

INSTITUTIONAL BIOSAFETY COMMITTEE MEETING
July 20, 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, Brittany Isabell, Jun Lin

Ex-Officio – Bryan Cranmore, Linda Hamilton, Jessica Woofter

MEMBERS ABSENT: Reza Hajimorad, Deidra Mountain, Jae Park, Ling Zhao

OTHERS PRESENT: Guoxun Chen

Opening:

The IBC Chair called the meeting to order at 3:00 PM. The minutes of June 30, 2021, were reviewed and approved as written.

Full Member Review IBC Registrations:

#IBC-06-277-2 (Tim Sparer) Recombinant DNA, Infectious Agents, & Human Derived Materials, III-D-2-a; 3-a; 4-b, 3-year rewrite

Dr. Tim Sparer's registration covers various studies involving human and murine cytomegaloviruses (CMVs) and host immunity, particularly the role of viral chemokines in modulating the host immune response to CMV infection. Baculoviruses will be used to generate recombinant viral chemokines to be used in a variety of in vitro and in vivo assays to determine their effects on neutrophil function. Human CMVs will be propagated and titered for use in viral engulfment experiments. Murine CMVs (wild-type or recombinant) will be used for in vivo experiments in mice to determine how the inserted or deleted genes affect viral spread throughout the mouse. Recombinant DNA procedures include the cloning of viral chemokines, host genes, and chemokine receptors into *E. coli* for sequencing, baculoviruses for overexpression/purification, and eukaryotic cell lines for in vitro expression studies. For the latter, third-generation, replication-incompetent lentiviral vector delivery systems will be used. Containment was set at BSL-2/ABSL-2. The committee voted to approve the registration pending clarification of UL146 and UL147 genes in the nontechnical summary; the addition of coronavirus isolates in the infectious agents section; the inclusion of SARS work in the technical summary; revision of the contact time to at least 10 minutes up to overnight; the inclusion of language relating to immunosuppressed/compromised individuals as has been done for pregnant lab workers, i.e., contact OHS nurse for consultation and testing; and a statement about personnel getting SARS-CoV testing.

#IBC-06-292-2 (Guoxun Chen) Recombinant DNA & Human Derived Materials, III-D-3, 3-year rewrite

Dr. Chen's research investigates the role(s) of various metabolic proteins in mediating the roles of vitamin A in energy metabolism and the development of metabolic diseases, such as obesity

and diabetes. To achieve efficient transfection of various mammalian cell lines (mouse, rat, and human), Dr. Chen is proposing the use of recombinant, replication-incompetent adenoviral vectors to deliver/express genes of interest. Briefly, the adenoviral system is based on a binary plasmid system in combination with HEK 293 packaging cells (which express the E1 gene region necessary for viral replication). The proposed containment level was set at BSL-2. The committee voted to approve the registration pending the addition of hosts for the vectors and genes for each section; addition of the IACUC# for Zucker fatty rats; correction of minor typographical errors; an updated date for the biosafety cabinet certification; updated locations of the spill kits; identification of disinfectants and contact times in the spill response; and removal of the onsite autoclave and addition of the medical waste contractor, Advantra.

#IBC-12-384-1 (Rebecca Trout Fryxell) Infectious Agents, 3-year rewrite

Dr. Rebecca Trout Fryxell's research involves the survey of arthropods for various bacterial (Rickettsial), viral (La Crosse), or protozoan (Plasmodium/Haemeaproteus) pathogens by collecting vectors (mosquitoes, ticks, black flies) from the field, identifying them, and storing them in 80% ethanol. Molecular techniques (DNA extraction, PCR) will be used to identify the different pathogens. For species identification, additional procedures such as dissections of insect tissue (e.g. dissecting mosquito salivary glands from the head & thorax) may be conducted. Also, Dr. Trout Fryxell will be establishing breeding colonies of endemic flies and mosquitoes. Live arthropods will be maintained/handled per ACL-1 guidelines. The committee voted to approve the registration pending the inclusion of a statement regarding insect colonies and their purpose; replacement of IACUC# 2342 with 2192; update of the status of colonies for insects listed; clarification about mosquito colonies and whether they will be infected with the LaCrosse virus; and an update of the biosafety cabinet certification date.

#IBC-12-385-1 (Elias Fernandez) Recombinant DNA, III-E, 3-year rewrite

Dr. Fernandez's research covers the characterization of the biophysical properties of nuclear receptors for the development of more effective therapies. Entire genes or subdomains of the genes will be sub-cloned into pET vectors and overexpressed in *E. coli* BL21/DE3 cells. Protein will be isolated/purified by conventional means and used for biophysical assays (e.g., X-ray crystallography). The research will be conducted at BSL-1. The committee voted to approve the registration as written.

#IBC-15-432-2 (Ahmed Bettaieb) Recombinant DNA, Infectious Agents, Human Derived Materials & Nanoparticles, III-D-3-a, 3-year rewrite

Dr. Ahmed Bettaieb is investigating the regulatory roles of protein tyrosine phosphatases (e.g., Fas, nephrin, prolactin, etc.) in glucose metabolism homeostasis, energy expenditure, and pathological disease signaling. His research will include the use of human and nonhuman primate cells and tissues (adipose tissue) as well as 2nd and 3rd generation replication-deficient lentiviral vector systems. Briefly, pseudotyped lentiviral vectors will be used in human, mouse, rat, and/or nonhuman primate cell lines to 1) knockdown expression of proteins of interest with commercially available shRNA constructs and 2) overexpress a protein of interest from commercially available ORF clones. Component lentiviral plasmids will be maintained and propagated in *E. coli* K-12 strains. HEK293 cells are used to generate recombinant lentiviral particles, which are subsequently transduced into target cell lines as described above (standard molecular protocols). All open vessel procedures involving mammalian cell lines and lentiviral vectors will be performed in a certified Class II biosafety cabinet using BSL-2 containment and

precautions. The outlined safety precautions, waste segregation/treatment strategies, and emergency response procedures for lentiviral vectors and mammalian cells/tissues were deemed acceptable by the committee.

Additionally, Dr. Bettaieb will be using transgenic knockout mice lacking protein tyrosine phosphatases and their interacting partners in adipose, liver, kidney, lungs, brain, muscle, or pancreatic tissue for his studies (cre-lox system). All mice will be purchased or transferred and contained at BSL-1; therefore, this component is exempt from IBC approval per section III-F-8/Appendices C-VII and C-VIII. The committee voted to approve the registration pending the addition of Dr. Dalhaimer to the registration, clarification about cell proliferation and differentiation and the follow-up assay, and an update to the biosafety cabinet certification date.

Old Business:

Administrative Report

- i. *Contingencies*
Following up on June 30, 2021, IBC Meeting, Dr. Paul Dalhaimer corrected their registration (#12-381-2) to include corrections to the HCV reference in the nontechnical summary; clarification of cell types used in the recombinant DNA section; checking “Yes” for centrifugation on Question 7.8; inclusion of specific information regarding the nanoparticle description, formation, and delivery; the addition of specific disinfectants and their contact times in the spill response; the removal of the onsite autoclave information and the addition of the medical contractor Advantra as the appropriate disposal method; and the addition of the COVID vaccination recommendation in the health surveillance section.
- ii. *Administrative Approvals*
None.
- 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 (Woofster)*
Jessica will schedule a meeting at the end of August with the IBC Chairs to discuss the changes to the iMedRIS form.

Self-Assessment Committee

Dr. Kania gave a brief update on the committee's progress. They are working on meeting with administrators before they can provide a final report.

New Business:

Fall Schedule

Dr. Fozo requested that anyone who has a teaching commitment that would conflict with the current meeting schedule. Jessica will send out a poll to gauge whether the meeting schedule should be altered. Dr. Fozo also requested that the committee try to schedule quarterly in-person meetings pending pandemic restrictions. The committee requested new parking passes if the on-campus locations would prohibit members from being able to attend. Dr. Cole suggested scheduling meetings at the Joint Institute for Advanced Materials (JIAM).

The meeting adjourned at 4:03 PM. The next meeting scheduled is for August 18, 2021, via Zoom.