

INSTITUTIONAL BIOSAFETY COMMITTEE MEETING

February 17, 2021

3:00 PM, Zoom Meeting

MEMBERS PRESENT: Chair –Elizabeth Fozo, Vice Chair-Stephen Kania, Marc Caldwell, Lori Cole, Feng Chen, Paul Dalhaimer, Lezlee Dice, George Dizikes, Doris D'Souza, Reza Hajimorad, Melissa Kennedy, Jun Lin, Jae Park, Ling Zhao

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

MEMBERS ABSENT: Brittany Isabell, Deidra Mountain

OTHERS PRESENT: Hameeda Sultana, Tim Sparer

Opening:

The IBC Chair called the meeting to order at 3:03 PM. The minutes of January 20, 2021, were reviewed and approved as written. There were no abstentions.

Full Member Review IBC Registrations:

#IBC-06-298-2 (Doris D'Souza) Infectious Agents & Human Derived Materials, 3-year rewrite

Dr. D'Souza covers methodologies for the detection and inactivation of multiple foodborne pathogen isolates, development of mitigation strategies to control microbes in ready-to-eat products, and methods to study stress responses and gene expression of various Risk Group 2 bacterial (e.g., EHEC, *Salmonella spp.*, *Listeria spp.*, *Shigella spp.*) and viral (e.g., noroviruses, caliciviruses, hepatitis A virus) pathogens. Containment was set at BSL-2. The committee tabled the registration pending clarification of purpose/rationale, research design, project procedures, and outcome measures; addition of the recombinant DNA section; addition of human-derived material sources; clarification about opportunistic fecal sample collection; updates to the biosafety cabinet information; and clarification about current fecal sample collection and pretreatment for the shipment before Advantra disposal.

#IBC-21-555-2 (Hameeda Sultana) Recombinant DNA, Infectious Agents, & Human Derived Materials, New Registration

Dr. Sultana was present to discuss their research covering the study of molecular interactions of arthropod-borne flaviviruses with ticks. Their study focuses on tick-borne Langat Virus (LGTV), a naturally attenuated virus, which is, used as a model pathogen. LGTV is a naturally occurring low pathogenicity virus. LGTV does not pose a significant epidemiological threat compared to tick-borne encephalitis virus (TBEV) and other similar viruses. There are no known cases of human disease(s) associated with LGTV. The virus is completely avirulent for adult mice following subcutaneous or intraperitoneal inoculation and nonhuman primates following intracerebral inoculations. The Malaysian (LGTV strain TP21, used in the studies also known as

the Yelantsev virus) strain is a naturally attenuated virus that induces neutralizing antibodies to TBEV and protection against other TBEV complex viruses in animals. The study's containment level was set at Biosafety Level 2 (BSL-2). The committee approved the registration pending the inclusion of LGTV-infected ticks will be generated by feeding naïve ticks on mice infected through parenteral administration of the virus; checking Question 7.5 to indicate the use of sharps; the addition of the IACUC number; checking Question 7.6 to indicate centrifugation will occur in the lab; the addition of a statement to the Technical Summary that the safety precautions for minimizing risk at the ABSL2 level for tick containment; the addition to the Technical Summary about IACUC related procedures; revision of Question 10.1 to indicate work done in the lab animal facility; addition of the biosafety cabinet information for the lab animal facility; and checking Question 10.5 to indicate needles will be used.

#IBC-21-559-2 (Girish Neelakanta) Recombinant DNA, Infectious Agents, & Human Derived Materials, III-D, New registration

Dr. Sultana was present to discuss Dr. Neelakanta's research covering the development of novel therapeutic strategies to treat or control infections caused by tick-borne diseases such as *Borrelia burgdorferi* or *Borrelia turicatae*. This research covers the use of different *in vitro* cell lines and ticks as a model to study pathogenesis caused by these organisms at the molecular level and study acquisition (movement of pathogens from an infected host to ticks) and transmission (movement of pathogens from infected ticks to host) dynamics of these organisms in murine-tick models. Mice will be infected with *Borrelia burgdorferi* or *B. turicatae* via intradermal injection, and naïve ticks will be fed on them. Ticks acquire *B. burgdorferi* or *B. turicatae* and replete. These ticks and mice tissues will be used for DNA/RNA/Protein extractions. The study's containment level was set at Biosafety Level 2 (BSL-2). The committee approved the registration pending the inclusion of *Borrelia*-infected ticks generated by feeding naïve ticks on mice infected through intradermal administration of *Borrelia*; addition of a statement in the Technical Summary addressing safety precautions for minimizing risk at the ABSL2 level for tick containment; the addition of the IACUC number; and the addition of biosafety cabinet information for the lab animal facility.

#IBC-21-560-2 (Girish Neelakanta) Recombinant DNA, Infectious Agents, & Human-Derived Materials, III-D, New registration

Dr. Sultana was present to discuss Dr. Neelakanta's research covering the study of pathogenesis caused by *Ixodes scapularis* ticks using different *in vitro* cell lines to be studied at the molecular level. This research involves studying the pathogens' movement from infected hosts to ticks and transmission (movement of pathogens from infected ticks to hosts) dynamics of these organisms in murine-tick models. The study's containment level was set at Biosafety Level 2 (BSL-2). The committee approved the registration pending the inclusion of a brief statement in the Non-technical Summary about animal work related to this application; the addition of a statement to the Technical Summary about IACUC related procedures; the addition of a statement in the Technical Summary addressing safety precautions for minimizing risk at the ABSL2 level for tick containment; the addition of the IACUC number; the addition of biosafety cabinet information for the lab animal facility; and revising Question 10.1 to include information about the lab animal facility room.

#IBC-21-562-2 (Hameeda Sultana) Recombinant DNA, Infectious Agents, & Human Derived Materials, New Registration

Dr. Sultana was present to discuss their research covering the study of molecular mechanisms at the flavivirus-mosquito-vertebrate host interface and the transmission of pathogens by the vectors. Sultana laboratory works with mosquito-borne flaviviruses such as Dengue Virus (serotypes 1-4; DENV1-4), Zika Virus (ZIKV), and West Nile Virus (WNV). Experiments related to DENV, ZIKV, and WNV will be performed at Biosafety Level-2 (BSL2) laboratories (A329 and A329A), making them ideal model pathogens to study molecular mechanisms of flavivirus-vector-host interactions. The CDC has downgraded WNV from BSL-3 containment to BSL-2 containment. The committee approved the registration pending clarify in the Non-technical Summary that the corresponding IACUC is not under review; checking Question 7.8 to indicate centrifugation will occur in the lab; the addition of a description for cleaning safety glasses in Question 10.5; and the removal of needles from Question 10.6.

Old Business:

Administrative Report

i. Contingencies

Following up on January 20, 2021, IBC Meeting, Dr. Tessa Burch-Smith's registration (#12-375-1) was edited to include containment procedures for workrooms and growth chambers in the Technical Summary; clarification about any cross-state shipment of the materials in the Technical Summary; updated biosafety certification dates; completion of Section 12 (Sharps Management); and an update to the autoclave validation date. Dr. David Anderson's amendment (#20-548-2) was edited to include a clarification in the Technical Summary that Cown I and USA 300 MSSA are non-cytotoxic; additional information regarding the in vivo study; clarification about *S. aureus* isolate methicillin-resistance for both in vitro and in vivo procedures; clarification of the bacterial concentration and inoculum levels under "Experimental Design and Procedures" of the Technical Summary; identification of biosafety cabinets and an update to their certification dates; the addition of animal carcass and/or pathological waste disposal procedures; and clarification regarding commercial transportation designation for Question 8.9-c. Dr. Paul Dalhaimer's registration (#20-557-2) was edited to include removing commercial shipping indicated in Section 10.9c. Dr. Ahmed Bettaieb's registration was edited to include a protein list; clarification of when goggles versus safety glasses are used for certain procedures; removal of the statement in the third paragraph describing the delivery of LPN's in vivo while using the biological safety cabinet; clarification of how the LNPs are formed or the process of encapsulation; changing Question 13.4 to indicate solid waste is disposed of with the medical contractor, Advantra; and indicating in the health surveillance that all personnel will be offered Hep B vaccines.

ii. Administrative Approvals

The Biosafety Officer administratively approved Dr. Rachel McCord's amendment to registration (#16-437-2), covering updates to personnel, grant information, LRE3-EGFP, MLM3636, pCMV_AncBE4Max_P2A_GFP vectors, the addition of Ampicillin Resistance, CRISPR guide RNA, ANCB4Max base editor, and LINE1 sequence insert genes. The IBC Chair approved Dr. Stephen Kania's amendment to registration (#16-447-2), covering *Staphylococcus schleiferi* and updates to the biological spill response.

- iii. *Administrative Terminations*
None.
- iv. *Administrative Exemptions:*
None.
- v. *Accidents, Injuries/Exposures:*
None.
- vi. *Laboratory Report (Hamilton)*
None.
- vii. *iMedRIS Update, Manual Reviews, & System Orientation (Woofter)*
Linda is working on the final draft, and once completed, it is forwarded to Memphis OIT to incorporate in the iMedRIS training site (<https://imedris-training.uthsc.edu/>). Once the form is on the training site, committee members can access the form for testing. Dr. Foza requested a summary of lessons learned from both the IBC and Biosafety Program that can be applied to future preparedness measures.

BSL-3 Preparations (Linda)

Linda notified the committee that BSL-3 documents had been placed on the Teams site. Three of the risk communication forms are completed and ready for review. There are several other documents still requiring review. The emergency response plan has been reviewed, and Linda is working on the SOPs.

New Business:

CY2020 Biosafety Report (Linda)

Linda reported that the annual IBC report had been completed, and the report has transitioned to calendar year analysis versus fiscal year. The past year's numbers and activities reflect the efforts performed during a pandemic year.

The meeting adjourned at 4:48 PM. The next meeting scheduled is for March 26, 2021, via Zoom.