

INSTITUTIONAL BIOSAFETY COMMITTEE MEETING

June 19, 2019

3 PM, Plant Biotechnology Bldg., Room 410

MEMBERS PRESENT: Vice Chair, Elizabeth Fozo; Marc Caldwell, Paul Dalhaimer, George Dizikes, Doris D'Souza, Reza Hajimorad, Deidra Mountain, Jae Park, Ling Zhao

Ex-Officio – Linda Hamilton, Scott Moser, Brian Ranger, Jessica Woofter

MEMBERS ABSENT: Chair, David White; Lori Cole, Brittany Isabell, Melissa Kennedy, Jun Lin, Reggie Millwood

OTHERS PRESENT:

Opening:

The IBC Vice Chair called the meeting to order at 3:03 PM. The minutes of May 8, 2018 were reviewed and approved as written with one abstention.

Full Member Review IBC Registrations:

#IBC-07-315-1 (Jae Park) rDNA, III-D-4-a, 3-year rewrite

Dr. Park's research proposes the generation of transgenic *Drosophila melanogaster* for the purpose of understanding programmed cell death and associated gene functions in the *Drosophila* central nervous system. To produce transgenic *Drosophila*, genome editing will be facilitated by a CRISPR/Cas9 system. Briefly, flanking sequences from target genes will be cloned into a plasmid carrying a reporter gene (TagRFP), and target sequences selected for Cas9 cleavage will be cloned into a guide RNA-expressing plasmid construct. Both plasmids will be amplified in *E. coli* DH5- α , purified, and injected into fly embryos to induce homologous recombination; i.e. replacement of target gene with reporter gene. Surviving flies will then be screened for the fluorescent marker and confirmed by PCR. The containment level was established at BSL-1. The committee voted to approve the registration pending the correction of minor typographical errors; clarification of which plasmid is used for silencing; clarification of which method is used for knock-down/knockout and the target genes in technical summary; and the inclusion of contact times in the biological spill response.

#IBC-13-398-1 (Tarek Hewezi) Recombinant DNA, III-E, 3-year rewrite

Dr. Hewezi's registration covers plant-parasitic nematodes that negatively impact plant growth development. His study will include transgenic *Arabidopsis*, tobacco and soybean to study the genetic control of plant responses to biotic and abiotic stresses. Constructs include nematode effector genes as well as modified genes of the host (e.g. overexpression constructs of native *Arabidopsis* genes). Traditional plant transformation techniques (e.g. *Agrobacterium*-mediated gene transfer) will be used to generate the transgenic plants. Containment was set at BSL-1/BL-1-P. The committee approved the registration pending identification of stressors and antibiotic

markers; the inclusion of contact times in the biological spill response; and updates to autoclave validation dates.

#IBC-13-404-1 (Steven Wilhelm) Recombinant DNA Registration, III-D-2-a, 3-year rewrite

Dr. Wilhelm's registration covers his research using insertion of a gene cassette encoding the cyanobacterial toxin, microcystin (from *Microcystis aeruginosa*), to *E. coli* Nissle1917 (B-strain) as well as the cyanobacterium *Synechococcus* PCC 7942 to examine the effects of heterologous expression in cells that do not make this toxin. Experiments involving potentially infectious and toxin producing agents will be conducted in a BSC using BSL-2 precautions and procedures. The committee voted to table the registration pending an updated training date for personnel listed on the protocol; clarification of the mechanism of release for microcystin from the producing algae in the Technical Summary; and an update to the biosafety cabinet certification dates.

#IBC-16-442-2 (Heidi Goodrich-Blair) Infectious Agents & Recombinant DNA Registration, III-D-4-a, 3-year rewrite

Dr. Goodrich-Blair's research investigates the naturally occurring tripartite interaction between invertebrate nematodes in the genus *Steinernema*, their mutually beneficial bacterial symbionts in the genus *Xenorhabdus*, and the larval stage invertebrate insects these pairs of organisms infect. Using standard bacterial genetic, molecular, and biochemical techniques, bacterial genes and gene products that play a role in either the beneficial or the pathogenic host interactions are identified and characterized. Briefly, mutants and recombinant strains of *Xenorhabdus* spp. are generated by transposon or site-directed mutagenesis, and the desired genetic alteration is typically obtained using selectable markers (e.g. antibiotic resistance genes). Mutants are assayed for their ability to associate with the nematode host (mutualism), or to suppress immunity and kill an insect host. *Salmonella typhimurium* and *Enterococcus faecalis* are used for controls in various assays. The committee voted to table the registration pending clarification of DNA sources; the inclusion of Shiga-like toxin and details in Section 6.2, entry 1; the removal of any non-microbe entries under Section 7.1 – Infectious Agents; the clarification of experimental details regarding the Shiga-like toxin and details regarding potential propagation/expression of this protein including quantities of culture; the deletion of facility references to Walters Life Sciences Bldg.; the modification of bleach contact time to 10 minutes in Section 9.7; the addition of the updated biological spill response; and the correction of the autoclave validation date.

Designated Member Review IBC Registrations: None

Old Business:

Administrative Report

i. Contingencies

None.

ii. Administrative Approvals

Following up on May 8, 2019 IBC meeting, Dr. Kellie Fecteau's registration (#16-439-2) was approved by the Biosafety Officer on 5/20/2019 for 3rd Year Renewal for the use of human cell lines.

- iii. *Administrative Terminations*
Dr. Graham Hickling's registration (#18-520-2) was terminated on 5/28/2019 and arrangements have been made to securely store, transfer or destroy the registered biological hazards.
- iv. *Administrative Exemptions:*
None.
- v. *Accidents, Injuries/Exposures:*
Select Agent diagnosis (Clostridium botulinum) from Necropsy was reported to CDC DSAT via Form 4.
- vi. *Laboratory Report (Hamilton)*
None.
- vii. *iMedRIS Update, Manual Reviews, & System Orientation (Woofler)*
None

Charter Revision Update

Brian reported to the committee that the charter revisions and SOPs will be sent in the first two weeks of July through the Listserv.

Biosafety Manual

Brian notified the committee that several comments were received regarding changes to the biosafety manual on the website. Dr. Fozo suggested several revisions to the language regarding personnel safety and whistleblower procedures.

UTHSC IBC Form

Brian notified the committee that positive was received about the Memphis form and that the Biosafety Officer will move forward with integrating it into the Knoxville form.

Biosafety/EHS Integration Update

Brian notified the committee that the Biosafety Office will no longer report under the Office of Research effective July 1st and would be moving under the Environmental, Health, and Safety Office. The Biosafety Office will likely change the departmental name but the unit will still exist to provide biological safety as well as chemical hygiene safety to the surrounding campuses.

New Business:

Mossman Food/Drink Risk Assessment Progress

Linda and Scott have begun the process of completing Mossman risk assessments. They are prototyping the process with Dr. Cooper's lab on the 3rd floor using SOPs, training, etc. They have come up with a risk assessment tool for documentation and as a visual representation for what is being screened.

Biowaste Disposal Procedure Changes (Pending)

Brian notified the committee that the waste disposal program for the UTK/UTIA campuses will be consolidated under a single account. Waste bins will be located in central locations across the campuses and will no longer be paid by individual departments. However, CVM will not be included and their subaccounts will remain intact.

The meeting was adjourned at 4:31 PM. The next meeting scheduled for July 17, 2019 from 3-5 pm in Plant Biotechnology Room 410.