

INSTITUTIONAL BIOSAFETY COMMITTEE MEETING

May 19, 2021

3:00 PM, Zoom Meeting

MEMBERS PRESENT: Chair - Elizabeth Fozo, Vice Chair-Stephen Kania, Lori Cole, Feng Chen, Paul Dalhaimer, Lezlee Dice, George Dizikes, Doris D'Souza, Jun Lin, Deidra Mountain, Jae Park, Ling Zhao

Ex-Officio – Bryan Cranmore, Linda Hamilton, Ahmad Mitoubi, Sarah Pruett, Brian Ranger, Jessica Woofter

MEMBERS ABSENT: Marc Caldwell, Reza Hajimorad, Brittany Isabell, Melissa Kennedy

OTHERS PRESENT: Chunlei Su

Opening:

The IBC Chair called the meeting to order at 3:00 PM. The minutes of April 21, 2021, were reviewed and approved as written.

Full Member Review IBC Registrations:

#IBC-12-381-2 (Maria Prado) Recombinant DNA, III-D-1-a, 3-year rewrite

Dr. Prado's registration covers the fluorescent labeling of *Streptococcus uberis* and *Escherichia coli* bovine mastitis isolates to determine if biofilm formation contributes to clinical mastitis in dairy cattle. Plasmids carrying the fluorescent mCherry gene will be used to transform *E. coli* or *S. uberis* by electroporation. Cells will be plated on LB agar or other appropriate media containing an antibiotic (tetracycline, gentamycin, erythromycin, or kanamycin). The resulting transformants will be confirmed by direct visualization in the IVIS camera to detect the fluorescence and PCR. Though not currently in progress, similar procedures may be done in *Pasteurella multocida*. The committee approved the registration pending the change of the title to reflect the broad scope of the work being performed; clarification about animal work being conducted and the inclusion of IACUC protocols; the addition of a statement under Insert Genes indicating potential future cloning or deletion of genes involved in biofilm formation; addition of *S. uberis* and *E. coli* strains in the Infectious Agents section; and checking "Yes" on question 7.6 to indicate that animals will be used in conjunction with an infectious agent.

#IBC-21-566-2 (Chunlei Su) Infectious Agents & Human Derived Materials, New registration

Dr. Su was present to discuss his registration covering the study of the interplay of zoonotic disease transmission and the prevention and mitigation of these diseases. One essential step to reach this goal is to detect and identify zoonotic pathogens in clinical animals, reservoir hosts, and the environment, which provides critical information for surveillance. Existing methodologies largely focus on targeted detection of individual or a particular group of pathogens. Currently, different laboratories may use disparate methodologies, making it

challenging to establish a cohesive database for long-term genetic and epidemiological studies of pathogen transmission. The lack of an integrated infrastructure to investigate and conduct surveillance of multiple zoonotic pathogens simultaneously severely limits the public health and research benefits that can be derived from a cohesive and efficient system. To address this problem, they propose establishing an integrated system to detect and identify zoonotic pathogens. This system aims to detect novel and known zoonotic pathogens from animals and the environment by identifying specific pathogens with high resolution using a multiplex genotyping format and will serve as a crucial component for future studies under the UT One Health program. This project is meant to be a proof of concept. The system will be highly scalable for surveillance of many pathogens from animals, plants, humans, and the environment by including research laboratories across all campuses. The committee approved the registration pending the following items:

- Clarification that samples submitted for other tests will be obtained from diagnostic labs;
- Checking “Yes” for question 6.9 to indicate environmental samples are a part of the study;
- Clarification about animal trapping and animal tissue transportation;
- The addition of Dr. Rajeev’s lab information (biosafety cabinets and room locations);
- The addition of sample storage locations for Drs. Gerhold and Rajeev;
- And the addition of language describing reagent transfer.

#IBC-21-568-1 (Bruce Barry) Recombinant DNA, III-E, New registration

Dr. Bruce’s registration covers the study of photosynthesis and chloroplast biology by using *E. coli* to allow the expression and purification of recombinant proteins. The study aims to allow the purification of the recombinant proteins of high purity and activity for down stream biochemical or functional characterization. Virtually all of the proteins we work with are involved in photosynthesis (for example, ferredoxin) or chloroplast biogenesis (Toc34). These proteins are usually cloned from a plant such as *Arabidopsis* or cyanobacteria such as *Synechocystis* PCC6803). The committee approved the registration as written.

Designated Member Review IBC Registrations:

#IBC-10-352-2 (Elizabeth Fozo) Human Derived Materials, Infectious Agents, & Recombinant DNA, III-D-1-a, Amendment

Dr. Fozo’s research investigates how genes encoding small regulatory RNAs (sRNAs), small proteins, and membrane fatty acids play in the Risk Group 2 pathogens *Escherichia coli* O157:H7 and *Enterococcus faecalis*; specifically, their role in survival/growth under extreme environmental conditions and in inducing disease. Briefly, mutants will be generated using standard recombinant DNA/molecular techniques (e.g., temperature-sensitive recombination systems; constructs to generate fatty acid gene deletions in *E. faecalis* delivered via conjugation) to disrupt the target genes with selectable marker genes. Similarly, fluorescent reporter genes (e.g., mCherry) will be used to replace the target gene to monitor gene expression. Mutants will then be examined for any growth defects compared to the wild-type organism. Genes of interest may also be overexpressed in *E. coli* MG1655 under native or inducible promoters. The amendment covers the addition of the tobacco hornworm, *Manduca sexta*, to examine how well *E. faecalis* gene deletion strains colonize the intestine or cause systemic disease compared to the wild-type *E. faecalis* strain. The committee approved the amendment as written.

Old Business:

Administrative Report

- i. Contingencies*

Following up on April 21, 2021, IBC Meeting, Dr. Barry Rouse corrected his registration (#06-280-2) to include the correction of IACUC protocol information in the nontechnical and technical summaries and rDNA section; the addition of additional cytokine genes; inclusion of ongoing screening mechanism for bloodborne pathogens; clarification about work being conducted in the animal facilities; removal of the on-site autoclave and replacing this with the medical waste contractor (Advantra); and the removal of language for Influenza A and inclusion of the Hepatitis B offer for all personnel. Dr. Neal Stewart corrected his registration (#12-379-1) to include the addition of yeast vectors and promoters to the nontechnical and technical summaries; removal of Figure 1a from the technical summary; the addition of information about the induce and treatment methods; the addition of details about constructs; and an update to the biosafety cabinet certification dates.
- ii. Administrative Approvals*

Dr. Todd Reynolds' amended their registration (#05-245-2) to cover the addition of *Kibdelosporangium aridum subsp. aridum JCM 7912* for hosts and overexpression of various bacillus pumilus cell wall proteases for insert genes and the infection of *Manduca sexta* via injection or feeding with *Candida* species. The amendment was approved administratively by the IBC Chair on 5/11/2021. Dr. Steven Wilhelm amended their registration (#13-404-1) to include updates to grant information, the addition of *Synechococcus WH7803*, and updates to the biosafety cabinet certification date and health surveillance statement. The amendment was approved administratively by the Biosafety Officer on 4/26/2021. Dr. Amit Joshi submitted a new human-derived materials registration (#21-567-2) covering the use of HeLa, U2OS, and COS7 cell lines. The registration was approved administratively by the Biosafety Officer on 5/11/2021.
- iii. Administrative Terminations*

None.
- iv. Administrative Exemptions:*

The Biosafety Officer administratively approved Dr. Bode Olukolu's registration (#18-525-E) on 4/19/2021.
- v. Accidents, Injuries/Exposures:*

None.
- vi. Laboratory Report (Hamilton)*

None.
- vii. iMedRIS Update, Manual Reviews, & System Orientation (Woofter)*

Jessica notified the committee that the current draft form needs review and revision by the chairs and Brian before allowing the rest of the committee to review it.

Update on the Biowaste Document (Hamilton)

Linda notified the committee that the document has been updated but needs to be added to the Biosafety website. During the audit process, the new information will be communicated to those who are impacted the most.

Update on the self-assessment committee (Fozo)

Dr. Fozo notified the committee that the self-assessment committee has been created and met today. Dr. Kania leads the committee consisting of himself, Lezlee Dice, Dr. Mountain, and Dr. Binder.

New Business:

Future Meetings (Fozo)

Dr. Fozo proposed that the committee meet quarterly in person or possibly twice a year (once in the Spring and Fall). Zoom meetings will be used during in-person meetings as well. Dr. Fozo will circulate a survey gauging the committee members' thoughts on the meeting scheduling.

BSL-3 Agent Assessment Documents & Emergency Response Procedures (Hamilton)

Linda notified the committee that BSL-3 Agent Assessment Documents are in their final draft and ready for the BSL-3 manual. A formal vote will be needed. Brian suggested using the June meeting to call a special session to vote on the documents. Linda notified the committee that the SOPs are ready for review, and the committee was tasked with having reviews completed by June 2, 2021.

The meeting adjourned at 4:31 PM. The next meeting scheduled is for June 18, 2021, via Zoom.