-CoV), which are specifically listed as RG3 agents in Appendix B-III-D, all other coronaviruses, including SARS-CoV-2, are classified under the existing RG2 category for Coronaviruses in Appendix B-II-D.

Decisions about biosafety level are made by each local IBC. Are there specific experiments or work practices that our IBC would recommend remain at BSL3?

The IBC discussed:

- The IBC has guidance for removal of WNV and SLEV from BSL3 to BSL2. These could be adapted for SARS-CoV-2 removal.
- Should strongly encourage PIs to take advantage of the clones available on campus and to rederive virus at BSL2 using a clone. Where labs do not have the capacity to do that, perhaps one or two of the large coronavirus labs could assist to generate stocks and distribute them.
- The reference center has confirmed by sequencing that their major stocks don't have mutations; they could act as a focal point for distribution.
- Where large quantities of concentrated virus are generated, should additional respiratory protection at BSL2 be recommended?
- Does animal work, especially with hamsters, have additional risks of aerosolization?
- Starting from a clone-derived virus will hamper PIs who want to perform virus evolution studies. Would the already established procedures for downgrading samples still be permitted?
- Is the prevalence of vaccination among researchers known?
- PIs may want to work with non-circulating strains, like WA-1, Omicron, or Delta. These original strains are likely more dangerous.
- Are there specific mutants and strains that should not be moved to BSL2?
- In the hospital, full contact precautions are still in use for patients with SARS-CoV-2 infection.
- The recommendations should include specifics on titer, volume, and aerosol-producing procedures.

A working group will be formed to consider this in further detail.

Junín virus vaccine strain Candid No.1 containing GP1 168T and/or GP2 427F

FSAP released an SA Gram that specific mutations in Candid #1 cause a reversion in virulence. Strains with these mutations are now considered Select Agents. Department of Biosafety has reached out to PIs with active or expired NOUs that include work with Candid #1. All PIs have responded that they do not have these mutations. One PI asked if they should sequence their strain.

- A committee member received a communication from BEI that labs do not need to sequence if they do not believe they have these specific strains.

- A committee member asked whether the reference center should sequence their strains before shipping them. At some point, the reference center will likely sequence Candid #1 before shipping it.
- Is it known whether these mutations were from passaging the virus? The study was a reverse genetics study, not from passaging the virus. However, the study states there was a propensity for one of these reversions during cell culture and neonatal mouse passages.
    - Likely that a low passage stock will not have these mutations.
- Will reach out to PIs with additional questions, including to determine whether they are working with high-passage material.
- The IBC will not restrict PIs from working with the strains at this time.

UTMB IBC NOU Policy Update

UTMB IBC NOU Policy is less specific than the [redacted] regarding allowing a PI to hold an NOU [redacted] The UTMB IBC NOU policy will be updated to clearly state that [redacted]. The updated policy will be distributed to the IBC members for consideration at a future meeting.

Update on work without NOU incident

The PI submitted a response memo to the IBC with a plan to prevent this incident from occurring again. Using the information provided by the PI, the incident report was submitted to NIH-OSP within the allotted time. NIH-OSP has not yet responded. Biosafety will offer more assistance in the form of laboratory training. IBC members agree that PI response is satisfactory.

DURC and PEPP Policies

The new DURC and PEPP policy implementation date is May 2025. Preparations to implement this policy need to be made very soon, and with input from stakeholders outside of the IBC or the Department of Biosafety. DOB will arrange a working group to start addressing implementation of this policy. All volunteers are welcome for this working group.

V. ADJOURNMENT

The meeting was adjourned at 4:04 PM.

[redacted]

[redacted]

utmb Health

Institutional Biosafety Committee
301 University Blvd.
Galveston, TX 77555-0192
O 409.772.1781

MINUTES
February 7, 2025

The Institutional Biosafety Committee met virtually on Friday, February 7, 2025, using Microsoft Teams. The meeting was called to order at 2:00 PM and was chaired by [redacted]

MEMBERS PRESENT

[redacted]

MEMBERS ABSENT

[redacted]

CONSULTANTS

[redacted]

GUESTS

[redacted]

I. APPROVAL OF MINUTES

The minutes of the January 10, 2025, meeting were approved.

II. NEW BUSINESS

Amendment: Biological Agents and rDNA/RNA NOUs approved administratively

Kathryn Cunningham, PhD

Dr. Cunningham submitted an amendment to her work with Canine adenovirus serotype 2 (CAV-2) **to add work with mice; NIH Guidelines: D4.**

Amendment: Biological Agents and rDNA/RNA NOUs approved by eVote

Alexander Bukreyev, PhD

Dr. Bukreyev submitted an amendment to his work with RNA vaccines (Ebola, Marburg, Lassa, Rift Valley fever, Andes, and SARS-CoV-2 viruses) **to add vaccines for additional viruses (Sin Nombre, Hantaan, Puumala, and Dobrava viruses); NIH Guidelines: D2, D4.**

Human and Nonhuman Primate Products NOUs approved administratively

Lawrence Sowers, PhD

Dr. Sowers submitted a renewal NOU for Human and Nonhuman Primate Products to work at BSL2 with **Human tissue and commercial cell cultures.**

Min Kyung Yi, PhD

Dr. Yi submitted a renewal NOU for Human and Nonhuman Primate Products to work at BSL2 with **Human serum, primary macrophages, and commercial cell lines (HEK293, HEP G2, THP-1, primary hepatocytes, Huh-7, LX-2, Jurkat).**

Amendment: Human and Nonhuman Primate Products NOUs approved administratively

Scott Weaver, PhD

Dr. Weaver submitted an amendment to his work with Human and Nonhuman Primate Products to **add human astrocytes.**

Biological Agents and rDNA/RNA NOUs for review

Maria Giraldo, PhD

Dr. Giraldo submitted a new NOU for Biological Agents and rDNA to work at BSL2 with **dengue virus; NIH Guidelines: N/A.** This NOU was **approved with the following conditions:**

- Section I.8.h, answer yes.
- Section I.A.2.b.ii, list cells of human origin (e.g., human monocyte derived dendritic cells) to be used with the virus.
- Section I.B.4, confirm dengue virus will not be handled in [redacted]

Haitao Hu, PhD

Dr. Hu submitted a renewal NOU for Biological Agents and rDNA to work at BSL2 with **human immunodeficiency virus; NIH Guidelines: N/A.** This NOU was **approved with the following conditions:**

- Section I.8.c.i, move or copy information on the susceptibility of the agent to temperature to Section I.8.c.ii.
- Section I.8.c.ii, provide the susceptibility and contact time of Cavicide and 10% household bleach.
- Section III.2, update the IACUC approval date.
- Certification, update the submission date.

Discussion:
An IBC reviewer noted that the submitted inactivation protocol is a protocol that covers BSL-2 viruses in general. An IBC member and Biosafety have stated that at BSL-2 inactivation protocols do not have to be agent specific.

1 recusal

Haitao Hu, PhD

Dr. Hu submitted a renewal NOU for Biological Agents and rDNA to work at BSL2 with **Zika virus, Dengue virus and Japanese encephalitis virus vaccine strain; NIH Guidelines: N/A.** This NOU was **approved with the following conditions:**

- Work cannot commence until recombinant section is completed and resubmitted.
- Section I.4, upload the updated Canadian pathogen safety data sheet for Zika virus.

- Section I.5, update taxonomic nomenclature of flavivirus to orthoflavivirus
- Section I.7.a, select the box to indicate that all personnel are enrolled in the Occupational Health Program.
- Section I.7.e.ii, list the current dengue vaccines.
- Section I.8.c.ii, provide a time and temperature for heat inactivation, and provide the contact times for bleach and CaviCide.
- Section I.8.d, unselect mosquito bite, as no work with arthropods is proposed.
- Section I.9.d.ii, inactivation protocol step #8, confirm if a dunk tank is used at BSL-2 or remove this step from the protocol.
- Section II.1, answer yes, and describe the recombinant material obtained from your collaborator, with a focus on the mutant strains and reporter strains that will be obtained.

Discussion:
An IBC reviewer mention that if a PI will handle recombinant material, then they are required to fill out section II. Another IBC reviewer concurred that if a PI is generating mutants, replicon systems, or the reporter viruses, then section II needs to be filled out. It was stated that if a collaborator is providing the material, then the collaborator is responsible for the QA/QC and the safety of the recombinant material. An IBC reviewer explained that this PI is receiving concentrated recombinant material, so the PI will not need to propagate or concentrate the recombinant material. By using the material in a tissue culture system, the PI, is technically propagating the material. However, the PI is also inactivating the cells to use in flow cytometry. The IBC debated if the PI should fill out section II or expanded on Section I.6. The IBC agreed that the straightforward and compliant approach is to have the PI fill out section II.

1 recusal
1 abstain

Linda Kenney, PhD
Dr. Kenney submitted a renewal NOU for Biological Agents and rDNA to work at BSL2 with ***Salmonella enterica*** **serovar Typhimurium; NIH Guidelines: D1, D2, D4.** This NOU was **approved with the following conditions:**

- Section I.8.b, if injection of agent into circulatory system of zebrafish by microinjection is performed outside of primary containment (e.g., a biosafety cabinet, chemical fume hood, or downdraft table), answer Yes and provide scientific justification.
- Section II.2, clarify recombinant research goal by moving the description of work, including mutagenesis and complementation to Section II.3 (the description of recombinant work).
- Section II.3, add a short description of how the mutants will be created.
- Section II.6, add an explanation for complementation construct cloning and reporter-protein construct cloning.
- Section III.2, add the updated IACUC approval date for zebrafish and mouse.
- Section III.5, EHSA has rendered a symbol incorrectly; for work with mouse on Day 1, please clarify "200 ?l in PBS".
- Section III.5, provide more detail on how 70% ethanol will be used to disinfect the homogenizer, contact time and if immersion will be used, otherwise find an alternative disinfectant that works on contact.
- Section III.6.a, please refocus this section to be on anesthesia.

- Section IV.6.b, revise to state how nematodes are infected with the agent (e.g., feed larvae with *Salmonella*).
- Section V.1.B, in the column Animal & Arthropod Experience, shorten animal and arthropod section for PI to match other laboratorians.
- Section V.1.B, in the column Animal & Arthropod Experience, for personnel who will perform In Vivo work, describe species-specific techniques that personnel have experience with, including IV injection, oral gavage, euthanasia, microinjection, and zebrafish and *C. elegans* husbandry.

Min Kyung Yi, PhD

Dr. Yi submitted a renewal NOU for Biological Agents and rDNA to work at BSL2 with **hepatitis C virus (HCV); NIH Guidelines: D1, D2, D3.** This NOU was **approved with the following conditions:**

- Section I.8.a.iii, describe the maximum concentration of virus stock before final concentration.
- Section I.9, answer yes and provide SOPs for 50% methanol/50% acetone fixation, 4% paraformaldehyde fixation, and RNA extraction.
- Section II.3, describe how CRISPR will be used in addition to siRNA.
- Section II.5, confirm if HCV cDNA, not including primers, is synthesized (e.g., company service). If it is, then answer yes.

BSL3/4 CDC/USDA Regulated Agent NOUs for review

Alfredo Torres, PhD

Dr. Torres submitted a renewal NOU for BSL3/4 CDC/USDA Regulated Agents to work at BSL3 with ***Burkholderia mallei* and *Burkholderia pseudomallei*; NIH Guidelines: N/A.** This NOU was **approved with the following conditions:**

- Section I.4, upload the current version of the pathogen safety data sheets for both agents.
- Section I.9.c.ii, please submit inactivation SOPs 1, 2, 3 to the Inactivation Subcommittee for approval (https://utmb.us/bfl).
- Section I.A.2.a, answer yes.
- Section I.A.2.b.ii, move RAW 264.7 cells to section I.A.2.b.i.
- Section I.A.2.b.iii, list the human products NOU number 2023025.
- Section I.B.4, for work in a BSL3 lab, delete specific room numbers and instead state "BSL-3".
- Section I.B.5, answer yes and select Homogenizer.
- Section II.13.b.i, ii, and iii, provide more details on the region of the insertion, inserted genes, and expression.
- Section II.14, answer yes and list reporter genes.
- Section II.15.d.i, provide more detail on expressed proteins.
- Section V.1.B add experience with agent for [redacted] if applicable.
- Section V.1.b, update BSL3 training for [redacted]

Alexander Bukreyev, PhD and Ashok Chopra, PhD

Dr. Bukreyev and Dr. Chopra submitted a renewal NOU for BSL3/4 CDC/USDA Regulated Agents to work at BSL3 with **SARS-CoV-2; NIH Guidelines: D1, D2, E1.** This NOU was **approved with the following conditions:**

- Please upload a newly signed Co-PI cover page for the renewal.
- Section I.3, update risk group to 2.
- Section I.4, please upload the current pathogen safety data sheet for SARS-CoV-2.
- Section I.6, please confirm there is not a 10X chromium controller in BSL3.

- Section I.7.e.ii, please updated the vaccine list to reflect what is currently approved by the FDA.
- Section I.8.c.i, provide the updated information for SARS-CoV-2 stability outside of a host.
- Section I.8.g, provide the infectious dose.
- Section I.A.2.b.ii, list PBMC.
- Section I.A.2.b.iii, correct human products NOU number to 2020084.
- Section I.A.2.iv, list bacteria used for cloning and propagating plasmids
- Section I.B.4, for work in a BSL3 or BSL4 lab, delete specific room numbers and instead state "BSL3" or "BSL4".
- Section I.B.8, please complete the second to last sentence.
- Section II.3, please state the biosafety level at which virus will be rescued.
- Section II.4, please also list BSL2 labs where recombinant work will be performed.
- Section II.17, answer yes, if recombinant SARS-CoV-2 will be used to infect animals. If recombinant agent will not be administered to animals, state this in Section II.3.
- Section III.2, verify animal protocols are up to date and provide current IACUC approval dates.
- Section III.7, revise and upload the BSL-3 tissue homogenization protocol to indicate that homogenization is performed inside a biosafety cabinet.
- Section V, update personnel table to include Co-PI Ashok Chopra and his lab personnel.
- Section V, update personnel table "Years of Experience" and "Agents" column for all personnel.

Amendment: Biological Agents and rDNA/RNA NOUs for review

Noelle Anastasio, PhD

Dr. Anastasio submitted an amendment to her work with adeno-associated viral vectors (AAV, serotypes 2, 5, 6, 8, 9) **to add mice and to expand the scope of recombinant work; NIH Guidelines: D2, D4.** This NOU amendment was **approved with the following conditions:**

- Section I.8.f, remove "Not infectious".
- Section II.3, provide information in this section to distinguish it from section I.6, which focuses on AAV cloning, the major target genes, and methods involved in AAV packaging.
- Section I.B.5, SOP titled "Homogenization Protocol", clarify the steps that are performed within a biosafety cabinet, chemical fume hood, or other primary containment.
- Section III.3, also select ABSL1 for animal facility.
- Section III.5, state that animals will be handled using ABSL2 practices for 72 hours post administration.

1 abstain

Kathryn Cunningham, PhD

Dr. Cunningham submitted an amendment to her work with adeno-associated viral vectors (AAV, serotypes 2, 5, 8, 9) **to add mice and to expand the scope of recombinant work; NIH Guidelines: D2, D4.** This NOU amendment was **approved with the following conditions:**

- Section II.3, provide information in this section to distinguish it from section I.6, which focuses on AAV cloning, the major target genes, and methods involved in AAV packaging.
- Section I.B.5, SOP titled "Homogenization Protocol", clarify the steps that are performed within a biosafety cabinet, chemical fume hood, or other primary containment.
- Section III.3, also select ABSL1 for animal facility.
- Section III.5, state that animals will be handled using ABSL2 practices for 72 hours post administration.

Discussion:
Dr. Anastasio and Dr. Cunningham submitted virtually identical NOUs. IBC reviewers state that PIs need to differentiate NOUs. IBC reviewer stated that we should require a substantial difference to justify having two separate NOUs.

1 abstain

III. OLD BUSINESS

Biological Agents and rDNA/RNA NOUs – Conditions Met
Parimal Samir, PhD – Chandipura virus; NIH Guidelines: D1, D2 (#2024089)
Li-av Segev Zarko, PhD – *Toxoplasma gondii*; NIH Guidelines: D1, D2 (#2024127)
Nikos Vasilakis, PhD – *Rickettsia parkeri* (Atlantic Rainforest-like); NIH Guidelines: N/A (#2023097)

BSL3/4 CDC/USDA Regulated Agents NOUs – Conditions Met
Dennis Bente, DVM, PhD – Bourbon, Thogoto, Dhori, and Oz viruses; NIH Guidelines: D3, D4 (#2023080)
Thomas Geisbert, PhD – Nipah, Angavokely, Langya, Sosuga, and Ghanaian bat viruses; NIH Guidelines: D1, D2, D4 (#2025013)
Tian Wang, PhD – SARS-CoV-2, human metapneumovirus (hMPV), respiratory syncytial virus (RSV); NIH Guidelines: N/A (#2025011)

Amendment: Biological Agents and rDNA/RNA NOUs – Conditions Met
Alexander Bukreyev, PhD – RNA vaccines (Ebola, Marburg, Lassa, Rift Valley fever, Andes, SARS-CoV-2, Sin Nombre, Hantaan, Puumala, and Dobrava viruses); NIH Guidelines: D2, D4 (#2023015)
Jun-Ho La, PhD – Adeno-associated viral vectors (AAV1, AAV2, AAV5, AAV8, AAV9, AAVrg, and AAV-PHP.S); NIH Guidelines: D4 (#2023056)

IV. DISCUSSION

NIH accepted December Incident Report
Biosafety informed the IBC that the NIH accepted the incident report with no further questions or comments.

Upcoming FSAP Inspection
Biosafety informed the IBC that we have a four-day virtual inspection scheduled, which will be followed up by an onsite inspection. FSAP will inspect all select agent registered areas ranging from BSL2 to BSL4

BSL2 Incidents
Biosafety presented two incidents to the IBC that occurred in BSL2 laboratories.

The first incident discussed involves a small spill in in the [redacted]ACL2, at the beginning of January. The incident was not part of ongoing ACL2 studies. A laboratorian, accompanied by a trainee, brought two small Mayaro infected sample to use in the tissue homogenizer. The laboratorian did not place the homogenizer in the BSC and homogenized the samples on the open bench. One of the tube/vials malfunctioned or cracked, resulting in a small spill inside the cassette. Laboratorian did not follow procedure, of placing absorbent material down and flooding with disinfectant, to correctly clean the spill. The laboratorian sprayed disinfectant at the location of the spill and inside the cassette. Additionally, the laboratorian did not report the incident. The trainee, after waiting a day, did not feel comfortable with happened and reported the incident to biosafety. Employee health has put both employees on a sign and symptom watch, there have been no clinical signs have been reported. The laboratorian has had their

access removed from ACL2 and ACL3. The laboratorian will be retrained on aerosol generating equipment/procedures, spill cleanup, and reporting procedures.

The second incident discussed involves a small spill in a BSL2 laboratory in [redacted] at the beginning of February. A laboratorian was transporting a small plate with Oropouche virus, and did not place the plate in a secondary container, e.g. a Ziploc bag or a sterilite container. The laboratorian used a piece of tape to hold the plate together and placed it in a transport cooler. When the laboratorian arrived in their BSL2 lab, they found that plate had spill out into the cooler. The individual did notify biosafety and biosafety assisted with the small liquid spill cleanup. The PI and the laboratorian will be retrained on appropriately training specimens via the campus manual.

2024 Potential Exposure Updates.
Biosafety informed the IBC that the 2024 potential exposure updates table have been posted. This can be viewed through a link in the GNL website and a link through employee health. Biosafety does not have direct access to the table in employee health, but they have been asked to update it on behalf of biosafety. From this update, a journalist has published an article about the three incidents of 2024. Overall, the external biosafety members cited in the article were supportive of our level of transparency.

DURC/PEPP Policy Update
Biosafety presented the results of the January DURC/PEPP policy update group meeting. The January meeting covered a summary of what the new policy, how it might affect UTMB and who are the interested parties for further discussions about implementation.

The IBC will likely be responsible for helping PIs conduct their risk benefit analysis and then draft risk mitigation plans and if work is funded. There will need to be oversight and training on implementation of risk mitigation plans. The IBC has community members that can serve on the IRE. The chief research officer can also serve on the IRE.

During the meeting, the group identified additional stakeholders like legal, media relations, grants office, and sponsored programs. Alongside PIs, administrators will need to be made aware that these changes are coming in May 2025.

To prepare for implementation we can create an algorithm that factors in agents and the experimental outcomes, which would be highlighted in NOU applications. Another option is to reach out to the grants and contracts office staff that oversee routing forms and to see if they can put in a SOP to flag grants that are going in for funding and could fall under the DURC/PEPP policy. With active studies, we can add a question to our annual review that biosafety sends out to PI.

The group also discussed the importance of transparency and that our ability to communicate with the public is important but may be affected by the risk mitigation plans that are implemented.

An IBC member wanted to emphasize transparency, that the appropriate stakeholders are included in every step and this process should be codified in The University of Texas Medical Branch at Galveston's Institutional Handbook of Operating Procedures (IHOP). IBC member urged IBC to proceed in a transparent and rational manner.

SARS-CoV-2
Biosafety presented the result of the committee meeting to discuss SARS-CoV-2 being recategorized as risk group 2. The group decided that the UTMB IBC should maintain SARS-CoV-2 work at BSL-3 and that, currently, there should not be an effort to move work into the BSL-2 labs for the following reasons:

1. Although SARS-CoV-2 has become attenuated with the emergence of new variants since 2020, it has also become more transmissible, so a lab infection could to undetected and initiate transmission in the community.

2. Several labs at UTMB continue to work with the original WA1 strain, which is more virulent than current strains and may have a higher risk of long COVID.

3. Requiring vaccination of lab personal working with SARS-CoV-2, or working nearby in open labs, is unfeasible.

4. Low-risk procedures with SARS-CoV-2 are already permitted at BSL2.

5. COVID case-fatality rates remain well above those of influenza and most other BSL2 pathogens, and long COVID remains a very serious sequela of infection.

6. The R_0 of SARS-CoV-2 remains one of the highest for any microorganism, indicating extremely efficient natural transmission and a high risk of laboratory aerosol transmission.

An IBC member voiced satisfaction with the outcome of the group meeting. The IBC member mentioned they would like to make work with this agent easier on labs, but this agent presents certain risks and challenges.

We will need to draft language, that while the NIH has designated this as a risk Group 2. UTMB is with an internal risk assessment and concluded that this work will stay at BSL 3. Moreover, we can update our online table. An IBC member stated they want to make sure that we cover any potential loopholes in, which a PI could try to work with live virus in a BSL2. The IBC will need to be vigilant when reviewing NOUs and have clear communication with PIs to let them know what our policy is. We will need to send out a campus wide notice, the way notices were sent out in the beginning of the SARS-CoV-2 pandemic.

Adjunct Professor NOUs

The IBC discussed the situation in which a PI, has transitioned to a part-time adjunct position at UTMB. The UTMB IBC NOU policy states that the principal investigator of an NOU needs to be a UTMB staff holding a faculty position that is responsible for the personnel and research conducted on the NOU. The current plan is to email the PI to see if they plan to terminate or transfer their NOUs.

An IBC member mentioned that as an adjunct professor the current PI cannot hold an NOU. Another IBC member mentioned that the charter should be updated to define an adjunct professor and what their rights and responsibilities are. The IBC consultant stated the OSP definition of what a PI as being a full-time employee with an academic title.

The IBC has decided that all NOUs under this PI are temporarily paused, until the PI transfers the NOUs to a UTMB faculty member. If the PI does not transfer the NOUs, then the NOUs will be terminated. If a transfer process is agreed to, then the IBC will review and approve the transfer via an eVote.

V. ADJOURNMENT

The meeting was adjourned at 4:08 PM.

[redacted]

[redacted]

utmb Health

Institutional Biosafety Committee
301 University Blvd.
Galveston, TX 77555-0192
O 409.772.1781

MINUTES
March 7, 2025

The Institutional Biosafety Committee met virtually on Friday, March 7, 2025, using Microsoft Teams. The meeting was called to order at 2:00 PM and was chaired by [redacted].

MEMBERS PRESENT

[redacted]

MEMBERS ABSENT

[redacted]

CONSULTANTS

[redacted]

GUESTS

[redacted]

I. APPROVAL OF MINUTES

The minutes of the February 7, 2025, meeting were approved.

II. NEW BUSINESS

Inactivation approved by the Inactivation Review Subcommittee

Dennis Bente, DVM, PhD

Family/Genus: Orthomyxoviridae
Inactivation Method(s): Inactivation of Influenza Virus by TRIzol reagent
Sample Matrix: Liquid

Family/Genus: Orthomyxoviridae
Inactivation Method(s): Formalin Fixation of Animal Tissue
Sample Matrix: Tissue

Amendment: Human and Nonhuman Primate Products NOUs approved administratively

Perenlei Enkhbaatar, MD, PhD

Dr. Enkhbaatar submitted an amendment to his work with Human and Nonhuman Primate Products to **add human platelets.**

Hugues Fausther Bovendo, PhD

Dr. Fausther Bovendo submitted an amendment to his work with Human and Nonhuman Primate Products to **add commercial human cell lines (SW-13 and HEK-293T-hACE2) and commercial NHP cell lines (Vero76, MA-104, Vero E6-TMPRSS2-T2A-ACE2 and LLC-MK).**

Human and Nonhuman Primate Products NOUs approved administratively

Kamil Khanipov, PhD

Dr. Khanipov submitted a renewal NOU for Human and Nonhuman Primate Products to work at BSL2 with **human blood, bone, tissue, serum, and body fluids.**

Kyle Koss, PhD

Dr. Koss submitted a renewal NOU for Human and Nonhuman Primate Products to work at BSL2 with **human blood, tissue, serum, and commercial cells (HEK293, HUVEC, Macrophages, and IPSC (DYR0100)).**

Courtney Woolsey, PhD

Dr. Woolsey submitted a new NOU for Human and Nonhuman Primate Products to work at BSL2 with **human blood, body fluids, serums, tissues, and human primary and commercial cells (PBMC, monocytes, T cells, B cell, HBEC5i, HSAEpC, HTEpC, HNEpC, HPMEC, HPASMC, HMC3, cardiomyocytes, HEK293, HELA, HEP G2, macrophage, THP-1) and non-human primate blood, body fluids, tissue, bone, and NHP primary and commercial cells (PBMC, BEC, SAE, BE, VERO and VERO E6).**

Amendment: Biological Agents and rDNA/RNA NOUs approved administratively

Hugues Fausther Bovendo, PhD

Dr. Fausther Bovendo submitted an amendment to his work with Enterovirus 71 and Enterovirus 61 **to add strains Tainan/4643/1998 MP4; NIH Guidelines: D4.**

Biological Agents and rDNA/RNA NOUs for review

Alexander Bukreyev, PhD

Dr. Bukreyev submitted a renewal NOU for Biological Agents and rDNA to work at BSL2 with **Respiratory syncytial virus; NIH Guidelines: D4.** This NOU was **approved with the following conditions:**

- Section I.7.e.i, provide a response.
- Section I.7.e.ii, list the RSV vaccine.
- Section I.8.c.i, update information on agent stability with the information from the current PSDS.
- Section I.9.d, check Yes, list and provide inactivation SOPs (e.g., plaque assay, inactivation by fixation).
- Section III.2, in the column Will infected animal present a human health risk after administration, answer Yes.
- Section III.7, Homogenization SOP, add a step for placing the homogenizer into the BSC prior to the disruption stage.

Roberto Garofalo, MD

Dr. Garofalo submitted a renewal NOU for Biological Agents and rDNA to work at BSL2 with **Human coronavirus type 229E (HCoV-229E); NIH Guidelines: N/A.** This NOU was **approved with the following conditions:**

- Section I.4, provide SOPs for sonication and sucrose gradient purification.
- Section I.8.a.ii, recommend increasing the maximum number of containers that may be cultured at one time.
- Section I.8.a.iii, delete text and instead state the expected maximum concentration of agent when cultured.
- Section I.8.c.ii, also provide information on heat inactivation, including contact time.
- Section I.8.f, delete text starting with "Coronaviruses (CoV) are a large family of RNA viruses …" through "… two species were detected: HCoV-229E and HCoV-OC43."
- Section I.B.2, clarify when an N95 is worn.

Roberto Garofalo, MD

Dr. Garofalo submitted a renewal NOU for Biological Agents and rDNA to work at BSL2 with **SARS-CoV-2; NIH Guidelines: N/A.** This NOU was **approved with the following conditions:**

- Section I.3, in the column Risk Group, change to 2.
- Section I.9.d.ii, confirm that the provided inactivation SOP is used for nasopharyngeal swabs, or upload an inactivation SOP for this matrix.
- Section I.9.d.ii, Inactivation SOP, delete [redacted]'s name from the Scope.
- Section I.9.d.ii, Inactivation SOP, provide more detail, including a minimum time for incubation with TRIzol. See Inactivation SOP examples here (https://utmb.us/bfl).

Haitao Hu, PhD

Dr. Hu submitted a renewal NOU for Biological Agents and rDNA to work at BSL2 with **Ad26-SARS-CoV-2 vaccine and MVA-SARS-CoV-2 vaccine; NIH Guidelines: D1, D4.** This NOU was **approved with the following conditions:**

- Section I.5, define acronyms "Ad" and "MVA" upon first use.
- Section I.9, if animal samples are obtained while vaccines may still be replicating post-administration, answer yes and provide an SOP for fixation of cells. If animal samples are only obtained after this time frame, please state this in Section III.5.
- Section I.A.2.b.iv, provide the strains of *E. coli* to be used.
- Section III.2, in the column "Will infected animal present a human health risk after administration?", answer Yes and select the appropriate routes of exposure.

1 recusal

Haitao Hu, PhD

Dr. Hu submitted a renewal NOU for Biological Agents and rDNA to work at BSL2 with **lentiviral vectors; NIH Guidelines: D1.** This NOU was **approved with the following conditions:**

- Section I.6, state lentiviral vector system(s) used for this work.
- Section I.7.b, answer Yes.
- Section I.7.c, answer Abortive.
- Section I.8.b, answer No.
- Section I.8.d, also select inhalation and mucous membrane as potential routes of exposure.
- Section I.8.e, select Existing stock and Commercially purchased.
- Section I.A.2.iv, state the strains of *E. coli* to be used.

- Section V.1.A, in the column Training at Other Institutions, delete country where training was obtained.

1 recusal

Haitao Hu, PhD

Dr. Hu submitted a renewal NOU for Biological Agents and rDNA to work at BSL2 with **SIV (SIVmac251; SIVmac239); NIH Guidelines: N/A.** This NOU was **approved.**

1 recusal

Shinji Makino, DVM, PhD

Dr. Makino submitted a renewal NOU for Biological Agents and rDNA to work at BSL2 with **Rift Valley fever virus (MP-12 strain); NIH Guidelines: D1, D2, E1.** This NOU was **approved with the following conditions:**

- Section I.6, add more information about the mutated viruses that will be generated and explain if the mutations could revert attenuation.
- Section II.3, expand on the mutants that will be generated, including the genes or types of genes that will be mutated.
- Section II.12.b, specify the genes or types of genes where point mutations will be created.
- Section II.12.c, add a statement that you will notify the IBC if you identify a mutant that reverses attenuation or has increased virulence.

Tetsuro Ikegami, PhD

Dr. Ikegami submitted a renewal NOU for Biological Agents and rDNA to work at BSL2 with **Recombinant baculovirus (Autographa california nuclear polyhedrosis virus: AcNPV) expressing one of bunyavirus proteins (N, NSs, NSm, Gn, Ge or L); NIH Guidelines: D2.** This NOU was **approved with the following conditions:**

- Section I.7.c.i to e.ii, leave blank, as this agent does not cause disease in humans.
- Section I.9.d.i, list inactivation SOP(s) to be utilized.
- Section I.9.d.ii, attach inactivation SOP(s).
- Section II.15.b, list name of the baculovirus vector.

1 recusal

Thomas Geisbert, PhD

Dr. Geisbert submitted a renewal NOU for Biological Agents and rDNA to work at BSL2 with **Recombinant vesicular stomatitis virus (rVSV) (Indiana or New Jersey strain) vaccine vectors expressing proteins of Ebola virus, Marburg virus, Lassa virus, Junin virus, Machupo virus, Guanarito virus, Sabia virus, Lujo virus, Chapare virus, Rift Valley fever virus, Andes virus, Nipah virus, Hendra virus, Crimean-Congo hemorrhagic fever virus, Zika virus, HIVgag, SARS-CoV-1, SARS-CoV-2, MERS, or Kyasanur Forest virus; NIH Guidelines: D1, D2, D4.** This NOU was **approved with the following conditions:**

- Section I.3, under "Select Agent?" update to "No" for VSV vector.
- Section I.4, upload BSL2 and BSL4 flow cytometry SOPs.
- Section I.7.c.i, answer Yes.
- Section I.7.c.ii, answer Yes.
- Section I.8.a.i, delete text and replace with 200 mL in a roller bottle.

- Section I.8.b, provide a scientific justification for immunizing animals outside of a biosafety cabinet.
- Section I.8.c.ii, provide the concentration for bleach.
- Section I.8.e, specify the origin of the clinical isolates.
- Section I.8.g, provide an infectious dose or state that it is not known.
- Section I.A.2.b.i, specify what cells will be used for this work.
- Section I.B.4, remove the ABSL-2 Labs from the locations table
- Section III.2, update the IACUC protocol numbers and approval dates in the "Animal Species Information" table.
- Section III.4, under Route of Administration, unselect IP for NHPs.
- Section III.4, confirm that all selected routes of administration and sampling are proposed for all species.

1 Recusal

Courtney Woolsey, PhD

Dr. Woolsey submitted a new NOU for Biological Agents and rDNA to work at BSL2 with **Recombinant vesicular stomatitis virus (rVSV) (Indiana or New Jersey strain) vaccine vectors; NIH Guidelines: D1, D2, D4.** This NOU was **approved with the following conditions:**

- Section I.3, add RNA vaccines (non-replicating RNA or self-amplifying RNA vaccines) to the agents table.
- Section I.4, upload BSL2 and BSL4 flow cytometry SOPs.
- Section I.7.c.i, answer Yes.
- Section I.7.c.ii, answer Yes.
- Section I.8.a.i, delete text and replace with 200 mL in a roller bottle.
- Section I.8.b, provide a scientific justification for immunizing animals outside of a biosafety cabinet.
- Section I.8.c.ii, provide the concentration for bleach.
- Section I.8.e, specify the origin of the clinical isolates.
- Section I.8.g, provide an infectious dose or state that it is not known.
- Section I.A.2.b.i, specify what cells will be used for this work.
- Section III.4, under Route of Administration, unselect IP for NHPs.
- Section III.4, confirm that all selected routes of administration and sampling are proposed for all species.
- Section V.1.A, confirm that [redacted] will perform bench work on this NOU. If they will be solely advisory, do not list on the NOU.

1 Recusal

BSL3/4 CDC/USDA Regulated Agent NOUs for review

Thomas Geisbert, PhD

Dr. Geisbert submitted a renewal NOU for BSL3/4 CDC/USDA Regulated Agents to work at BSL4 with **Andes Virus; NIH Guidelines: N/A.** This NOU was **approved with the following conditions:**

- Section I.6, either list the NOU number for the viral vector and RNA vaccines, or complete Section II and answer Yes to Section III.9.a and Section III.9.b.
- Section I.8.a.i, delete text and replace with 200 mL in a roller bottle.
- Section I.8.c.i. and ii, use the uploaded hantavirus PSDS to explain Andes virus stability, instead of CCHF.

- Section I.8.g, move the animal data to I.8.h.
- Section II, if no NOU number is available, then describe viral vector and RNA vaccines mentioned in Section I.6.
- Section III.4, under Route of Administration, unselect IP for NHPs.
- Section III.4, confirm that all selected routes of administration and sampling are proposed for all species.

1 Recusal

Thomas Geisbert, PhD

Dr. Geisbert submitted a renewal NOU for BSL3/4 CDC/USDA Regulated Agents to work at BSL4 with **Lassa fever virus; NIH Guidelines: D1, D2, D4, E1.** This NOU was **approved with the following conditions:**

- Section I.3, also list Lassa fever virus with recombinant status "Wild type".
- Section I.8.a.i, delete text and replace with 200 mL in a roller bottle.
- Section I.8.a.iii and vi, please confirm that agent will be grown in culture up to 10^9 PFU/mL, but will be concentrated only to 10^8 PFU/mL. If that is not accurate, then correct it.
- Section I.A.2.b.i, list cells of arthropod and non-primate animal origin that will be used to propagate agent.
- Section I.A.2.b.ii, specify cells that will be used to propagate agent.
- Section I.A.2.b.iv, list *E. coli* strains used for cloning.
- Section II.2 and 3, remove "e.g." and specify all relevant NOUs.
- Section II.3, add a statement that all rescue of recombinant viruses will be done at BSL4.
- Section II.4, add BSL4 labs.
- Section II.13.b.i, define acronyms on first use.
- Section III.2, provide the updated IACUC approval dates.
- Section III.4, under Route of Administration, unselect IP for NHPs.
- Section III.4, confirm that all selected routes of administration and sampling are proposed for all species.
- Section V.1.A, PI should be supervisor on the personnel table
- Section V.1.A, confirm that [redacted] will perform bench work on this NOU. If they will be solely advisory, do not list on the NOU.

1 Recusal

Courtney Woolsey, PhD

Dr. Woolsey submitted a new NOU for BSL3/4 CDC/USDA Regulated Agents to work at BSL3 with **SARS-CoV-2; NIH Guidelines: N/A.** This NOU was **tabled with the following conditions:**

- Contact Information section, a co-PI must be added to this NOU.
- Section I.5, work with NHPs is described, but NHPs are not listed in Section III. Harmonize.
- Section I.7.e.iii, answer No.
- Section I.8.a.i, delete text and replace with 200 mL in a roller bottle.
- Section I.8.e, delete "WRCEVA" and instead state locations from which clinical isolates will be obtained.
- Section I.8.e., delete "Other BSL3/BSL3E laboratories" and instead state "Virus repository".
- Section I.9, Inactivation SOPs have not been submitted.
- Section I.9.c, provide inactivation SOP approval letters when they become available.
- Section III.2, please confirm that all animal protocols are pending and update this section to be consistent with the goal and description of work.

- Section III.4, swap the responses for Dose per Animal (Maximum Volume) and Dose per Animal (Maximum Concentration).
- Section III.5, provide more details on the planned animal experiments and the downstream assays.

Discussion:
[redacted] is listed on the NOU. If they are willing to be the Co-PI for the work, the application may be reviewed administratively by the Department of Biosafety when it is resubmitted.
1 Recusal

Patricia Aguilar, PhD
Dr. Aguilar submitted a renewal NOU for BSL3/4 CDC/USDA Regulated Agents to work at BSL3 with **SARS-CoV-2 and MERS-CoV; NIH Guidelines: N/A.** This NOU was **approved with the following conditions:**

- Section I.3, specify which SARS-CoV-2 strains will be used for this work.
- Section I.6, remove "(i.e. mice, hamsters)" from description of use.
- Section I.7.e.i, ii, and iii, update the vaccine information.
- Section I.8.d, add sharps (needlestick as a potential route of transmission.
- Section I.8.f, describe the effects of long covid, specifically neuro-PASC.
- Section I.9.d.i, list the titles of the inactivation SOPs.
- Section I.9.d.ii, submit these inactivation SOPs for review by the Inactivation Subcommittee (website below). Additionally, this NOU describes assessing virological, histopathological, and immunological responses; if these will require inactivation, also submit those SOPs. https://utmb.us/bfl

1 Recusal

Alexander Bukreyev, PhD
Dr. Bukreyev submitted a renewal NOU for BSL3/4 CDC/USDA Regulated Agents to work at BSL4 with **Crimean-Congo haemorrhagic fever virus; NIH Guidelines: D4.** This NOU was **approved with the following corrections:**

- Section I.B.4, consider adding the [redacted] locations.
- Section III.2, provide the IACUC approval dates.
- Section III.3, list downdraft table.
- Section III.5, add a comma to change "femoral tail" to "femoral, tail"

Alexander Bukreyev, PhD
Dr. Bukreyev submitted a renewal NOU for BSL3/4 CDC/USDA Regulated Agents to work at BSL4 with **SARS-CoV-2; NIH Guidelines: D2.** This NOU was **tabled with the following conditions:**

- Section I.3, for Wild-type virus change risk group from "BSL2" to "2" and select "No" under select agent.
- Section I.6, justify working with SARS-CoV-2 in the BSL4; can this study be performed at BSL3/ABSL3 with the samples being transported into the BSL4? Is it possible to move the instrument down to the BSL3?
- Section I.6, work with multiple animal models that are not listed in Section III is described. Harmonize these sections.
- Section III.4, clarify the maximum volume, for mouse, as this is too high for the intranasal route.

Discussion:

The 10X Chromium Controller is located with the BSL4 and the bulk of this work is done at this biosafety level, despite the agent being RG2. It is possible to do the bulk of the work in the BSL3 and move the samples to BSL4 for analysis with the 10X Chromium controller. After a shutdown, in which the lab is decontaminated, it is possible to move the instrument to BSL3. Biosafety will talk with PI to explain tabling.

Response to conditions: BSL3/4 CDC/USDA Regulated Agent NOUs for review
Courtney Woolsey, PhD and Thomas Geisbert, PhD

Dr. Woolsey and Dr. Geisbert submitted a response to conditions for NOU for BSL3/4 CDC/USDA Regulated Agents to work at BSL4 with **Lassa fever virus; NIH Guidelines: D1, D2, D4, E1.** This NOU was **approved with the following conditions:**

- **The IBC confirms that no work can commence under this NOU until PI is designated on the UTMB FSAP Registration as a PI. Inactivation SOP approval letters will be provided at that time.**
- Section I.3, also list Lassa fever virus with recombinant status "Wild type".
- Section I.8.a.iii and v.i, please confirm that agent will be grown in culture up to 10^9 PFU/mL, but will be concentrated only to 10^8 PFU/mL. If that is not accurate, then correct it.
- Section I.A.2.b.i, list cells of arthropod and non-primate animal origin that will be used to propagate agent.
- Section I.A.2.b.ii, specify cells that will be used to propagate agent.
- Section I.A.2.b.iv, list *E. coli* C600, DH5 alpha, and DH10b for cloning.
- Section II.4, change "2nd floor" to "BSL4".
- Section II.13.b.i, define acronyms on first use.
- Section III.4, under Route of Administration, unselect IP for NHPs.
- Section III.4, confirm that all selected routes of administration and sampling are proposed for all species.
- Section III.5, delete the sentence that begins "Prior to any procedures …", as this is IACUC-related information.
- Section III.5, delete the last two sentences (beginning with "Mice, hamsters, and guinea pigs …"), as this is IACUC-related information.
- Section V.1.A, confirm that [redacted] will perform bench work on this NOU. If they will be solely advisory, do not list on the NOU.
- Section V.1.A, add the Co-PI to the personnel table.

1 recusal

III. OLD BUSINESS

Biological Agents and rDNA/RNA NOUs – Conditions Met

David Beasley, PhD – ChAdOx1-Junin vaccine; NIH Guidelines: D4 (#2024121)
Maria Giraldo, PhD – Dengue virus; NIH Guidelines: N/A (#2025017)
Silvana Valdebenito-Silva, PhD – Human immunodeficiency virus (HIV) (ADA, JR0CSFM JR-FL, Bal, 92UG-021); NIH Guidelines: D2 (#2025009)

BSL3/4 CDC/USDA Regulated Agents NOUs – Conditions Met

Thomas Geisbert, PhD – Ebola virus; NIH Guidelines: D1, D2, D4 (#2025012)
Bryan Johnson, PhD and Chien-Te Kent Tseng, PhD – SARS-CoV-2; NIH Guidelines: D1, D2, D4 (#2025010)
Alfredo Torress, PhD – *Burkholderia mallei* and *Burkholderia pseudomallei*; NIH Guidelines: N/A (#2025022)

Amendment: Biological Agents and rDNA/RNA NOUs – Conditions Met
Noelle Anastasio, PhD – AAV, serotypes 2, 5, 6, 8, 9; NIH Guidelines: D2, D4 (#2023004)
Kathryn Cunningham, PhD – AAV, serotypes 2, 5, 8, 9; NIH Guidelines: D2, D4 (#2023054)

IV. DISCUSSION

Summary of FSAP Inspection
A summary of the initial results from the document review of the FSAP inspection, as described during the close out with the inspectors, was presented. The final findings have not yet been released by FSAP. The institution should expect that the 365-day rule will be applied to BSL3 facilities, as it has been applied to BSL4 facilities.

The on-site inspection for this year will be unannounced.

SARS-CoV-2
Department of Biosafety started drafting changes for the SARS-CoV-2 Research Laboratory Biosafety Guidelines to include that the UTMB IBC is aware of the changes in recommendations and risk group from CDC and NIH but is not changing its guidance for work at UTMB. The document will be provided to the IBC for review at a subsequent meeting.

DURC/PEPP Policy Update
Department of Biosafety drafted possible changes to the NOU form to capture work that would fall under the new DURC/PEPP policy. A group discussing the policy updates determined that the application needs to clearly define the comparator of experimental outcomes. The document will be provided to the IBC for discussion at a subsequent meeting.

NIH Guidelines
NIH Office of Science Policy received a complaint against UTMB regarding the release of UTMB IBC meeting minutes and asking about UTMB's policies and processes. UTMB will respond before OSP's deadline.

An IBC member asked for clarification on which documents are transient, and which are records, and how transient documents are destroyed once they are not needed. Information Services will be contacted to see if they can attend a meeting to discuss the safety and security of electronic documents.

V. ADJOURNMENT
The meeting was adjourned at 4:44 PM.

[redacted]

[redacted]

utmb Health

Institutional Biosafety Committee
301 University Blvd.
Galveston, TX 77555-0192
O 409.772.1781

MINUTES
March 14, 2025

The Institutional Biosafety Committee met virtually on Friday, March 14, 2025, using Microsoft Teams. The meeting was called to order at 2:02 PM and was chaired by [redacted] and [redacted]

MEMBERS PRESENT

[redacted]

MEMBERS ABSENT

[redacted]

CONSULTANTS

[redacted]

GUESTS

[redacted]

I. APPROVAL OF MINUTES

No meeting minutes were approved.

II. NEW BUSINESS

Biological Agents and rDNA/RNA NOUs for review

Ajay Israni, MD

Dr. Israni submitted a new NOU for Biological Agents and rDNA to work at BSL2 with ***Bacteroides* spp.; NIH Guidelines: N/A.** This NOU was **approved with the following conditions:**

- Section I.4, upload manufacturer information for the product containing 0.013% benzoalkonium chloride, or remove as a disinfectant from Section I.B.7.
- Section I.5, correct the spelling "thetaomicron" to "thetaiotaomicron".
- Section I.6, specify how the bacteria will be inactivated for LC/MS analysis.
- Section I.8.d, check Sharps and Mucous membrane.
- Section I.8.e, replace [redacted] with city, state.

- Section I.8.f, add a rationale for using *Bacteroides thetaiotaomicron* in this NOU, explaining its relevance and any unique pathogenic traits.
- Section I.8.g, add a statement clarifying that the infectious dose for *Bacteroides* species, including *Bacteroides thetaiotaomicron*, is not well-defined in humans.
- Section I.B.4, confirm work will be performed in [redacted]
- Section I.B.5, in the sonicator SOP, indicate the sonicator will be used in a primary containment device, e.g. a BSC, and add a primary disinfection step with an approved disinfectant such as Cavicide.
- Section I.B.5, in the sonicator SOP delete the Incident Response section, and instead refer to the UTMB emergency procedures for "Exposure to Blood, Body Fluids, and Infectious Materials in a Research Laboratory" and the "Biological Spill Procedure", which can be found on the Department of Biosafety website: https://www.utmb.edu/provost/resources/research-regulations-and-compliance/biosafety/lab-docs.
- Section V.1.B, list the experience with the bacteria and uncheck BSL2 training at UTMB for Dr. Israni.

1 abstain

Kyle Koss, PhD

Dr. Koss submitted a new NOU for Biological Agents and rDNA to work at BSL2 with **lentiviral vectors; NIH Guidelines: D1.** This NOU was **approved with the following conditions:**

- Permit Process Questions, in the title remove the individual cell type names and replace with "mammalian" cells.
- Section I.3, remove rows for GFP and Caspase-9.
- Section I.3, unselect "select agent" as these agents are not on the HHS and USDA Select Agents and Toxins List.
- Section I.8.e, remove "The peptide are solid phase synthesized".
- Section I.8.f, correct typo "is can" to "can".
- Section I.9.d.ii, delete safety SOP and replace with heat inactivation (for sequencing) and paraformaldehyde fixation (for imaging) SOPs (as described in "Permit Process Questions" comments).
- Section I.B.7, consider also selecting cavicide.
- Section II.7.k, briefly describe the potential for off-target effects for lentiviral vectors and CRISPR.
- Section V.1.B, under the "Agents" column remove cell lines, primary cells and rodent tissues.

Ramkumar Menon, PhD

Dr. Menon submitted a renewal NOU for Biological Agents and rDNA to work at BSL2 with ***Escherichia coli* (enterohemorragic strains); NIH Guidelines: N/A.** This NOU was **approved with the following conditions:**

- **Animal work may not commence until the PI of the IACUC protocol is clarified.**
- Section I.6, in the second sentence, clarify that exosomes are HEK293-derived exosomes, as described in Section III.5.
- Section I.8.a.vi, confirm the final concentration (after concentration), as it is lower than the maximum concentration cultured, and clarify, in Section I.6, if the culture is concentrated and then diluted to a working concentration.
- Section I.8.b, rewrite the scientific justification to be clearer, and specify that a face shield or a tabletop shield will be used for splash protection.
- Section I.8.c.ii, add the susceptibility information from the uploaded PSDS to this section.

- Section I.9.d.i and ii, delete SOPs for LB broth preparation and inactivating after EV collection.
- Section III.2, the listed IACUC holder is no longer at UTMB, provide the name of the new IACUC protocol PI.
- Section III.5, delete laboratory number.
- Section V.1.B, under Agents column specify the bacteria and viruses that personnel have experience with (e.g., EHEC, Ureaplasma spp., Streptococcus, lentiviral vectors).

Ramkumar Menon, PhD

Dr. Menon submitted a new NOU for Biological Agents and rDNA to work at BSL2 with **bacterial vaginosis-associated bacteria (*Mobiluncus* spp., *Gardnerella vaginalis*, *Prevotella bivia*, *Bacteroides* spp.); NIH Guidelines: N/A.** This NOU was **approved with the following conditions:**

- Section I.3, Strains or Generation, list the ATCC numbers for each species.
- Section I.7.ii, uncheck Unknown and check Yes.
- Section I.8.a.i and ii, delete information for *Atopobium vaginae*, as this agent is not listed on the NOU.
- Section I.8.f, delete first sentence that begins, "With the use of appropriate personal protective equipment."
- Section I.8.c.ii, list the concentration for the bleach.
- Section I.8.f and g, provide references for pathogenicity and infectious dose.
- Section I.9.d.ii, delete SOP for inactivating bacteria after EV collection, as this is for disposal of biohazardous waste, and SOP for culture, as this is unrelated to inactivation.
- Section I.9.d.ii, delete "SOP ICC", as it is a checklist. Provide a step-by-step protocol for paraformaldehyde inactivation. Examples of accepted SOPS can be found on the IBC Inactivation Subcommittee website: https://utmb.us/bfl.
- Section I.A.2.b.ii, specify the types of human and non-human primate cells used for this study.
- Section V.1.B, provide Proposed Role on this NOU for [redacted].

Ramkumar Menon, PhD

Dr. Menon submitted a renewal NOU for Biological Agents and rDNA to work at BSL2 with ***Ureaplasma parvum*** **and** ***Ureaplasma urealyticum*** **(NGU); NIH Guidelines: N/A.** This NOU was **approved with the following conditions:**

- Section I.3, Strains or Generation, list the ATCC numbers for each species.
- Section I.8.a.vi, confirm the final concentration (after concentration) is the same as the maximum concentration cultured.
- Section I.8.b, if centrifugation is performed using a sealed lid, answer only No and delete justification, as this is not manipulation outside of primary containment.
- Section I.8.f, to clarify the clinical impact of Ureaplasma infections, provide a detailed explanation of pathogenicity and disease severity.
- Section I.9.d.ii, delete SOP for inactivating bacteria after EV collection, as this is for disposal of biohazardous waste, and SOP for culture, as this is unrelated to inactivation.
- Section I.9.d.ii, delete "SOP ICC", as it is a checklist. Provide a step-by-step protocol for paraformaldehyde inactivation. Examples of accepted SOPS can be found on the IBC Inactivation Subcommittee website: https://utmb.us/bfl.
- Section V.1.B, in the column Experience with Agents, specify the bacteria and viruses that personnel have experience with (e.g., EHEC, *Ureaplasma* spp., *Streptococcus*, lentiviral vectors).

Thomas Geisbert, PhD

Dr. Geisbert submitted a renewal NOU for Biological Agents and rDNA to work at BSL2 with **Recombinant Western Reserve Vaccinia virus expressing the T7 bacteriophage RNA polymerase; NIH Guidelines: N/A.** This NOU was **approved.**

1 Recused

BSL3/4 CDC/USDA Regulated Agent NOUs for review

Thomas Geisbert, PhD

Dr. Geisbert submitted a renewal NOU for BSL3/4 CDC/USDA Regulated Agents to work at BSL4 with **Arenavirus hemorrhagic fevers (Junin, Machupo, Lujo, Sabia, Guanarito, Chapare, Flexal); NIH Guidelines: D1, D2, D4.** This NOU was **approved with the following conditions:**

- Section I.6, describe the generation of recombinant viruses.
- Section I.8.a.i, delete text and instead state "200 mL" or "200 mL in roller bottles".
- Section I.8.c.ii, state the minimum contact time to inactivate agent using 5% MicroChem and 10% household bleach.
- Section I.8.d, unselect Other.
- Section I.A.2.b.i, list cells of arthropod and non-primate animal origin that will be used to propagate agent.
- Section I.A.2.b.ii, specify cells that will be used to propagate agent.
- Section I.A.2.b.iv, list *E. coli* strains DH5alpha, C600, and BL21.
- Section II.2, update NOU number from 2015077 to 2025036.
- Section II.3, clarify if chimeric viruses will be generated and add a statement that work will be paused if unexpected increase in virulence is observed.
- Section II.12, if point mutations are unknown at this time and will be submitted to the IBC as an amendment, answer No here. Submit an amendment to describe the proposed point mutations when the point mutations that will be generated are known.
- Section II.13.b, list the viruses used as a backbone.
- Section III.2, for animal models where IACUC protocols are still pending, if there are no plans to submit IACUC protocols within the next 12 months, remove these animal models and amend the NOU when the work is ready. Alternatively, provide a justification for keeping these animal models on the NOU in Section III.5.
- Section III.3, in the column Check the PPE that will be worn, unselect Other and instead select Standard PPE for the Animal Facility.
- Section III.4, under Route of Administration, unselect IP for NHPs.
- Section III.4, confirm that all selected routes of administration and sampling are proposed for all species.
- Section III.9.b, answer No.

1 Recused

Thomas Geisbert, PhD

Dr. Geisbert submitted a renewal NOU for BSL3/4 CDC/USDA Regulated Agents to work at BSL4 with **Crimean-Congo haemorrhagic fever virus and Kasokero virus; NIH Guidelines: N/A.** This NOU was **approved with the following conditions:**

- Section I.3, List of Agents, confirm the risk group of Kasokero virus.
- Section I.8.a.i, delete text and instead state "200 mL" or "200 mL in roller bottles".
- Section I.8.c.ii, state the minimum contact time to inactivate agent using 5% MicroChem and 10% household bleach.

- Section I.8.g, move the animal data to I.8.h.
- Section I.9.c.i, spell out LSB upon first use.
- Section I.A.2.b.i, list cells of arthropod and non-primate animal origin that will be used to propagate agent.
- Section I.A.2.b.ii, specify cells that will be used to propagate agent.
- Section III.2, for animal models where IACUC protocols are still pending, if there are no plans to submit IACUC protocols within the next 12 months, remove these animal models and amend the NOU when the work is ready. Alternatively, provide a justification for keeping these animal models on the NOU in Section III.5.
- Section III.3, in the column Check the PPE that will be worn, unselect Other and instead select Standard PPE for the Animal Facility.
- Section III.4, under Route of Administration, unselect IP for NHPs.
- Section III.4, confirm that all selected routes of administration and sampling are proposed for all species.
- Section III.9.a and b, answer No.

1 Recused

Thomas Geisbert, PhD

Dr. Geisbert submitted a renewal NOU for BSL3/4 CDC/USDA Regulated Agents to work at BSL4 with **Hendra virus; NIH Guidelines: N/A.** This NOU was **approved with the following conditions:**

- Section I.6, delete the last sentence regarding agent inactivation.
- Section I.8.a.i, delete text and instead state "200 mL" or "200 mL in roller bottles".
- Section I.8.g, move the animal data to I.8.h.
- Section I.9.c.i, spell out LSB upon first use.
- Section I.A.2.b.i, list cells of arthropod and non-primate animal origin that will be used to propagate agent.
- Section I.A.2.b.ii, specify cells that will be used to propagate agent.
- Section III.2, for animal models where IACUC protocols are still pending, if there are no plans to submit IACUC protocols within the next 12 months, remove these animal models and amend the NOU when the work is ready. Alternatively, provide a justification for keeping these animal models on the NOU in Section III.5.
- Section III.3, in the column Check the PPE that will be worn, unselect Other and instead select Standard PPE for the Animal Facility.
- Section III.4, update the max volume to be administered at one time for mouse, hamster and NHP, as they appear to be too high.
- Section III.4, provide dose per animal unit in a unit of concentration
- Section III.4, under Route of Administration, unselect IP for NHPs.
- Section III.4, confirm that all selected routes of administration and sampling are proposed for all species.
- Section III.9.a and b, answer No.

1 Recused

Thomas Geisbert, PhD

Dr. Geisbert submitted a renewal NOU for BSL3/4 CDC/USDA Regulated Agents to work at BSL4 with **Marburg virus; NIH Guidelines: N/A.** This NOU was **approved with the following conditions:**

- Section I.9.c.i, spell out LSB upon first use

- Section I.A.2.b.i, list cells of arthropod and non-primate animal origin that will be used to propagate agent.
- Section III.2, for animal models where IACUC protocols are still pending, if there are no plans to submit IACUC protocols within the next 12 months, remove these animal models and amend the NOU when the work is ready. Alternatively, provide a justification for keeping these animal models on the NOU in Section III.5.
- Section III.4, under Route of Administration, unselect IP for NHPs.
- Section III.4, confirm that all selected routes of administration and sampling are proposed for all species.

1 Recused

Courtney Woolsey, PhD

Dr. Woolsey submitted a new NOU for BSL3/4 CDC/USDA Regulated Agents to work at BSL4 with **Madagascar henipavirus, Angavokely, Langya, Sosuga, Kumasi, Mojiang, Camp Hill, Tioman, and Menangle viruses; NIH Guidelines: D1, D2, D4, E1.** This NOU was **tabled with the following conditions:**

- Contact Information section, a co-PI must be added to this NOU.
- Section I.3, update the risk group for Tioman and Menangle virus to 3.
- Section I.3, add rows for isolated wild-type viruses, if collaborators will provide field samples.
- Section I.5, rewrite this section to focus on the vaccine, animal model, or host-virus interaction, describe how viral vectors will be used and remove "to generate data for preliminary data required for grant applications".
- Section I.6, justify working with Tioman and Menangle viruses at BSL4 instead of BSL3, or remove from this NOU.
- Section I.6, describe how the viral vectors, mentioned in section III.9.b, will be used.
- Section I.6, describe the type of mutations generated (such as point mutations or partial chimeras between two strains of the same virus).
- Section I.8.a.i, delete text and instead state "200 mL" or "200 mL in roller bottles".
- Section I.8.g and h, provide specific information related to the listed viruses. If these viruses share significant similarities with Nipah, then that should be clearly explained.
- Section I.A.2.b.i, list cells of arthropod and non-primate animal origin that will be used to propagate agent.
- Section I.A.2.iii, add the human and non-human primate product NOU numbers
- Section I.B.4, change "2nd floor" to "BSL4".
- Section II.2, rewrite this section to be clearer and remove "to generate data for preliminary data required for grant applications".
- Section II.4, change "2nd floor" to "BSL4".
- Section III.4, under Route of Administration, unselect IP for NHPs.
- Section III.4, confirm that all selected routes of administration and sampling are proposed for all species.
- Section III.5, describe how the viral vectors, mentioned in section III.9.b, will be used.
- Section V.1.A, confirm that [redacted] will perform bench work on this NOU. If they will be solely advisory, do not list on the NOU.

1 Recused

Tian Wang, PhD

Dr. Wang submitted a new NOU for BSL3/4 CDC/USDA Regulated Agents to work at BSL3 with **Chikungunya, West Nile and Powassan encephalitis viruses; NIH Guidelines: N/A.** This NOU was **approved with the following conditions:**

- Section I.6, expand on the justification for continuing work with West Nile virus at BSL3.
- Section I.6, expand upon the type of host immune responses and behavior change assessments are planned and explain the downstream assays that will be used.
- Section I.6, clarify if RNA extraction will be done in the BSL-3 or if trizol treated material will be moved to the BSL2 to do the RNA extraction.
- Section I.8.c.ii, provide the contact times for the remaining chemical disinfectants.
- Section I.8.g, for clarity include the minimum doses.
- Section I.8.f, remove reference to deer tick virus.
- Section I.9.d, please submit these new Togaviridae inactivation SOPs to the IBC Inactivation Subcommittee for review (https://utmb.us/bfl).
- Section I.9.d.i, remove the name of the PI name and replace with "by a collaborator" and "on their NOU".
- Section I.A.2.b.ii, specify the types of human and non-human primate cells used for this study.
- Section I.B.3, discusses additional PPE for activities that include homogenization. Answer Yes and upload an SOP to Section I.B.5 if homogenization is for non-animal tissues or answer Yes and upload an SOP to Section III.6 for homogenization of animal tissues.
- Section III.5, clarify which procedures will be done without anesthesia (Section III.7), and if the behavioral studies will be done without anesthesia explain how this will be done safely.
- Section III.8, rewrite this section to be more concise. Perform perfusion in an easy to decontaminate tray or pan with absorbent (e.g., paper towel) lining the bottom. Chemically decontaminate the absorbent material, then dispose in biohazard waste.
- Section V.1.B, indicate which personnel will perform perfusions.

Shannan Rossi, PhD

Dr. Rossi submitted a renewal NOU for BSL3/4 CDC/USDA Regulated Agents to work at BSL3 with **SARS-CoV-2; NIH Guidelines: N/A.** This NOU was **approved with the following conditions:**

- Section I.7.e.ii, update the vaccine list.
- Section I.B.1, unselect BSL2E PPE, or clarify (in Section I.6) the work proposed with the agent at BSL2E.
- Section I.B.4, remove BSL2 laboratory.
- Section I.B.6, unselect BSL2 waste disposal.
- Section III.7, upload a clean version of the homogenization protocol with no highlighted text.
- Section V.1.A, update personnel to remove staff that are no longer at UTMB and remove "recombinant" for all personnel.

1 Recused

Amendment: Biological Agents and rDNA/RNA NOUs for review

Noelle Anastasio, PhD

Dr. Anastasio submitted an amendment to her work with adeno-associated viral vectors (AAV, serotypes 2, 5, 6, 8, 9) **to expand the scope of recombinant work; NIH Guidelines: D2, D4.** This NOU amendment was **approved.**

1 abstain

Kathryn Cunningham, PhD

Dr. Cunningham submitted an amendment to her work with adeno-associated viral vectors (AAV, serotypes 2, 5, 8, 9) **to expand the scope of recombinant work; NIH Guidelines: D2, D4.** This NOU amendment was **approved.**
1 abstain

Amendment: BSL3/4 CDC/USDA Regulated Agent NOUs for review
Scott Weaver, PhD
Dr. Weaver submitted an amendment to his work with SARS-CoV-2 to **expand the scope of work; NIH Guidelines: D1, D2, D4.** This NOU was **approved with the following conditions:**

- Section I.3, in the column Risk Group, change to 2.
- Section I.6, state virus rescue will be done in BSL-3.
- Section I.6, describe the metrics that will be used to assess an increase in virulence and pathogenicity for mutants (e.g., pathogenicity or virulence in animals, increased titers during viral growth), and state the threshold that will result in a pause to research and notification to the IBC.
- Section II.3, state virus rescue will be done in BSL-3.

Discussion:
The applicant answered yes to a few questions in Section I.A. The applicant should state how virulence is measured and that they will consult the IBC if a mutant is identified that falls within those parameters. The reviewers want the IBC to review the metrics the applicant selects.

IBC will review this response to conditions when it is submitted.
3 recused

III. DISCUSSION

IBC Policy Review
UTMB responded to the request from NIH Office of Science Policy regarding the release of UTMB IBC meeting minutes, and UTMB's policies and processes. During the discussion the generate UTMB's response, an individual recommended that the IBC meeting minutes be posted online. This recommendation is being brought to the IBC for the members' input. The IBC discussed:

- The redactions prescribed by IBC policy were noted.
- A comparison to other institutions that post meeting minutes online was made.
- Several members stated that the current method of request is working.
- Many stakeholders would be affected by this decision.
- The IBC will continue this discussion at a subsequent meeting.

Human Products NOU Scope of Work
DOB received notice of a graduate student working with human products without that work described on the PI's NOU. DOB will follow up to make sure they are not currently working with human products that are not on an active NOU. IBC will discuss methods to ensure PIs have proper NOUs when working with human products.

IV. ADJOURNMENT
The meeting was adjourned at 4:47 PM.

[redacted] [redacted]

utmb Health

Institutional Biosafety Committee
301 University Blvd.
Galveston, TX 77555-0192
O 409.772.1781

MINUTES
April 11, 2025

The Institutional Biosafety Committee met virtually on Friday, April 11, 2025, using Microsoft Teams. The meeting was called to order at 2:00 PM and was chaired by [redacted]

MEMBERS PRESENT

[redacted]

MEMBERS ABSENT

[redacted]

CONSULTANTS

[redacted]

GUESTS

[redacted]

I. APPROVAL OF MINUTES

The minutes of the March 7, 2025 and March 14, 2025 meetings were approved.

II. NEW BUSINESS

Human and Nonhuman Primate Products NOUs approved administratively

Alan Landay, PhD

Project Title: N/A

Dr. Landay submitted a new NOU for Human and Nonhuman Primate Products to work at BSL2 with **human serum and body fluids.**

Alexander Bukreyev, PhD

Project Title: N/A

Dr. Bukreyev submitted a renewal NOU for Human and Nonhuman Primate Products to work at BSL2 with **Human Established and Commercial (HEP-G2, Jurkat, A549, RAMOS-RA1, THP-1, U937, 769P, Huh-7, Huh-7 .5, SW13, KHYG-1, U20S, Supt l , BJAB, U3A, HeLa, HEK293T); Human Established (Calu3, l Lakh); Human Primary, Established, and Commercial (PH5CH8, HDMEC, RPTEC);**

Human Primary (blood, serum, body fluids, PBMCs, dendritic cells, macrophages); NHP Established and Commercial (Vero, Vero-E6, Vero-CCL81, LLC-MK2, MA104, Cos-7); NHP (blood, serum, body fluids, tissues).

Randall Urban, MD
Project Title: N/A
Dr. Urban submitted a renewal NOU for Human and Nonhuman Primate Products to work at BSL2 with **Human serum, primary macrophages, and commercial cell lines (HEK293, HEP G2, THP-1, primary hepatocytes, Huh-7, LX-2, Jurkat).**

Amendment: Human and Nonhuman Primate Products NOUs approved administratively
Linda Kenney, PhD
Project Title: N/A
Dr. Kenney submitted an amendment to their work with Human and Nonhuman Primate Products at BSL2 to **add MCF-10A cells, MSC cells, and HFF cells.**

Slobodan Paessler, DVM, PhD
Project Title: N/A
Dr. Paessler submitted an amendment to their work with Human and Nonhuman Primate Products to at BSL2 **add human organoids.**

Scott Weaver, PhD
Project Title: N/A
Dr. Weaver submitted an amendment to their work with Human and Nonhuman Primate Products to at BSL2 **add human primary epithelial cells and human primary fibroblasts.**

Biological Agents and rDNA/RNA NOUs for review
Patricia Aguilar, PhD
Project Title: development and optimization of serological assays for the detection of alphavirus infection using Eilah chimeric virus platform.
Dr. Aguilar submitted a new NOU for Biological Agents and rDNA to work at BSL2 with **Eilat virus; NIH Guidelines: D1.**

A motion was made and approved to **approve with conditions:**

- Section I.8.c.ii, provide a specific contact time for disinfectants.
- Section I.8.d, unselect Animal and Arthropod bite, as work with animals and arthropods is not proposed.
- Section I.9, when Inactivation SOPs are ready, submit for Inactivation Subcommittee review: https://utmb.us/bfl
- Section I.A.2.b.iii, ensure all personnel who will handle human and NHP products are listed on NOU #2024086.

1 abstain, 1 recusal

Dennis Bente, DVM, PhD
Project Title: Transmission of Lone Star virus in the native Lone Star ticks
Dr. Bente submitted a new NOU for Biological Agents and rDNA to work at BSL2 with **lone star virus; NIH Guidelines: N/A.**

Discussion

Communicate with PI about adding more ACL-2 spaces, due to the possible reorganization/redesignation of ACL spaces.

A motion was made and approved to **approve with conditions:**

- Section I.8.a.ii, change to four 150 mL culture flasks.
- Section I.8.c.i, provide a more detailed description of stability, the example agent, RVFV has been reported to have susceptibility longer than minutes.
- Section I.8.c.ii, provide a more detailed description of susceptibility with specific contact times and parameters for inactivation of the example agent, RVFV.
- Section I.8.g, specify that disease would be in immunocompromised humans.
- Section I.9.d, check yes and provide inactivation SOPs for IBC review.
- Section I.B.4, [redacted] is listed three times, list it one time.
- Section III.3, remove downdraft table.
- Section III.5, delete "other tests" from the third sentence; replace with the specific tests that will be done or amend the NOU later when new tests are identified.
- Section III.10, if animals are transported between insectary and ABSL2 by laboratorians, then answer yes.
- Section IV.5, confirm is arthropods will be handled in a BSC; if using a glove box, select glove box.
- Section V.1.B, add animal experience for [redacted].
- Section V.1.B, add the years of experience at ACL-2 for all staff.

Alexander Freiberg, PhD

Project Title: Cedar virus - Cellular responses, pathogenicity, and antiviral screen

Dr. Freiberg submitted a new NOU for Biological Agents and rDNA to work at BSL2 with **cedar virus; NIH Guidelines: D1, D2, D4, E1.**

Discussion

The IBC discussed the safety of working with the chimeric viruses at BSL2. Which chimeric viruses are proposed requires clarity, before work with chimeras at BSL2 can start, the PI will need to provide in vivo safety data at BSL4 to the IBC.

A motion was made and approved to **approve with conditions:**

- Before work with chimeras at BSL2 can start, provide in vivo safety data at BSL4.
- Section I.6, delete the sentence, "All post infection measurements will be performed in a BSL-2 laboratory", as all work is being proposed at BSL2.
- Section I.7.b, answer No and Unknown, to account for the proposed chimeras.
- Section I.7.c, answer Unknown, for the proposed chimeras.
- Section I.7.c.i, answer No.
- Section I.7.c.ii, answer Unknown.
- Section I.8.c.ii, delete "Hendra and Nipah viruses" and instead state "Cedar virus".
- Section I.8.c.ii, list a number for "% household bleach".
- Section I.8.c.ii, provide contact time for decontamination using bleach and MicroChem.
- Section I.A.1.f, answer Yes and discuss.
- Section II.3, harmonize this section, which states that the surface glycoproteins from other henipaviruses will be introduced into Cedar virus, with Section II.13.b.ii which includes N, P, M, and L genes.

- Section II.3, replacing Cedar virus genes with those from Nipah or Hendra virus could potentially be considered a gain-of-function study, such as modifying the P gene (which affects virulence) or the glycoprotein gene (which affects tropism). If genes other than F and G will be introduced into Cedar virus, describe whether an increase in pathogenicity is expected.
- Section III.5, clarify the types of knockout rodent strains that will be utilized (e.g., knockouts in genes for immunocompetence).
- Section III.5, clarify the source(s) of knockout rodents (e.g., commercial, collaborator, or generated at UTMB) and if any strains will be bred at UTMB.
- Section III.7, Homogenization SOP, clearly state that TissueLyzer is operated in a biosafety cabinet.

Alexander Freiberg, PhD

Project Title: Measles virus

Dr. Freiberg submitted a new NOU for Biological Agents and rDNA to work at BSL2 with **Measles virus; NIH Guidelines: D1, D2, E1.**

Discussion

The IBC discussed safe working practices for conducting research with measles. They also considered the safety requirements of working with attenuated vaccine strains vs wild-type. Lastly, they considered occupational health requirements and medical monitoring.

A motion was made and approved to **approve with conditions:**

- Post signage when WT measles virus is in use in the laboratory.
- Communicate to laboratorians that measles titer and vaccination is available from Employee Health.
- Permit Process Questions, provide a more detailed title.
- Section I.6, state that BSL2E PPE will be used for activities such as centrifugation and open-bench manipulations, and that plates will be sealed with parafilm before being transferred to the plate reader.
- Section I.6, state that signage will be posted in the laboratory when WT measles virus is in use.
- Section I.B.1, also select BSL2E.
- Section I.B.2, answer yes and describe the type of respiratory protection that will be used for the plate reader and centrifugation.
- Section I.B.5, answer yes and list the plate reader.
- Section II.6.a, provide more detail on the mutations and clarify if these being placed into the vaccine strain and/or wild-type strains.
- Section V.1.A, under "Training at other institutions (if applicable)" remove the institution names for [redacted].

BSL3/4 CDC/USDA Regulated Agent NOUs for review

Alexander Freiberg, PhD

Project Title: Pathogenicity, host-pathogen interaction, and evaluation of therapeutics for SARS-CoV-2

Dr. Freiberg submitted a renewal NOU for BSL3/4 CDC/USDA Regulated Agents to work at BSL3 with **SARS-CoV-2; NIH Guidelines: D4, E1.**

A motion was made and approved to **approve with conditions:**

- Section I.8.f, provide more information on pathogenicity from the PSDS and the human challenge studies.

- Section I.8.g, provide more information on the infectious dose from the PSDS and the human challenge studies.
- Section II.24.a, answer No.
- Section III.2, update the IACUC protocol number for hamster.
- Section II.3, expand description of point mutations provided by collaborator (e.g., which gene or types of genes are mutated).
- Section III.7, Homogenization SOP, clearly state that TissueLyzer is operated in a biosafety cabinet.

1 abstain

Alexander Freiberg, PhD
Project Title: Pathogenicity, host-virus interaction and development of antiviral therapeutics and vaccine candidates for Rift Valley fever virus and Crimean-Congo hemorrhagic fever virus
Dr. Freiberg submitted a renewal NOU for BSL3/4 CDC/USDA Regulated Agents to work at BSL4 with **Rift Valley fever virus and Crimean-Congo haemorrhagic fever virus; NIH Guidelines: D1, D2, D4, E1.**

A motion was made and approved to **approve with conditions:**
- Section I.7.e.ii, please remove RVFV vaccine, as the USAMRIID SIP program is no longer active.
- Section I.8.c.ii, provide a specific contact time for disinfectants.
- Section II.3, provide some examples of the mutations to be generated.

1 recusal

Patricia Aguilar, PhD
Project Title: Development and Implementation of standardized tools for the diagnosis, surveillance, and response to equine encephalitis virus outbreaks
Dr. Aguilar submitted a new NOU for BSL3/4 CDC/USDA Regulated Agents to work at BSL3 with **Venezuelan equine encephalitis virus, Eastern equine encephalitis virus, Western equine encephalitis virus, and Madriaga virus; NIH Guidelines: N/A.**

A motion was made and approved to **approve with conditions:**
- Section I.8.c.ii, provide a specific contact time for disinfectants.
- Section I.8.d, unselect Animal and Arthropod bite, as work with animals and arthropods is not proposed.
- Section I.9, when Inactivation SOPs are ready, submit for Inactivation Subcommittee review: https://utmb.us/bfl
- Section I.A.2.b.iii, ensure all personnel who will handle human and NHP products are listed on NOU #2024086.

1 recusal

Alexander Bukreyev, PhD
Project Title: Testing of vaccines and monoclonal antibodies against SARS-CoV-2 in BSL4/ABSL4
Dr. Bukreyev submitted a renewal NOU for BSL3/4 CDC/USDA Regulated Agents to work at BSL4 with **SARS-CoV-2; NIH Guidelines: D2.**

Discussion

The PI successfully addressed the concerns of the IBC with this submission.

A motion was made and approved to **approve.**

Amendment: Biological Agents and rDNA/RNA NOUs for review

Alison Coady, PhD

Project Title: Investigating the Pathogenesis of Mold Species

Dr. Coady submitted an amendment to their work with *Aspergillus fumigatus*, *Mucor circinelloides*, *Fusarium Solani*, *mucormycetes* isolates, and Dermatophyte molds **to broaden Mucor species to clinical isolates of the Mucorales order and add dermatophyte molds; NIH Guidelines: D4.**

A motion was made and approved to **approve.**

Janice Endsley, PhD and Mark Endsley, PhD

Project Title: Mechanisms of host immunity to mycobacteria

Dr. Endsley and Dr. Endsley submitted an amendment to their work with *Mycobacterium bovis* BCG Pasteur vaccine strain **to add two strains of mycobacteria Mtb H37Ra (an avirulent strain); NIH Guidelines: N/A.**

A motion was made and approved to **approve with conditions:**

- Section I.4, delete the PSDS for *Mycobacterium tuberculosis* and *Mycobacterium tuberculosis* complex.
- Section I.6, revise this section to delineate studies performed with BCG and/or H37Ra.
- Section I.7.d, update this section to remove replace Tuberculin Skin Test with QuantiFERON testing, regardless of BCG vaccination status.
- Section I.8.c.ii, correct the typo "celcius" to "celsius."
- Section I.8.h, correct typo "modle" to "model".
- Section I.8.f, rewrite the final sentence to focus on the pathogenicity of the avirulent strain.
- Section I.B.5, answer Yes.
- Section III.5, confirm that H37Ra is not used in any animal studies in this project. If H37Ra is not used in animal studies, delete the sentence: "The newly added strain H37Ra will be used in in-vitro experiments to test effects of lipids from faster growing and less pathogenic strains of Mtb to activate and alter macrophage intracellular mechanisms" and instead clearly state (in Section I.6) that H37Ra will not be administered to animals.
- Section V.1.A, under the column "Years of Experience (specify Biosafety Level)" update the experience of all staff.

Hugues Fausther Bovendo, PhD

Project Title: Enterovirus 68 and 71 protocol to grow stocks and perform in vitro and in vivo infection studies

Dr. Fausther Bovendo submitted an amendment to their work with enterovirus 68 and 71 **to expand animal work; NIH Guidelines: D4.**

Discussion

IBC discussed components and justifications that can be co-reviewed with IACUC to ensure a thorough review.

A motion was made and approved to **approve with conditions:**

- Section I.8.a.vi, recalculate final concentration.

- Section I.8.c.ii, provide the time for heat inactivation and the contact time for microchem.
- Section III.5, describe brain physiology studies listed in Section I.6.
- Section III.6.a, revise to provide a more rigorous scientific justification to perform IP injection without anesthesia, including how the noted side effects would impact the study.
- Section III.6.b, IP injection SOP, in step #1, use forceps instead of fingers when working with a sharp containing agent: replace "holding two fingers next to the abdomen to immobilize" with "using forceps on each side of the abdomen to immobilize."
- Section V.1.A, Dr. Bovendo should be listed as supervisor in the "Proposed Roles on this NOU" column

Xuping Xie, PhD

Project Title: Lentiviral vectors

Dr. Xie submitted an amendment to their work with lentiviral vectors **to add lentiviral vector-based pseudoviruses; NIH Guidelines: D1, D2.**

A motion was made and approved to **approve with conditions:**

- Section I.6, rewrite this section; minimize duplication and redundancy with Section II.3, it is recommended to clearly differentiate these sections based on their specific purposes.
- Section I.8.g, change "Unknown to infectious dose for pseudovirus in humans" to "Infectious dose for pseudovirus in humans is unknown".
- Section I.A.2.a.i, delete Vero cells.
- Section II.3, differentiate this section from Section I.6.
- Section II.7.i, for point 1), rewrite to clearly state that these changes are not expected to result in adaptation of the virus.
- Section II.15.b, provide a complete list of all plasmids utilized, including lentiviral packaging plasmids and CRISPR/Cas9 lentiviral vectors. If it is easier to upload a table, upload to Section I.6.

Amendment: BSL3/4 CDC/USDA Regulated Agent NOUs for review

Chien-Te (Kent) Tseng, PhD

Project Title: Development of vaccines and therapeutics against highly pathogenic avian influenza virus infection

Dr. Tseng submitted an amendment to thei work with Highly pathogenic avian influenza virus (HPAIV): A/Whooper swan/Mongolia/244/2005, A/Cambodia/R0405050/2007 (H5N1), A/Thailand/676/2005 (H5N1), A/cattle/Texas/56283/2024 (H5N1) **to add generation of recombinant virus by reverse genetics, to include the generation of recombinant chimeric viruses and to generate a stable cell line expressing recombinant virus; NIH Guidelines: D1, D2, D4, D7.**

A motion was made and approved to **approve with conditions:**

- **Approval to work with recombinant agent is limited to work necessary to establish susceptibility to antiviral agents. Once antiviral susceptibility is established, report the results to the IBC and to request approval to perform the remaining work.**
- Section I.6, expand on the description the recombinant work, indicate the recombinant work can be subdivide into distinct subprojects.
- Section II.2, clarify and outline the distinct subproject goals (e.g. Project 1, project 2, and project 3)
- Section II.3, reorganize the description of recombinant work to delineate each recombinant subproject.
- Section II.7.a, describe the methodology for genome modification in 293 or MDCK cells.
- Section II.8.b, answer Yes.

- Section II.13, answer Yes.
- Section II.26, answer No.
- Section III.5, clarify how recombinant viruses will be used in animal experiments, e.g., pathogenic viruses, or replication-deficient vaccine candidates.

III. OLD BUSINESS

Biological Agents and rDNA/RNA NOUs – Conditions Met

Roberto Garofalo, MD – Human coronavirus type 229E (HCoV-229E); NIH Guidelines: N/A (#2025029)

Thomas Geisbert, PhD – Recombinant vesicular stomatitis virus (rVSV) (Indiana or New Jersey strain) vaccine vectors expressing proteins of ebolaviruses, marburgviruses, arenaviruses, paramyxoviruses, phleboviruses, nairoviruses, hantaviruses, coronaviruses, flaviviruses, or HIV; cell lines stably expressing a single protein from paramyxoviruses (F/G/HN) or the glycoprotein of rVSV and RNA vaccines; NIH Guidelines: D1, D2, D4 (#2025036)

Tetsuro Ikegami, PhD – Recombinant baculovirus; NIH Guidelines: D2 (#2025035)

Linda Kenney, PhD – Salmonella enterica serovar Typhimurium; NIH Guidelines: D1, D2, D4 (#2025020)

Shinji Makino, DVM, PhD – Rift Valley Fever virus MP-12; NIH Guidelines: D1, D2, E1, F (#2025034)

Courtney Woolsey – Recombinant vesicular stomatitis virus (rVSV) (Indiana or New Jersey strain) vaccine vectors and RNA vaccines; NIH Guidelines: D1, D2, D4 (#2025037)

Min Kyung Yi, PhD – Hepatitis C virus (HCV); NIH Guidelines: D1, D2, D3 (#2025021)

BSL3/4 CDC/USDA Regulated Agents NOUs – Conditions Met

Alexander Bukreyev, PhD – Crimean-Congo Hemorrhagic fever virus; NIH Categories: D4 (#2025042)

Thomas Geisbert, PhD – Andes virus; NIH Categories: N/A (#2025038)

NOU Inactivation

Patricia Aguilar, PhD – Powassan virus, West Nile virus, Venezuelan equine encephalitis virus, St. Louis Encephalitis virus (#2020019) – NOU expired

Dennis Bente, DVM, PhD – SARS-CoV-2 and MERS-CoV (#2020025) – NOU expired

Alexander Bukreyev, PhD – SARS-CoV-2 (#2020047) – NOU expired

Irma Cisneros, PhD – Human Products (#2020049) – NOU expired

Janice Endsley and Mark Endsley, PhD – SARS-CoV-2 (#2020069) – NOU expired

Eliseo Eugenin, PhD – Human coronavirus (strain 229E) (#2020044) – NOU expired

Alexander Freiberg, PhD – SARS-CoV-2 (#2020045) – NOU expired

Alexander Freiberg, PhD – Rift Valley Fever Virus and Crimean-Congo Hemorrhagic Fever Virus (#2020057) – NOU expired

Thomas Geisbert, PhD – SARS-CoV-2 and MERS-CoV (#2020024) – NOU expired

Cheng Huang, PhD – novel coronavirus (2019-nCoV) (SARS-CoV-2) (#2020021) – NOU expired

Slobodan Paessler, DVM, PhD – Recombinant Pichinde virus (rPICV) (#2020055) – NOU expired

Slobodan Paessler, DVM, PhD – SARS-CoV (SARS-CoV-1) (#2020075) – NOU expired

Slobodan Paessler, DVM, PhD – SARS-CoV-2 (mouse-adapted strain), MERS-CoV, SARS-CoV-2 (#2020076) – NOU expired

Richard Pyles, PhD – Human Products (#2020042) – NOU expired

Partha Sarkar, PhD – Human Products (#2020052) – NOU expired

Scott Weaver, PhD – SARS-CoV-2 (#2020046) – NOU expired

IV. DISCUSSION

NIH-OSP Implementation Update

The IBC discussed the Implementation Update: Promoting Maximal Transparency Under the NIH Guidelines for Research Involving Recombinant or Synthetic Nucleic Acid Molecules. The IBC discussed

the required contents of IBC minutes and how to draft minutes in a manner that allows transparency and minimizes the need for redactions, so the minutes can be uploaded expeditiously. Members of the IBC expressed concern that, even though the names of committee members can currently be obtained by requesting information from the entity or NIH-OSP, the publication of names will increase the likelihood of doxxing and harassment.

V. ADJOURNMENT

The meeting was adjourned at 5:05 PM.

All NOUs and amendments were reviewed in accordance with Section IV-B-2-b, Section II-A-3 and Section III of the NIH Guidelines.

[redacted]

[redacted]