MINUTES OF THE INSTITUTIONAL BIOSAFETY COMMITTEE MEETING
September 16, 2015
3:00 PM, 410 Plant Biotechnology Building

MEMBERS PRESENT: Jun Lin, Chair; Patti Coan, Vice Chair; Seung Baek, David Bemis, Tamara Chavez-Lindell, Doris D'Souza, Elizabeth Fozo, Reza Hajimorad, Al Iannacone, Brittany Isabell, Reggie Millwood, Jae Park, Deidra Mountain

Ex-Officio –Brian Ranger, Mark Smith, Jessica Woofter

MEMBERS ABSENT: Paul Dalhaimer, Melissa Kennedy, Ling Zhao

OTHERS PRESENT: Dr. Ahmed Bettaieb

Opening:

The meeting was called to order by the Chair, Jun Lin at 3:00 PM. Minutes of August 19, 2015, were reviewed and approved as written. There was one abstention.

IBC Applications:

#342-15 (Jonathan Wall) Recombinant DNA & Human Derived Materials, III-D-4-a & III-E, 3-year rewrite

Dr. Wall's registration includes the use of a commercial phage library systems, which contain recombinant DNA that expresses the genetic code for producing random peptides or antibody fragments (scFv). The library will be used to identify and isolate particular peptides and antibody fragments that can bind ligands of interest, such as amyloid or heparan sulfate, a sugar molecule that is found in amyloid deposits such as those that form in the brains of patients with Alzheimer's disease. Secondly, the study will involve isolation of RNA from patient tissues or cells, generation of cDNA by reverse transcription (primed for genes encoding amyloidogenic proteins, including immunoglobulin light chains, ODAM, apolipoprotein, and galactin-7), and cloning into a bacterial expression system (pET27B) for *E. coli*-based protein expression and isolation. Ultimately, these proteins are used to study the disease (cancer and amyloidosis) and to design new effective methods of diagnosis and treatment. Thirdly, the study will involve expressing proteins of interest isolated from patient samples, or synthetic genes that are commercially produced, in human cells (e.g. HEK, MCF7, HeLa, and A375). Recombinant cell lines will then be xenografted into mice to generate tumors and study the effects of expressed proteins. These studies will lead to a better understanding of the disease (cancer and amyloidosis) and provide test beds for developing new therapies. Lastly, the study involves the extraction of human amyloid or light-chain proteins from donated organs obtained at autopsy, or urine, respectively. This material will be used in laboratory studies and injected into mice to generate mouse models of the disease. The committee approved the registration pending revision of the registration title to include all the aims of the registration. Work with scFv and recombinant *E. coli* was approved at BSL-1; procedures involving human derived materials, human cells lines, and xenografted mice were approved at BSL-2.

#432 (Ahmed Bettaieb) Recombinant DNA, Infectious Agents & Human Derived Materials, III-D-3-a, new registration

Dr. Ahmed Bettaieb was present to discuss proposed studies 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) knock down 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 for generation of 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 can be 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 approved the registration pending: 1) completion of lab setup including installation of a Class II biosafety cabinet (order pending); 2) the addition of the IACUC approval for transgenic mice (approval #2373); 3) updating training information for listed personnel (Dr. Bettaieb will need to complete BSL-2, bloodborne pathogens, and nonhuman primate risk awareness training); and 4) minor corrections/clarifications. Brian Ranger will update the committee on these items at the next scheduled meeting.

Old Business:

Administrative Report

Brian Ranger provided the committee with the administrative report. Following up on August 19, 2015 IBC meeting, Dr. Alison Buchan's registration (#431) was corrected to include a revised non-technical statement.

BSL-3 Progress Updates

Brian updated the IBC on the progress of the BSL-3 laboratory. The lab is pending some equipment, balancing, and security controls adjustments. Dr. Jonsson is awaiting the delivery of her biosafety cabinet, tentatively scheduled to arrive on 9/30/15. Southeastern Certification (Chattanooga, TN) has been scheduled to complete the BSC/exhaust HEPA filter inspections in early October. The University of Tennessee Health Science Center RBL facilities staff will be scheduled to do the mechanical verification testing after the HEPA certifications are completed.

Policy & Teaching Lab Framework Updates

Brian updated the committee on updates for the campus biosafety policy & teaching lab framework. He received a few minor comments from the UTK lab campus safety committee. Dr. Nobles has given a list of various groups who should review these documents prior to final implementation.

iMedRIS Updates

Brian, Jessica, and Dr. Nobles met with Patricia Paige on 9/15/15 about iMedRIS. A draft form will be ready by 11/1/15 and will be available for beta testing on 1/1/16. The target date for launching the new module will be 7/1/16.

Biosafety Specialist Update

Linda Hamilton was selected to fill the Biosafety Specialist position. An offer letter has been drafted and sent for approval.

New Business:

Annual Refresher Training

Brian reminded the committee that annual refresher training modules will be sent in October. He asked the committee for suggestions or ideas concerning the annual training.

EHS Academy – Dr. Bob Emery

The UTK-are safety groups are co-sponsoring *"The Environmental Health & Safety Academy"* with The Southwest Center for Occupational and Environmental Health for October 19th & 20th**.** The course will be given at the University of Tennessee Conference Center. Dr. Bob Emery and Dr. Janelle Rios from University of Texas Health Sciences Center at Houston will be the principal speakers.

Center for Environmental Biotechnology Spill/Exposure-NIH OBA Incident Report

Brian notified the committee of a small scale spill and exposure that involved recombinant human cells stably transduced with a replication-deficient lentiviral vector carrying bioluminescence genes from *Photorhabdus luminescens* (*lux* operon). Briefly, a small amount of cell culture material leaked onto a research technician as she held the culture flask up for viewing. The individual was wearing appropriate PPE, the spill only contacted intact skin, and was deemed an insignificant risk upon medical evaluation. Because the recombinant cells were approved at BSL-2, the overt exposure was immediately reported to NIH OBA. Brian has investigated the incident and recommended corrective actions to include tightening of cell culture flask lids and using a microscope/stable platform (e.g. inverted microscope) for cell viewing. The principal investigator has updated the laboratory SOPs to include these recommendations and informed all lab personnel. The IBC commended the research technician and PI for conforming to PPE requirements and properly following emergency response procedures, including promptly notifying the Biosafety Officer. Brian was also commended for the follow-up investigation and notifying NIH OBA as required. The IBC also suggested circulating a redacted version of the incident report to the UT Biosafety Listserv and possibly using this example in this year's refresher training.

The meeting was adjourned at 3:40 PM.

The next meeting is tentatively scheduled for October 21, 2015 at 3 PM in 410 Plant Biotech Building.