

AMENDMENT NO. 3  
TO ALLERGEN DATABASE SPONSORSHIP AGREEMENT

This Amendment No. 3 to Allergen Database Sponsorship Agreement is made and entered into as of January 1, 2013 (“Amendment No. 2”) by and between the Board of Regents of the University of Nebraska on behalf of the University of Nebraska-Lincoln, a non-profit, public educational institution of the State of Nebraska (hereinafter referred to as the “University”) located at 312 N. 14<sup>th</sup> St., Lincoln, Nebraska 68588-0430, and ., located at (hereinafter referred to as the “Company”).

Whereas, the University and Company are parties to a certain Allergen Database Sponsorship Agreement dated May 26, 2004 relating to a certain database of known allergens and related content described therein (the “Sponsorship Agreement”); and

Whereas, Company and the University desire to amend the Sponsorship Agreement in certain respects;

Now Therefore, the parties agree as follows:

1. Section 1 of the Sponsorship Agreement is hereby amended to read as follows:

**“1. SPONSORSHIP**

- A. The annual budget (based on a calendar year of 1 January until 31 December) for the performance of University’s obligations pursuant to this Agreement (“Annual Budget”), shall be \$308,154 during YEAR TEN, \$319,068 during YEAR ELEVEN, and \$330,098 during YEAR TWELVE (2015) of this Agreement, as further defined in Section 5A hereof. University’s budget for the project is detailed in Exhibit C attached hereto and incorporated by reference herein. University may modify the allocation of resources set forth in Exhibit C at its sole discretion provided that the Annual Budget amounts specified therein are not changed and provided that the scope of the activities under this Agreement is not reduced.
- B. In consideration of the rights granted herein and for the duties to be undertaken by University under the terms of this Agreement, Company agrees to pay to University an annual sum (not to exceed eighty two thousand five hundred and twenty five dollars (\$82,525)), equal to Company’s pro rata share of the Annual Budget (determined by dividing the amount of the Annual Budget for each year by the number of PARTICIPATING COMPANIES during that year).
- C. University shall invoice Company annually for payments due hereunder. The University’s invoice for each year of the contract shall be sent no later than February 15 of the corresponding named year. Company shall make payments within sixty (60) days of the mailing date of said invoice. In the event that any PARTICIPATING COMPANY withdraws its sponsorship of the DATABASE after Company is invoiced, University shall notify Company of any resulting annual budget shortfall and shall invoice Company for Company’s pro rata share of the resulting annual budget shortfall. If the University, in its sole discretion, determines there is a budget surplus, within sixty (60) days University shall refund Company an amount equal to Company’s pro rata share of said surplus.”

2. Section 2. D. of the Sponsorship Agreement is hereby amended to read as follows:  
“D. On or before January 6 following each annual database update cycle during the term of this agreement the UNIVERSITY shall provide each sponsor with a DRAFT of the expected final version of the database update for quality assurance purposes. The sponsors should perform a quality check of the data and ask questions related to specific sequences or inclusion criteria. Then before February 6 of each year during the term of this Agreement, UNIVERSITY shall provide COMPANY with one (1) dated searchable archival copy of the most recent updated DATABASE in CD-ROM, or similar permanent format, based on technology commonly used at the time, and any software required to access or search the DATABASE (“Archival Copy”). The UNIVERSITY will then post the FINAL version of the database on the public website during February of the same year. If the contract is terminated without renewal, the final archival copy of the database will be submitted on February 6 of the following year to all sponsors participating in the preceding year. Said Archival Copies shall belong to the COMPANY and may be utilized by COMPANY and its Affiliates without further payment to UNIVERSITY.”
3. Section 5. A. of the Sponsorship Agreement is hereby amended to read as follows:  
“A. This Agreement and the provisions hereof, except as otherwise provided, shall be in full force and effect commencing on the Effective Date of the Agreement and shall extend until December 31, 2015, unless terminated earlier pursuant to this Section 5. YEAR TEN shall be defined as the calendar year starting January 1, 2013, YEAR ELEVEN as the calendar year starting January 1, 2014 and YEAR TWELVE as the calendar year starting January 1, 2015. The parties hereto may, however, extend the term of this Agreement for additional periods as desired under the terms of a mutually agreeable, written set of terms and conditions signed by both parties hereto.”
4. Section 14. of the Sponsorship Agreement is hereby amended to read as follows:  
“All notices and other communications shall be hand delivered, sent by private overnight mail service, or sent by registered or certified U.S. mail, postage prepaid, return receipt requested, and addressed to the party to receive such notice or other communication at the address given below, or such other address as may hereafter be designated by notice in writing:

If to the UNIVERSITY:  
Office of Sponsored Programs  
312 N. 14<sup>th</sup> St.  
Lincoln, NE 68588-0430

If to COMPANY:  
Name  
Title  
Company  
Address  
City, State, Zip  
Facsimile:  
E-mail

Such notices or other communications shall be effective upon receipt by an employee, agent or representative of the receiving party authorized to receive notices or other communications sent or delivered in the manner set forth above.”

5. Exhibits A, B, C and D of the Sponsorship Agreement are hereby deleted in their entirety and replaced with the attached Exhibits A, B, C and D.
6. The following new section shall be added to the agreement:

“The parties to this Agreement may add, upon written agreement, what shall be termed as a “Limited Sponsor” to this Agreement. Limited Sponsors shall contribute monetarily to the project, and as such the contribution of each Sponsor shall be reduced for that year on a pro rata basis by the amount contributed by the Limited Sponsor. In exchange for their contribution, Limited Sponsors shall receive an Archival Copy for the year of their contribution. Such Archival Copy shall be subject to a separate data licensing agreement between the University, the Sponsors, and the Limited Sponsor.”
7. The remaining terms of the Sponsorship Agreement shall remain in full force and effect.

IN WITNESS WHEREOF, the parties hereto have executed this Amendment No. 2 in duplicate by proper persons thereunto duly authorized.

**The Board of Regents of the  
University of Nebraska**

By \_\_\_\_\_  
Name \_\_\_\_\_  
Title \_\_\_\_\_  
Date \_\_\_\_\_

By \_\_\_\_\_  
Name \_\_\_\_\_  
Title \_\_\_\_\_  
Date \_\_\_\_\_

**Acknowledgement:**

I have read this Amendment No. 2 and agree to perform my obligations under this Amendment No. 2. I will inform students and other participants of the terms and conditions of this Amendment No. 2.

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\_\_\_\_\_  
Dr. Richard E. Goodman

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Date



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Dr. Stephen L. Taylor

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Date

## **ALLERGEN DATABASE SPONSORSHIP AGREEMENT**

### **EXHIBIT A**

#### **DATABASE DESCRIPTION**

##### **1. The CONTENT**

The CONTENT will include, but not be limited to the information and material currently made available by the University of Nebraska-Lincoln Food Allergy Research & Resource Program at [www.allergenonline.org](http://www.allergenonline.org).

Common searching tools have been created by our bioinformatics specialist and include both a full-length FASTA search and a sliding window 80 amino acid search routine that recognizes and identities greater than 35% (as per FAO/WHO 2001 and Codex Alimentarius Guidelines, 2003). Additional routines, or modifications of the current (2012 AllergenOnline) routines would be discussed with the sponsors at least 30 days prior to any changes.

##### **2. Updates**

Updates to the CONTENT may include new and additional information and corrections for errors or other misinformation. The CONTENT shall be updated at least once every year, but not more than two times in any calendar year, according to the criteria and oversight of the Official Board of Academic Advisors. Sponsors will receive dated searchable archival copies in CD-ROM format of the updated CONTENT on each occasion.

##### **3. Support**

Support for the CONTENT, the web portal and related software shall be provided five (5) days per week, from 8:00am to 5:00pm CST.





## **EXHIBIT B - Official Board of Academic Advisors**

The Food Allergy Research & Resource Program (FARRP) at the University of Nebraska maintains a computer server, hosting the AllergenOnline.org database. The server and website run 24 hours per day, year-round. Website management, systems administration, and bioinformatics support are available on a 5 days/week basis.

A common database of known allergenic proteins has been developed using the existing databases of corporate sponsors of this proposal, as well as information available from public allergen databases and scientific journals. This database will be continuously updated based upon new scientific information gleaned from various sources. An expert committee has been appointed and criteria have been established for inclusion of specific proteins in the allergen database. The criteria will be re-evaluated annually. The committee is composed of two allergy experts from the University of Nebraska (Dr. Goodman and Dr. Taylor (or Dr. Baumert) and five or six other scientists selected based on their expertise in allergens, their structures, and functions. The current outside experts (Drs. Ebisawa, Ferriera, Sampson, van Ree and Vieths) have worked hard to evaluate allergen entries. In order to expand and improve the database to specifically include gliadins and glutenin entries that are known to cause celiac disease we are seeking to add an expert in that area of research. In 2012, Dr. Barbara Bohle of the University Medical Center of Vienna has been engaged as a T cell expert for the celiac database to help establish the review process. Dr. Bohle is expected to continue in subsequent years, and Dr. Bana Jabri, aceliac consultant from the University of Chicago from the University of Chicago, or another well-recognized celiac expert of similar standing will be engaged as a consultant. In addition, a graduate student in the Goodman laboratory has been engaged in developing the celiac database and the contract includes support for a graduate student to be involved in annual update review and in preliminary research to evaluate specific peptide questions under the supervision of Dr. Goodman.

Each of the sponsoring companies would also have the opportunity to appoint an ex-officio member to this committee and contribute their knowledge to this important process (ex-officio members would be invited to participate in all meetings and be encouraged to contribute to discussions but would not vote on any decisions relating to the inclusion criteria of specific proteins in the database, or the final selection of proteins in the database). Expert panel members will continue to participate in the same peer review process as new information and sequences are added. Their commitments will be handled on an annual basis through a letter of agreement between FARRP and the individual expert. Ex-officio representatives to the expert panel would continue to serve in that capacity at the pleasure of the sponsoring company as long as that particular company provides support to this program.

The expert panel will annually review the criteria for including sequences of specific proteins in the allergen database. During the annual database review new allergen sequences will be judged by the panel of experts and inclusion will be based on consensus. Once the criteria are available, the committee will begin the process of identifying specific proteins from existing databases maintained by sponsors and/or public allergen database sources that meet the established criteria. The public version of AllergenOnline.org, version 7 was the first official database release that is publicly tied to sponsorship by the consortium. The current version 12



was released in February, 2012. The AllergenOnline website will continue to clearly identify Sponsors and provide specific liability disclaimers that will be reviewed and approved by the Sponsors.

The annual review and update of AllergenOnline will be based on the immediate earlier version of the database. New entries will be considered based on key word searches of public sequence and allergen databases (e.g. NCBI and IUIS-the International Union of Immunological Societies Allergen Nomenclature database) and peer-reviewed public literature (e.g. PubMed and individual journals that may not be listed in PubMed). Additional information will be added from known literature. The actual sequences in the database will be assembled from public domain databases, primarily NCBI. Efforts will be made to obtain sequences for the current proteins from some public source or to submit the sequence information to NCBI. Each such case will be reviewed to determine the necessity of retaining that particular sequence in the new database. This database is intended to be comprehensive and conservative (including sequences from proteins where the proof of allergenicity may not be optimum, but is judged as adequate to demonstrate a reasonable probability of allergenicity based on expert criteria and judgment). The allergen database will not include proteins for which there is no experimental proof of IgE binding, or induction of immediate type allergic responses in humans. A separate "celiac risk assessment database" will be maintained as a linked, but separate searchable dataset, with different search criteria to provide a tool for risk assessment to protect those with celiac disease. The individual criteria for inclusion of celiac peptides have are posted on the celiac section as of February, 2012 however, these criteria and the peptides will be reviewed by the expert panel which is being expanded to include a T-cell immunologist and a celiac disease expert, both of whom are internationally recognized; and the UNL staff during subsequent years. The AllergenOnline expert panel will also provide an overall annual review of the celiac database process.

The searching strategy for the new allergen database will include application of FASTA. The FASTA program (from Dr. W. Pearson of the University of Virginia) can be used in a publicly accessible database housed by an academic institution at no cost. FARRP will supply the sponsoring companies with a CD-ROM version of each updated version of the database in a format that may be used by each sponsor with their version of FASTA or BLAST. It will be the individual Sponsor's responsibility to secure any necessary approval for use of programs like FASTA or BLAST for their private use on their own computer networks. The use of FASTA on the FARRP AllergenOnline.org website will continue to be free and available for public use.

The UNL Allergen Specialist (Dr. Goodman), with the assistance of the bioinformatics expert and PhD level graduate students, will screen worldwide allergy literature to identify candidate allergenic and celiac eliciting proteins. Further, any member of the committee, including ex-officio members, will be able to suggest candidate proteins to the Allergen Specialist. A closed listserv will be used to present candidate proteins to the expert committee including ex-officio members by the Allergen Specialist. Candidate proteins receiving unanimous votes (by the expert committee) for entry into the database will be entered without further discussion. Any candidate protein that fails to achieve unanimous acclimation will be placed on a list for discussion at a later meeting, which may be held by electronic



communications of the committee. It is anticipated that the expert committee will meet at least annually.

## **EXHIBIT C - BUDGET**

### **Budget Narrative**

Fringe benefits include insurance and retirement. Travel costs are to pay for, at a minimum, one meeting per year, usually timed to coincide with the AAAAI or EAACI allergy meetings (for cost savings). Travel costs are for all external experts, plus three from UNL, as well as meeting room rentals. Consulting fees are for time paid to outside experts to participate in scoring the database and the participating in the annual meeting. At the discretion of Drs. Taylor and Goodman, cost savings from travel or salaries may be used to fund travel to represent the allergen database and/or bioinformatics safety assessment methods at national or international scientific meetings or to fund a graduate student working in the area of allergen sequence structural comparison or cross-reactivity.

Bioinformatics Specialist and Systems Specialist (John Wise) –Designed, and maintains the AllergenOnline database system and Celiac database, maintains and archives database, downloads draft entrees and collates all data.

Materials charges includes replacement costs for desktop (2) and laptop (2) computers as needed, as well as software & Licenses – Server licenses, domain name registration, development software licenses and general program licenses.

### **YEAR TEN** (calendar year 2013)

#### **Personnel** (salary + fringe benefits)\* [narrative below]

Steve Taylor, Professor (2%)	(gratis)
(Joe Baumert may substitute for Dr. Taylor, when Taylor is unable to participate)	
Rick Goodman, Professor (58%)	
John Wise, Bioinformatics (100%)	
PhD graduate student (100% of 50% appointment)	
TOTAL UNL salaries and benefits	\$200,527

#### **Additional Support**

Travel support	\$9,500
Consulting fees for seven external experts (\$3300/expert *7)	\$23,100
Materials	\$3,000
Publications	\$1,000
Additional costs for expert panel meetings	\$9,000

DIRECT COSTS	\$246,127
OVERHEAD @ 26% of MTDC (adjusted total costs of 237,301)	\$62,027
GRAND TOTAL	\$308,154

**Per company, 6 companies: \$51,359**

YEAR ELEVEN (calendar year 2014)

Personnel (salary + fringe benefits)\* [narrative below]

Steve Taylor, Professor (2%)	(gratis)
(Joe Baumert may substitute for Dr. Taylor, when Taylor is unable to participate)	
Rick Goodman, Professor (58%)	
John Wise, Bioinformatics (100%)	
PhD graduate student (100% of 50% appointment)	
TOTAL UNL salaries and benefits	\$206,636

Additional Support

Travel support	\$10,500
Consulting fees for external experts (\$3500/expert *6)	\$24,000
Materials	\$3,000
Publications	\$1,200
Additional costs for expert panel meetings	\$9,500

DIRECT COSTS	\$254,836
OVERHEAD @ 26% of MTDC (adjusted total costs of 237,301)	\$64,232
GRAND TOTAL	\$319,068

Per company, 6 companies: \$53,178

YEAR NINE (calendar year 2015)

Personnel (salary + fringe benefits)\* [narrative below]

Steve Taylor, Professor (2%)	(gratis)
(Joe Baumert may substitute for Dr. Taylor, when Taylor is unable to participate)	
Rick Goodman, Professor (58%)	
John Wise, Bioinformatics (100%)	
PhD graduate student (100% of 50% appointment)	
TOTAL UNL salaries and benefits	\$212,938

Additional Support

Travel support	\$11,500
Consulting fees for external experts (\$3500/expert *6)	\$25,000
Materials	\$3,000
Publications	\$1,200
Additional costs for expert panel meetings	\$10,000

DIRECT COSTS	\$263,638
OVERHEAD @ 26% of MTDC (adjusted total costs of 242,618)	\$66,460
GRAND TOTAL	\$330,098

Per company, 6 companies: \$ 55,016



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**TOTAL 3-YR BUDGET (1/1/13 – 12/31/15)**

	<u>Total</u>	Sponsor costs (USD) assuming (# of sponsors)		
		( 6	5	4)
YEAR TEN	\$308,154	\$51,359	\$61,631	\$77,039
YEAR ELEVEN	\$319,068	\$53,178	\$63,814	\$79,767
YEAR TWELVE	\$330,098	\$55,016	\$66,020	\$82,525
Total 3-Yr Budget	\$957,320	\$159,553	\$191,464	\$239,330

## EXHIBIT D

### Participating Companies:

- Syngenta Biotechnology, Inc.
- BASF Plant Science, LLC
- Bayer SAS
- Monsanto Company
- Dow AgroSciences, LLC
- Pioneer Hi-Bred International, Inc.

## EXHIBIT E ADDITIONAL DELIVERABLES

1. The following manuscripts will be submitted for publication at a journal of Dr. Goodman's choice:
  - a. Manuscript describing technical construction and peer review process of the FARRP database (submitted by June, 2013)
  - b. Manuscript describing the generation and use of the Celiac Database (submitted by December, 2013).
2. A brief summary of scientific outreach trips undertaken during the year will be provided to sponsors during the annual Sponsors Meeting.
3. A summary or presentation of graduate student efforts and results related to database updates or use will be presented at or before the annual Sponsors meeting, or when appropriate.