Boston University
Institutional Biosafety Committee (IBC)
January 28, 2020 Meeting Minutes
Location: Medical Campus, B-406, 72 East Concord Street
Start time: 12:03pm End time: 2:05pm

This meeting is open to the public.
Members Present: R. Ingalls (arrived 12:08 pm), E. Muhlberger, B. Slack, R. Timmerman, C. Abraham, T. Winters, J. Keeney, J. Barton (arrived 12:23 pm; left 1:05 pm), C. Sulis, R. Morales, V. Britton, R. Varada (left 2:00 pm), S. Kurnick, E. Loechler (via Zoom), R. Georgiadis (via Zoom; arrived 1:00 pm)
Guests Present: M. Auerbach, A. Ahmed, N. Yun, F. Ennever, T. Killeen, Diane Lindquist
Staff Present: J. Hutchinson (via Zoom), S. Ghosh, C. McGoff

I. Review of December 2019 Meeting Minutes

No questions or comments were voiced.
Motion: Approve
For: 13; Against: 0; Abstain: 0; Absent: 2

II. New Business

A. Safety Committees Program (SCP) Report

Update on 11/22/19 Eye Exposure - E. Coli Incident: The committee was informed of requested follow-up with EHS. EHS staff reported that it is believed that the researcher wasn't wearing any eye protection because she didn't think there was potential for an eye splash hazard associated with the activity. When she opened the tube's cap, the material flung up into her eye unexpectedly. EHS staff reported that the researcher now understands that this hazard exists when opening pop-cap style tubes, that the lab has eye protection, and that the lab is now very diligent in wearing eye protection when performing all research activities. It was noted that the protocol covering this work indicates the use of eye protection and that this incident was reported to NIH OSP and the BPHC; NIH OSP indicated that they had no further questions.

BPHC Permits: ORI staff are coordinating with EHS and BMC to submit permit applications to the BPHC by January 31, 2020.

B. Research Occupational Health Program (ROHP) & Environmental Health & Safety (EHS) Report
ROHP Report:

ROHP Report: On 1/8/2020, A PhD scientist called to report that he was concerned that he had sustained a biological exposure to a cut on his right wrist. He was wearing two pairs of gloves, a lab coat and googles to perform "an exchange" of BSL2 waste from a one-liter flask that contained approximately 100ml of Wescodyne plus sell culture waste when he noticed some of the waste got on his gloves, lab coat and possibly his wrist. He removed the outer pair of gloves, put on a new pair of gloves over the first pair and continued the process of exchanging the waste. Once finished with the exchange process, he washed his hands and arms with bleach. After washing with bleach, he noticed a pinpoint cut on his right wrist which he squeezed to see if the wound was fresh and noticed blood. He denied any known sharp injury. He is not sure if the cell culture waste touched this pinpoint wound or not. The researcher reports that the BSL2 flask contained human cell lines (commercial HeLa cells, immortal human fetus non-cancerous liver cells) and cow serum. This incident was extremely low risk for any blood borne pathogen exposure as the cell waste was diluted in an iodine disinfectant additionally, he is not 100% sure that the waste even contacted his pinpoint wound. The researcher was educated on the low exposure risk and post exposure prophylaxis was not recommended; the researcher followed up with ROHP. This incident was reported to the BPHC.

On 1/27/20, a laboratory supervisor called ROHP to report that a 3rd year PhD student had just accidentally sustained a pinpoint cut from a scalpel she used on frozen (unfixed) human brain material. The human brain

tissue was from a de-identified source from a Brain Bank that had been in a minus 80 refrigerator for months. The researcher reported she was wearing two pairs of gloves, goggles, face mask, and a lab coat while working under a fume hood cutting the human brain tissue on dry ice when she accidentally slipped and hit her left hand between the thumb and index finger. She washed immediately with soap and water. Source information was obtained: the tissue was from a 93-year-old male patient who had Alzheimer's and had negative serology for Hepatitis B, C, HIV and RPR. The PhD student being up to date with Hepatitis B documentation and Tdap vaccination was educated regarding wound care and no risk for blood borne pathogen exposure.

EHS Report: Both incidents are still under investigation.

EHS has prepared guidelines for BSL2 plus practices based on prior IBC discussion regarding work with HIV. The guidelines are based on feedback from Dr. Henderson and Dr. Gummuluru and will be provided to the IBC for review. It was noted that Dr. Anderson removed the use of recombinant HIV from her protocol. Members discussed that it may be worthwhile to recruit a member who has experience working with HIV to serve on the IBC.

III. Protocol Review

1. rDNA/Bhz Amendment

BUA	(PI)	Title	BSL	ABSL	Campus
1888		Host Response to Filovirus and Henipavirus Infections	4	N/A	BUMC

Primary Reviewer: Robin Ingalls	Secondary Reviewer: Nadya Yun

Applicable NIH Guidelines: Section III-D-1-c and III-D-1-a

Meeting Comments: The PI is adding recombinant Henipaviruses to this protocol and is already approved to work with wildtype Henipaviruses in another protocol. The PI is approved to use rDNA to generate recombinant Filoviruses; similar studies are being proposed to generate recombinant Henipaviruses. Importantly, the PI states that there will be no mixing of the genes from henipa and filoviruses. Handling of the viruses, including inactivation steps, is carefully described. It was noted that both Hendra and Nipah viruses are classified as Risk Group 4 viruses and are select agents. The recombinant viruses are generally attenuated or grow similar to wildtype virus. These viruses will be handled in the BSL-4 laboratory using BSL-4 procedures and practices. It was noted that an Agent Information Sheet for these agents exists.
The PI was not present for the vote.

Motion: Approve	For: 13	Against: 0	Abstain: 1	Absent:	Recused: 1

2. rDNA/Bhz- Three-Year Renewal

BUA	(PI)	Title	BSL	ABSL	Campus
542		Enhancing Collectin Mediated Host Defense Against Influenza	2	2	BUMC

Primary Reviewer: Barbara Slack	Secondary Reviewer: Susanna Kurnick

Applicable NIH Guidelines: Section III F, Appendix C-2

Meeting Comments: This protocol investigates how host cells protect themselves against influenza virus infection. The protocol includes use of human cells, primary human cells, saliva samples, and expression of human proteins through plasmid vectors. Common influenza virus strains will be used which no longer cause disease in healthy adults. Bacterial strains associated with cold will also be used. Animals infected with these viruses will be challenged with mutated cellular proteins to determine effect on infection, and to better understand molecular pathogenesis. It was noted that animal work will be done on the 8th floor of the W building per the protocol.

- Ensure the PIs ROHP clearance is current.
- Clarify procedures in place for animal use throughout the protocol; an animal inoculation SOP should exist if animals will be inoculated.

- Section IV: confirm that no animal experiments will be performed in these spaces.
- Provide current IACUC information (as requested in the application).
- Clarify where blood and saliva samples from healthy volunteers will be collected; provide current requested IRB information if human sample collection is ongoing (indicated IRB approval has long expired).
- Contact BMC's Hospital Epidemiologist (as requested in the application) given the use of blood and saliva.
- Section VIII.1: check animal handling.
- Uncheck 'synthetic DNA' box in Section IX (Materials Used in Research).
- Update IACUC approval numbers with new numbers. PI does not have any IACUC protocol currently.
- Saliva should be listed in Section B table.
- Only one (1) collectin gene (surfactant protein D) is listed in the rDNA table (in Section H) however, the procedures section indicates that a number of collectins and defensins will be studied. Provide a more complete list of genes and vectors (e.g. pCR2.1) that will be expressed in the proposed experiments.
- Clarify if knock-out animals are used. Section A indicates 'yes' however the rDNA section indicates 'no'.

BUA Site Assessment: ECP is in place; PI will submit questionnaire to ROHP; BSC's are certified; storage of biohazardous materials are in X-410, not in E-424 or E-410 as written; IRB approval will expire in June.

Motion: Conditional Approval (Administrative Review)	For: 14	Against: 0	Abstain: 0	Absent: 1

3. Bhz - Three-Year Renewal

BUA	(PI)	Title	BSL	ABSL	Campus
1782		Cell Force Sensing siRNA Loaded Hydrogel Nanoparticles Impedance Sensing Fabricated Computed Tomography Contrast Agents Scalable Nanomanufacturing	2	N/A	CRC

Primary Reviewer: Elke Muhlberger	Secondary Reviewer: Ron Morales

Applicable NIH Guidelines: N/A

Meeting Comments: The PI chemically modifies nanoparticles embedded in hydrogel to use as a carrier of test molecules. Modified hydrogel nanoparticles will be used in cultured cells to determine their efficacy in delivering siRNA molecules to the cells. Members discussed that BU has a Nanomaterials Subcommittee and that ad hoc reviewers can be contacted when expertise is needed. It was noted that the PI is using small quantities of nanomaterials.

- Include a brief description of the procedure of hydrogel nanoparticle fabrication (with an emphasis on biosafety).
- Clarify if all experiments with hydrogel nanoparticles are carried out in a BSC.
- Provide the source of bovine blood.
- Provide the IRB information requested in the application.
- Procedures for collection of human and cow blood should be updated.
- Contact Dr. Carol Sulis regarding collection and safe handling of human blood samples and provide information requested in the application.
- Check 'Pipetting Infectious Liquid'.
- Describe how nanoparticle waste is decontaminated and disposed of (should be collected separately and labeled with "Nanoparticle waste").
- Check the 'Other Potentially Infectious Materials' box for use of human blood samples and complete section B.
- Remove rat and porcine cell lines from the Hazardous Biological Agents list.
- PI and lab personnel need to complete Bloodborne Pathogens Training.
- PI and lab member need to complete Chemical Safety Training.
- Provide more information on the chemical composition of the polymer nanoparticle.
- Clarify how liquid biological waste mixed with hydrogel nanoparticle is inactivated and disposed.

BUA Site Assessment: ECP is in place; BSC's are certified; and training is current.

Motion: Conditional Approval (Administrative Review)	For: 14	Against: 0	Abstain: 0	Absent: 1

4. Bhz - Three-Year Renewal

BUA	(PI)	Title	BSL	ABSL	Campus
940		Immunopotentiating ability of Neisserial Porins	2	2	BUMC

Primary Reviewer: Elke Muhlberger | Secondary Reviewer: Rao Varada

Applicable NIH Guidelines: N/A

Meeting Comments: The PI investigates host cell response against infection from Neisseria meningitidis. Host cells are infected with live or heat killed bacteria. Members discussed that animal use needs to be clarified including the mice being used and the ABSL level. Use of rDNA should also be clarified and described if appropriate. It was noted that a vaccine does exist for the strain of Neisseria meningitidis being used and that two (2) lab personnel have been vaccinated and two (2) lab personnel need to be vaccinated.

- Update experience information for Rios and provide updated training information for Lawson.
- Add room number for animal work; uncheck ABSL2 for NEIDL room 502M.
- Clarify if bacteria are inactivated by adding 10% bleach or if the final bleach concentration is 10% (should be the latter).
- Animal work is not described (isolation of cells, where and how, IACUC protocol number missing). If only cells are being isolated for the *in vitro* work, it would be ABSL1.
- Indicate if knockout mice are being used or any recombinant bacteria is being used.
- If any genetically modified bacteria are being used, the rDNA section of the application (section H) needs to be completed.
- For liquid waste disposal, replace "Broth cultures will be treated with 10% fresh bleach" with "Bleach will be added to broth cultures to a final concentration of 10%".
- Add a "leak-proof, shatter proof secondary" container for transport.
- The language on page 12 indicating that no vaccine is available should be removed, this is not accurate.

BUA Site Assessment: M. Larson needs to submit a health questionnaire; Ralph needs to complete training; and the BSC is certified.

Motion: Conditional Approval (Administrative Review)	For: 13	Against: 0	Abstain: 0	Absent: 2

5. rDNA/Bhz - Three-Year Renewal

BUA	(PI)	Title	BSL	ABSL	Campus
1260		DEFINING CELL POLARITY AND HIPPO PATHWAY SIGNALING IN DEVELOPMENT AND DISEASE	2	2	BUMC

Primary Reviewer: Carmela Abraham | Secondary Reviewer: Rao Varada

Applicable NIH Guidelines: Sections III-D-1-a, III-D-2-a, III-D-4-a, III-E-1; Appendix B-II and G-II-B

Meeting Comments: This research focuses on understanding the molecular mechanisms coordinating cell growth with cell fate. They are particularly interested in the roles and regulation of the Hippo pathway, an essential regulator of the development of numerous organs. Dysregulated Hippo pathway activity is associated with a range of diseases, including several forms of cancer. They are using genetic and biochemical approaches to understand how Hippo signaling integrates extrinsic signals (e.g. growth factor and mechanical environment) with cell polarity cues to direct key events in development and disease. The studies will use established and commercially available (e.g. ATCC) mouse and human cell lines, as well as primary cells isolated from mice (e.g. primary airway epithelial cells obtained from tracheas of mice). All animal experiments are approved by the IACUC. They will use routine techniques such as transfections, RNAi, PCR, and western blotting. As an alternative method to express or knockdown gene function they will also make use of HIV-1-based, lentiviral and adenoviral delivery systems (vectors obtained from Addgene or Clontech). It was noted that training dates appear outdated for several lab personnel; it was clarified that this is because the training dates do not update unless the reviewer downloads the protocol in RIMS.

BUA Site Assessment: ECP is in place; the PI has current ROHP clearance; several lab personnel need BBP training; and the fume hood and BSC have been certified.				
Motion: Approve	For: 13	Against: 0	Abstain: 0	Absent: 2

6. Bhz - Three-Year Renewal

BUA	(PI)	Title	BSL	ABSL	Campus
1900		Infant Coping and Development Study	2	N/A	CRC

Primary Reviewer: Carol Sulis	Secondary Reviewer: Valeda Britton			
Applicable NIH Guidelines: N/A				
Meeting Comments: The study involves collection of hair and saliva samples from parents and their children for analysis of cortisol levels. Sample collection is occurring in a room with a carpet; a mat is being used over the carpet. Appropriate PPE is used for sample collection and instruments are disinfected between participants. Samples are shipped elsewhere for analysis. BUA Site Assessment: A plastic mat is being used over the carpet; the space is setup as an office used for sample collection.				
Motion: Approve	For: 14	Against: 0	Abstain: 0	Absent: 1

7. rDNA/Bhz - Three-Year Renewal

BUA	(PI)	Title	BSL	ABSL	Campus
2190		Feedback, Noise, and Dynamics in Synthetic and Natural Gene Circuits	2	N/A	CRC

Primary Reviewer: Ed Loechler	Secondary Reviewer: Jim Keeney			
Applicable NIH Guidelines: Section III-D-1-a, III-D-2-a, III-F-8 (exempt experiments); Appendix B-I, B-II-A and C-II				
Meeting Comments: The lab uses dynamic and single-cell level experiments to study how microorganisms respond to changes in their environment. Applications include: (1) Understanding antibiotic resistance, where substantial variation in resistance levels can exist between bacteria; (2) Engineering genetic circuits to improve biofuels synthesis (and other bioproducts); and (3) Developing precise, programmable engineering tools for feedback control in bacteria, for example using light and optogenetic methods to precisely regulate expression of genes in real-time. Work with E.Coli is done at BSL-1 and BSL-2 is used for work with other bacteria. Members discussed that given similar techniques, it is appropriate to have all work covered in one (1) protocol. It was noted that ROHP will provide agent specific training. • The protocol indicates that unexperienced personnel will be trained by I. Meouche however, this individual is not listed as a personnel; clarify who is providing training and their qualifications to do so. • Efflux pumps mentioned in Section H.1. appear to be from Pseudomonas putida, Pseudomonas Aeruginosa, Marinobacter aqueolei, and Alcanivorax borkumensis. This seems to contradict statements in Section VII.3, which implies that: “Plasmids containing efflux pumps from E. coli (K-12 strains described above) will be introduced in Salmonella Typhimurium.”; this should be clarified/reconciled. • Provide the current BSC certification date. BUA Site Assessment: The BSC is certified.				
Motion: Conditional Approval (Administrative Review)	For: 14	Against: 0	Abstain: 0	Absent: 1

8. Bhz - Three-Year Renewal

BUA	(PI)	Title	BSL	ABSL	Campus

837		Iodine, Perchlorate, and Thiocyanate: Effects on Thyroid Function in Pregnant Women	2	N/A	BUMC
Primary Reviewer: Tom Winters		Secondary Reviewer: Bob Timmerman			
Applicable NIH Guidelines: N/A					
Meeting Comments: The study continues to evaluate paraclorate, thiocyanate (product of cigarette smoke), and nitrate as inhibitors of iodine uptake in the thyroid gland. They will study perchlorate, iodine, creatinine, thiocyanate, TSH, free T4, cotinine, and thyroid antibodies from urine and blood from pregnant women and newborns. Leakproof shatterproof containers are used for transport from the clinics to the laboratory. Urine will be stored in room E-205. • Contact Dr. Carol Sulis and provide the information requested in the application. BUA Site Assessment: A ECP is in place; and the chemical fume hood is certified.					
Motion: Conditional Approval (Administrative Review)	For: 14	Against: 0	Abstain: 0	Absent: 1	

9. Bhz - Three-Year Renewal

BUA	(PI)	Title	BSL	ABSL	Campus
1136		Research Program in the Coronary Health Unit	2	N/A	BUMC
Primary Reviewer: Rosina Georgiadis		Secondary Reviewer: Jim Keeney			
Applicable NIH Guidelines: N/A					
Meeting Comments: This 3-year renewal continues to use BSL-2 laboratories in the New Evans Building as well as three Core facilities for analysis of endothelial cells and other tissues obtained by autopsy, not deviating from the Cores' standard operating procedures. It was noted that if shipping is occurring, then lab personnel need to complete shipping training. • Contact Dr. Carol Sulis and provide the information requested in the application. BUA Site Assessment: BSC and fume hood is certified.					
Motion: Conditional Approval (Administrative Review)	For: 14	Against: 0	Abstain: 0	Absent: 1	

10. rDNA/Bhz - Amendment

BUA	(PI)	Title	BSL	ABSL	Campus
1409		Replication and Transcription of Filoviruses Early Host Immune Response in Protection against Filovirus Infection	2	N/A	BUMC
Primary Reviewer: Barbara Slack		Secondary Reviewer: Ron Morales			
Applicable NIH Guidelines: III-D-1-a, III-D-2-a, III-D-3, III-E-1, III-F, Appendix B, Appendix G					
Meeting Comments: Nipah and Hendra virus expression plasmids (not the infectious virus) are being added to the rDNA section. Members discussed that the listing of shared space with Dr. Duprex is appropriate. • Include Henipaviruses in the protocol title. *The PI was not present for the vote.*					
Motion: Conditional Approval (Administrative Review)	For: 13	Against: 0	Abstain: 1	Absent: 1	

11. rDNA/Bhz – Annual Renewal

BUA	(PI)	Title	BSL	ABSL	Campus
2092		Analysis of small RNA processing during vertebrate embryogenesis	2	1	BUMC
Primary Reviewer: Robin Ingalls		Secondary Reviewer: Susanna Kurnick			
Applicable NIH Guidelines: Section III-D-1-a; III-D-2-a, III-D-4-a, and III-E-1					

Meeting Comments: It was noted that the use of inactivated material is not a biohazard. The PI is approved to use human cell lines; therefore, addition of another human cell line is consistent with the work already approved. The PI has rDNA approval and addition of new commercial plasmids for expression is consistent with the work already approved. It was noted that NEIDL investigators inactivate material according to approved SOP's and a certificate of inactivation is provided. It was noted that zebrafish embryos are not considered animals.				
Motion: Approve	For: 13	Against: 0	Abstain: 0	Absent: 2