INSTITUTIONAL BIOSAFETY COMMITTEE MEETING
November 17, 2021
3:00 PM, Zoom Meeting

MEMBERS PRESENT:	Chair - Elizabeth Fozo, Vice Chair-Stephen Kania, Marc Caldwell, Paul Dalhaimer, Feng Chen, Lori Cole, Lezlee Dice, George Dizikes, Reza Hajimorad, Brittany Isabell, Jun Lin, Ling Zhao Ex-Officio – Bryan Cranmore, Ahmad Mitoubsi, Sarah Pruett, Brian Ranger, Jessica Woofter
MEMBERS ABSENT:	Doris D'Souza, Deidra Mountain, Jae Park
OTHERS PRESENT:	Constance Bailey, Alison Buchan, Richard Gerhold, Joseph Jackson, Reggie Millwood, Tim Sparer, Sreekumari Rajeev

Opening:

The IBC Chair called the meeting to order at 3:02 PM. The minutes of October 20, 2021, were reviewed and approved as written.

Full Member Review IBC Registrations:

#IBC-12-393-1 (Neal Stewart) Recombinant DNA (rDNA), III-2-a, 3rd-year Renewal
Dr. Millwood was present to discuss Dr. Stewart's registration covering gene flow quantification and bioconfinement in transgenic plant models (e.g., Arabidopsis, rice, tobacco, canola, and switchgrass). Transgenic plants will be created using traditional Agrobacterium-mediated gene transfer and microprojectile bombardment. Insert genes include commonly used resistance (antibiotic, herbicide, or insect) and fluorescent (e.g., red fluorescent protein) markers, as well as various inducible restriction endonucleases or recombinases involved in conditional pollen ablation or transgene removal (bioconfinement). Plants will be grown in environmental growth chambers and under greenhouse conditions with pollen screens/bags. Containment was set as BSL-1/BL-1-P. Environmental release/movement permits have been (or will be) obtained from USDA APHIS BRS for all field procedures. The committee approved the registration pending the addition of a statement clarifying the method(s) for disposing of transgenic plant material, the disinfection procedures for safety glasses, and the inclusion of an updated promoters list.

#IBC-15-431-1 (Alison Buchan) Recombinant DNA (rDNA), III-E, 3rd-year Renewal
Dr. Buchan was present to discuss their research involving the study of the pKNOCK-plasmid, which will be used to disrupt specific genes within selected strains of the marine bacteria (Roseobacters) studied in their lab. These strains are non-pathogenic and only grow in the presence of seawater. Dr. Buchan plans to disrupt genes involved in cell-to-cell communication amongst bacterial members of the same species and genes encoding for the degradation of plant-derived aromatic compounds. Containment was set at BSL-1. The committee approved the registration pending the addition of insert genes and target genes used and the disinfection procedures for lab coats and safety glasses.

#IBC-18-533-1 (Constance Bailey) Recombinant DNA (rDNA), III-E, 3rd-year Renewal
Dr. Bailey was present to discuss their research investigating the biosynthetic potential of polyketide synthases (PKS) in pharmaceutical and chemical commodity production. Briefly, PKS genes amplified from genomic DNA (derived from low-risk microbes) will be cloned into various shuttle vectors and expressed in various low-risk heterologous hosts (e.g., *E. coli BL-21, S. cerevisiae*, etc.). Recombinant hosts will then be used for protein overexpression and/or various other in vitro production assays. Containment was set at BSL-1. The committee approved the registration as written. There was one abstention.

#IBC-21-571-2 (Sreekumari Rajeev) Infectious Agents & Nanoparticles, New registration
Dr. Rajeev was present to discuss their registration covering the study of Leptospirosis in a hamster model. The laboratory will study the various aspects of the bacteria, including epidemiology, biology, and disease, for diagnostic and vaccine development. Containment was set at BSL-2. The committee approved the registration as written.

#IBC-21-573-2 (Joseph Jackson) Human Derived Materials, Infectious Agents, & Recombinant DNA (rDNA), III-D-1-a; 4-b, New Registration
Dr. Jackson was present to discuss their registration covering the study of two herpes viruses, Herpes Simplex Virus Type-1 (HSV) and Cytomegalovirus (CMV), to interrogate how these viruses can either ameliorate disease severity in the case of HSV or exacerbate disease (CMV). This project aims to harness the capabilities of HSV to deliver gene products that may overcome immunosuppression by polarizing immune cells into anti-tumor inflammatory phenotypes. Importantly, HSV can be engineered to express large amounts of immunotherapeutic material. In the GBM setting, this arming capability is invaluable as it is now clear that lytic HSV replication alone is insufficient to protect against tumor recurrence. Further understanding of the GBM immunosuppressive tumor microenvironment and identifying effective anti-tumor immunotherapeutic approaches will directly inform strategies to generate new life-changing anti-GBM treatments. Containment was set at BSL-2. The committee approved the registration pending the addition of a description of the lentivirus production and use for transduction; checking Question 6.12 as "Yes"; correction of the spelling for Murine Cytomegalovirus in Question 7.1; addition of the volume range for viruses; clarification of HCMV use; correction of 1000% CPE to 100% CPE in Question 9.1; the correction of the lab animal facility from UTMCK to Mossman; and the replacement of the health surveillance statement to read "All personnel handling human-derived materials are offered the hepatitis B vaccine as required by (T)OSHA and the UT Biosafety Program."

#IBC-21-574-2 (Andrea Lear) Infectious Agents, New Registration

Dr. Lear was present to discuss their research studying pregnant cattle exposed to bovine viral diarrhea virus (BVDV) and fetal infections. Fetal infection can result in embryonic or fetal death, development of immune tolerance, congenital abnormalities, or transient infection. In addition, calves infected by BVDV in utero are reported to have decreased growth rates and dysfunctional immune responses. The underlying mechanisms of compromised immune function that can lead to increased neonatal morbidity and decreased productive efficiency following in utero viral exposure are unknown. Elucidation of these underlying mechanisms is an essential component for developing effective mitigation strategies for the management of BVDV in susceptible cattle.

The overall objective of this proposed research is to characterize changes in the immune response of neonatal calves following in utero viral infection. Containment was set to BSL-2. The committee approved the registration pending the addition of statement regarding centrifugation and resuspension as well as the use of sharps in the Technical Summary; clarification of "…animals will receive 10 – 10 median tissue culture infective dose (TCID50) of the viral isolate in 5 7 MEM (2 ml aliquot/nostril)…"; and the correction of the freezer storage location.

Designated Member Review IBC Registrations:

#IBC-13-397-2 (Richard Gerhold) Infectious Agents, Amendment
Dr. Gerhold's amendment to their registration covers the addition of *Heterakis gallinarum* to the study. Their research focuses on molecular parasitology experiments to determine the epidemiology of infections by comparing the DNA sequences of the various parasites, including Trichomonas spp. and Histomonas spp. in wild birds; *Elaeophora spp.* and *Parelaphostrongylus spp.* from wildlife (primarily ruminants). Procedures will include DNA extraction and PCR testing using commercial testing kits. In addition, various animal parasites will be cultured in the lab (*in vitro*) to perform a battery of experiments to understand the factors associated with infection and disease progression. Further work will include examining potential *in vitro* chemotherapeutic control options to control parasite infection. Containment was set at BSL-2. The committee voted to approve this amendment pending a statement including an explicit statement regarding disinfection procedures.

Old Business:

Administrative Report

i. Contingencies
Following up on October 27, 2021, IBC Meeting, Dr. Jun Lin's registration (#05-265-2) was amended to include a clarification of the procedures used for inactivating the target gene in *E. coli* listed in item #1 of the Technical Summary, an update to the biosafety cabinet certification date, and the addition of disinfection procedures for goggles. Dr. Marc Caldwell's registration (#14-418-2) was amended with an update to the biosafety cabinet certification date and the attachment of the AHCF for associated IACUC protocols. Dr. Oudessa Kerro Dego's registration (#15-430-2) was amended to include all students involved in the study; the addition of strains (i.e., *S. dysgalactiae, T. pyogenes*); checking question 7.1 to "Yes" to indicate IACUC work; clarification about challenge models listed; clarification about *Mycoplasma bovis* use; clarification about how samples are being processed; clarification about plating and high-risk procedures that could involve aerosol generation; identification of disinfectants used in the spill response; and the attachment of AHCFs for IACUC protocols and approval letter from the State Vet. Dr. Yang Zhao's registration (#21-572-2) was amended to include "off-campus" for Question 6.1, clarification under agent characteristics that these agents are not sampled directly from animals and the type of collected item, checking the "collecting environmental samples" box in Question 6.9, clarification of the concentration techniques under analysis, verifying that transported samples are not being collected outside of Tennessee and transported in a double enclosure, and the addition of gloves and disposable lab coats in the PPE list as well as the disinfection

protocol for safety glasses/goggles.

ii. *Administrative Approvals*
Dr. Terry Hazen's amendment to registration (#20-549-2) covered the addition of Room 608 and biosafety cabinet, and the removal of the 4th-floor lab space was approved on 12/14/2021 by the IBC Chair.

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)*
None.

New Business:

BSL-3 Facility Update
Brian Ranger notified the committee that the new BSL-3 facility should be finalized by March 2022. A few more items are required before the space can be recertified.

iMEDRIS Update
The chair notified the committee that iMedRIS was recently purchased by Cayuse. Sarah Pruett is looking into the software license agreements and how that will affect the committee.

New Community Committee Member
The chair announced that a new community member would be joining the IBC in the new year. Dr. Jessica Velez is a graduate of the University of Tennessee and currently works for the Genetics Society of America.

The meeting adjourned at 4:54 PM. The next meeting scheduled is for February 16, 2022, via Zoom.