

INSTITUTIONAL BIOSAFETY COMMITTEE MEETING

April 19, 2017

3 PM, College of Veterinary Medicine, Room A335A

MEMBERS PRESENT: Chair, Jun Lin; David Bemis, Tamara Chavez-Lindell, Lori Cole, Doris D'Souza, Reza Hajimorad, Al Iannacone, Brittany Isabell, Elizabeth Fozo, Melissa Kennedy, Reggie Millwood, Ling Zhao

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

MEMBERS ABSENT: Paul Dalhaimer, Deidra Mountain, Jae Park

OTHERS PRESENT: None

Opening:

The meeting was called to order by the Chair, Jun Lin at 3:00 PM. The minutes of March 29, 2017 were reviewed and approved pending correction of typographical errors. There were three abstentions.

IBC Applications:

#232-17 (Chunlei Su) Infectious Agents & Human Derived Materials Registration, 3-year rewrite

Dr. Chunlei Su's research covers the epidemiology and population genetics of *Toxoplasma gondii*. Procedures aim to identify gene expression networks that influence host resistances; determine of the efficacy of *T. gondii* strains in acute and chronic infected mice; and investigate the consequences of co-infection and sequential infection of different genotypes of *T. gondii*. Containment was set at (A)BSL-2. The committee voted to approve the registration pending correction of typographical errors.

#245-17 (Todd Reynolds) Recombinant DNA, Infectious Agents & Human Derived Materials Registration, III-D-1-a; 2-a; 4-b, 3-year rewrite

Dr. Reynolds' research focuses on the discovery of small molecule compounds that can be used for the development of new antifungal agents, particularly those that target phospholipid biosynthesis (e.g. phosphatidylserine synthase inhibitors) in *Candida* species (*C. albicans*, *C. glabrata*, and *C. auris*). Briefly, recombinant DNA techniques will be used to disrupt the phosphatidylserine genes or alter their expression, as well as other relevant genes involved in phospholipid synthesis and regulation. Recombinant mutants will be tested under *in vitro* growth conditions, challenged with mammalian cells and immune cells like macrophages, and used in mouse infection models. An Animal Hazard Control Form (AHCF) is in place and posted for *in vivo* infections. The containment level was established at BSL-1 for rDNA work with *C. albicans* and *C. glabrata*, and BSL-2 for *C. auris*. Animal challenges with recombinant mutants were approved at ABSL-2. The committee voted to approve the registration pending clarification of BSL-2 lab location and handwashing SOPs for the *C. auris* procedures.

#323-17 (Shawn Campagna) Infectious Agent Registration, 3-year rewrite

Dr. Shawn Campagna's research covers the use of several Risk Group 2 organisms including: *Chromobacterium violaceum*, *Yersinia enterocolitica*, *Vibrio vulnificus*, *Vibrio parahaemolyticus*, *Vibrio cholerae*, *Salmonella enterica* serovar *Typhimurium*, *Proteus mirabilis*, *Neisseria lactamica*, *Klebsiella pneumoniae*, *Helicobacter pylori*, *Haemophilus influenzae*, *Edwardsiella tarda*, *Aeromonas hydrophila*, *Streptococcus pyogenes*, *Staphylococcus aureus*, *Listeria monocytogenes*, and *Enterococcus faecalis*. Organisms will be used for (S)-4,5-dihydroxy-2,3-pentanedione (DPD) and glucose assays to understand quorum sensing, cell signaling and consequences on metabolism. Briefly, cultures of no more

than 50 mL will be grown overnight in appropriate media. Harvesting in some cases will be performed at different periods of times, centrifuged and lysed using standard solvents for chemical analysis by LC-MS. Procedures involving these infectious agents will be carried out using BSL-2 facilities, equipment and practices. The committee provisionally approved the registration contingent upon providing strain-specific details (e.g. strain identifiers/ATCC or literary references; antibiotic resistance characteristics; toxin production; etc.) for the listed agents within the next 3 months. The Biosafety Office will provide updates in the monthly administrative report.

#414-17 (Sarah Werner) Recombinant DNA Registration, III-E-2-a, 3-year rewrite

Dr. Sarah Werner's research covers the isolation and characterization of novel microbes from soil and plant tissue to determine how the immune system in the model plant *Arabidopsis thaliana* acts to shape root-associate microbial communities. For these studies, *Arabidopsis* plants with a variety of immune genes knocked out will be grown in domestic soils or microbes isolated from domestic soils (either North Carolina or Tennessee) in greenhouses or designated plant growth chambers. Community composition and function will then be determined by DNA, RNA, and proteins extracted from soils and root tissue. Novel microbes from soil and plant tissue will also be isolated and characterized. The containment level was established at BSL-1/BL-1-P. The committee approved the registration pending correction of minor typographical errors.

#418-17 (Marc Caldwell) Infectious Agent Registration, 3-year rewrite

Dr. Caldwell is investigating bacterial and viral pathogenesis in large animal models. One model investigates the role of *Mannheimia haemolytica* in pulmonary inflammation and bronchopneumonia in a calf model. Additionally, the mechanisms whereby bovine viral diarrhea virus (BVDV) causes primary respiratory infection along with immunosuppression as well as reproductive pathologies in cattle, sheep, goats, or pigs will also be investigated. Animal Hazard Control Forms detailing biosafety and biosecurity measures are available for all approved animal protocols. Briefly, (A)BSL-2 biosafety/biosecurity measures will include limiting contact with infected animals to authorized study personnel, avoiding trafficking to other areas of the research facility after handling infected animals, rigorous disinfection of contaminated surfaces, suitable PPE, etc. The committee approved the registration as written.

#421-17 (Matt Cooper) Recombinant DNA Registration, III-D-4-a, 3-year rewrite

Dr. Cooper's research focuses on neural mechanisms that control resistance to social stress disorders using adeno-associated viral (AAV) or canine adenoviral (CAV) vectors overexpressing designer muscarinic-like receptors in specific neural circuits. Briefly, viral particles expressing designer receptors will be introduced into select brain regions of Syrian hamsters and pharmacologically activated to determine the effects on resistance to social stress. Viral vector constructs will be purchased at challenge titer from the core facilities (i.e. no *in vitro* construction or propagation procedures will be conducted in Dr. Cooper's laboratory). The committee approved the registration as written with containment set at (A)BSL-1.

Old Business:

Administrative Report (March/April)

i. Contingencies

Following up on January 18, 2017, IBC meeting, Dr. Jessica Budke's registration (#448) was corrected by the PI to clarify 2-FA-resistance in the non-technical summary and corrected citations in the technical summary. Following up on the March 29, 2017, IBC meeting, Dr. Andreas Nebenfuehr's registration (#177-17) was corrected administratively to include the aims and objectives from the nontechnical summary in the technical summary.

ii. *Administrative Approvals*

Dr. Elizabeth Howell's amendment to registration (#396-15) to include: 1) the addition of recombinant *E. coli* BL-21 expressing aminoglycoside modifying enzymes (transferred from retiring BCMB faculty), and 2) the addition of *Streptomyces ribosidificus* and *Streptomyces fradiae* (Risk Group 1) for the production of (unmodified) aminoglycosides, was approved administratively by the IBC Chair. Dr. Jeremiah Johnson's amendment to his registration (#441) to include the addition of human fecal samples from a collaborator in Columbia (CDC-permitted) to be used for i) metabolome analysis, ii) microbiota analysis, and iii) micronutrient analysis was administratively approved by the IBC Chair.

iii. *Administrative Terminations*

Dr. Seung Baek's registration (#229-14) was administratively terminated (PI relocation), and all registered materials were either transferred to the new institution or destroyed. Dr. Steven Ripp's registration (#269-15) was administratively terminated (inactive), and all materials will remain in secure storage in SERF. Dr. Chunlei Su's registration (#417) was administratively terminated (inactive), and all registered materials will remain in secure storage in his lab. Drs. Susan Pfiffner's and Steve Ripp's registration (#438) was administratively terminated (project complete), and all registered materials will remain in secure storage in SERF.

iv. *Administrative Exemptions:*

- Dr. Scott Lenaghan's use of low risk recombinant constructs in *E. coli* K-12 or cell culture (III-F-8/Appendices C-I (cell culture) and C-II (*E. coli* K-12)) was administratively exempted on 1/26/2017.
- Dr. Phillip Meyer's use of low risk recombinant constructs in *E. coli* K-12 (III-F-8/Appendix C-II) was administratively exempted on 2/14/2017.
- Dr. Larry Millet's transfer and breeding of transgenic rodents at BL-1 and use transgenic tissue explants in culture (III-F-8/Appendices C-I (tissue culture) and C-VII/C-VIII (transgenic rodent transfer and breeding)) were administratively exempted on 2/21/2017.
- Dr. Jan Mannik's use of low risk recombinant constructs in *E. coli* K-12 (III-F-8/Appendix C-II) was administratively exempted on 2/27/2017.
- Dr. Jill Mikucki's use of low risk recombinant constructs in *E. coli* K-12 (III-F-8/Appendix C-II) was administratively exempted on 3/9/2017.
- Dr. Paul Dalhaimer's transfer and breeding of transgenic rodents at Biosafety Level 1 (III-F-8/Appendices C-VII/C-VIII (transgenic rodent transfer and breeding)) was administratively exempted on 4/6/2017.

v. *Accidents, Injuries/Exposures:*

Necropsy-related injuries/exposures, most notably:

- Two students cut by scalpels contaminated with NHP (chimpanzee) materials, one seeking medical attention the other following basic first-aid and self-treating. Although the specimen was from the Knoxville Zoo, had a comprehensive health history, and the zoonotic potential was relatively low, the disparity in risk assessment and medical follow-up was concerning. The Biosafety Office contacted Dr. Robert Donnell in Biomedical/Diagnostic Sciences with several questions regarding policy/procedure related to necropsy and injuries/exposures. Dr. Donnell assured that CVM Necropsy will compile and clarify safety and post-exposure/medical follow-up procedures.
- Two staff exposed to leptospirosis (calf). Both sought medical evaluation and were prescribed antibiotic prophylaxis per necropsy exposure response procedures for leptospirosis.

vi. Laboratory Report

No major findings.

iMedRIS Update & Manual Reviews

Jessica Woofter gave a brief overview of the training manuals for the following iMedRIS IBC forms: Initial Registration, Amendments, Annual Updates, and Three Year Rewrites. Jessica also completed the IBC Member Guide and trained the committee on the review process in iMedRIS.

Joint IBC/IACUC Policy on Recombinant DNA Use in Veterinary Clinical Trials

Brian notified the committee that the policy has been finalized and is available for their review.

Medical Waste Contractor – Advantra Updates

The Advantra transition is ongoing. A few minor concerns have been reported, but Advantra has been very responsive and quick to resolve the issues.

New Business:

Status of Chair & Vice Chair

Brian notified the committee that Dr. Nobles has appointed Dr. David White, Professor & Associate Dean of AgResearch, as the Chair, beginning July 1, 2017. Dr. Liz Fozo will has been appointed as the Vice-Chair.

Laboratory Safety/Compliance Awareness Survey

Brian notified the committee that the Biosafety Office in conjunction with the Laboratory Safety Committee have developed a Safety Awareness Survey. The Biosafety Office will be distributing the survey to the research community soon.

The meeting was adjourned at 4:12 PM. The next meeting is tentatively scheduled for 3 pm on May 17, 2017 in PBB 410.

New Business:

Committee Appointments – Term Expirations (July 1, 2017)

Brian notified the committee that Dr. Hajimorad will be stepping off the committee on July 1, 2017.

Status of Chair & Vice Chair

Brian notified the committee that Dr. Fozo has agreed to be the Vice Chair for the new term. Dr. Nobles has appointed Dr. David White to serve as the Chair in the upcoming term as of July 1, 2017.

Laboratory Safety/Compliance Awareness Survey

Brian notified the committee that the Biosafety Office in conjunction with the Laboratory Safety Committee have developed a Safety Awareness Survey. The Biosafety Office will be distributing the survey to the research laboratory community on campus.

The meeting was adjourned at 4:12 PM. The next meeting is tentatively scheduled for May 17, 2017 in the Plant Biotechnology Bldg., Room 410 starting at 3 pm.