Boston University
Institutional Biosafety Committee (IBC)
June 20, 2023 Meeting Minutes
Location: Zoom and/or by phone
Start time: 12:00 PM End time: 1:32 PM

Members Present:	R. Ingalls, B. Slack, E. Muhlberger (left 12:51 PM), R. Davey, I. Afasizheva, V. Gouon-Evans, T. Winters, R. Morales, C. Thurman, S. Niemi, J. Keeney, V. Britton (joined 12:49 PM), N. Dey, S. Ghosh
Guests Present:	A. Ahmad, T. Killeen, M. Fitzgerald, A. Broos-Caldwell, J. Wood, P. Richmond, J. Davis, E. Ercolino
Staff Present:	C. McGoff, L. Campbell

I. Review of May 23, 2023 IBC Meeting Minutes

No concerns were voiced.
Motion: Approve
For: 13; Against: 0; Abstain: 0; Absent: 1

II. Chair Report:

The Chair suggested biosafety cabinet and fume hood recertification questions be moved to the BUA as EHS is now responsible for those certifications; it was noted that the information should remain in the RIMS protocol and PI may continue to list biosafety cabinet room locations.

III. New Business:

A. IBC Office Updates:
- Members were informed that IBC members' recently suggested changes in RIMS were in process; the updated Research Compliance websites are now live, and IBC staff is working on including sample applications on the website.

B. Incident Report:
- Members were provided with an update on the May 10th NEIDL incident after-action report by the NEIDL BSO which outlined the corrective actions taken following the incident.

C. Review of Research Occupational Health Program (ROHP) Report: Nothing to report.
D. Environmental Health and Safety (EHS) Report: Nothing to report.

IV. Protocol Review

1. rDNA/Bhz – Annual Renewal

BUA	(PI)	Title	BSL	ABSL	Campus
2375	Robert Davey	Evaluation of treatments for high containment viruses using rodents	4	4	BUMC
Primary Reviewer: Elke Muhlberger			Secondary Reviewer: Steve Niemi Additional reviewer: Guillermo Madico		
Applicable NIH Guidelines: III-D-4-a. This discusses the delivery and expression of proteins from RNA molecules in animals.					
Meeting Comments: This protocol is to screen small molecule drugs or antibodies against hemorrhagic fever viruses and other emerging viruses such as coronaviruses for identifying new candidates that may be useful by themselves or in combination to treat patients. Candidates identified in *in vitro* screening studies will be further evaluated in rodent animal models of the disease. The current submission is an annual renewal where only few minor changes have been made which include addition of one personnel, update of biosafety cabinet certification dates and IACUC approval dates and also updates on funding information. It was noted that this is a well-written, clear protocol that thoroughly describes safety-relevant procedures. PI recused himself from voting.					

Motion: Approve	For: 12	Recuse: 1	Against: 0	Abstain: 0	Absent: 1

2. rDNA – New Application

BUA	(PI)	Title	BSL	ABSL	Campus
2614	Carla Romney	Learning IMAC (immobilized metal affinity chromatography) with His-tagged GFP	1	N/A	CRC

Primary Reviewer: Sajal Ghosh	Secondary Reviewer: Robin Ingalls

Applicable NIH Guidelines: Sections III-D-2-a

Meeting Comments: This new protocol is from the CityLab teaching program for high school students. This particular program provides hands-on experience on how to purify his-tagged proteins by new Immobilized Metal Affinity Chromatography (IMAC) technique and to visualize them. This short one-week program is meant to invigorate interest in biological processes in high school students that could be useful in their college application and future research interest. CityLab staff will transform a commercially purchased plasmid that has N-terminal his tag and coding sequence for green fluorescent protein, into HB101 competent cells. Transformed cells will be grown and lysates will be prepared by Citylab Staff. Students will only be working with this lysate. EHS will provide classroom training to these students on laboratory and biological safety. Culture wastes will be treated with bleach to a final 10% concentration and surface decontamination will be done with 70% ethanol or 10% freshly made bleach. Students will be made to wash hands before entering and exiting the lab. The following will be communicated to the PI:

- Liquid chemical wastes may be collected in satellite accumulation area and picked up by EHS, but autoclaving is not necessary. Please modify the first sentence.
- Remove the second sentence about buffer disposal directive completely (this is not a biohazard concern).
- The last sentence that describes bleach treatment and sink disposal of bacterial culture waste, should stay as it is.
- Please contact Biosafety Officer Dr. Nilay Dey for laboratory site assessment. This must be completed for the approval of the protocol.

BUA Site Assessment: Since this protocol was submitted just one day before the IBC meeting; BUA has not been scheduled yet.

Motion: Conditional Approval (Administrative Review)	For: 13	Recuse: 0	Against: 0	Abstain: 0	Absent: 1

3. rDNA/Bhz – Three Year Renewal

BUA	(PI)	Title	BSL	ABSL	Campus
848	Gerald Denis	Uncoupling obesity from breast cancer in African American women; Mechanisms of BET bromodomain metabolic reprogramming in triple negative breast cancer	2	N/A	BUMC

Primary Reviewer: Robert Davey	Secondary Reviewer: Tom Winters

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

Meeting Comments: The goal of this protocol is to understand the immunological basis of insulin resistance and cancer risk and their relationship with Type 2 diabetes. Specifically, how dysregulation through bromodomain (BRD) containing proteins can lead to inflammation and then to diabetes and breast cancer. The main risk components are handling of human tissue samples that includes adipose (fat) and blood samples and cultivating human monocytes from donors. Tissue homogenization, centrifugation and vortexing each create aerosols that need to be contained. Universal precautions are stated as being used. Human cells lines are as well as mouse and human bone marrow will be used for recombinant DNA work. Each are transduced with a generation 3 lentivirus system for expression of genes. Genes of interest are BRD2, 3 or 4. These are transcriptional regulators and not oncogenes per se. If work with

oncogenes is done, double gloves and enhanced needle precautions should be adopted. Changes of personnel and lab space are included in this submission. Work is performed at BSL2 using a BSC and PPE that includes safety glasses, gloves and lab coat. Wescodyne (30 min exposure) and 10% bleach (20 min exposure) is used for decontamination of materials. Overall, appropriate precautions appear to be used. The following will be communicated to the PI:

- PI must be added to the Personnel list and associated questions must be addressed.
- Is [redacted] still working in the lab? If not please remove her name from the list.
- Following trainings need to be updated:
  - [redacted]: LST; BSL1/2; BBP, Chem Safety, rDNA/IBC policy
  - [redacted]: Chem Safety, rDNA/IBC policy
  - [redacted]: rDNA/IBC policy
  - [redacted]: rDNA/IBC policy
- ROHP clearance update needed for [redacted], [redacted], [redacted], [redacted], [redacted] n and [redacted]
- The new Rooms [redacted] and [redacted] need to be added.
- Add Wescodyne concentration (should be about 1% final). Change bleach contact time to 30 minutes.

BUA Site Assessment: The lab needs to update their locations as [redacted] and [redacted]. [redacted]-One vacuum line was not set up properly. Lentiviral vectors are currently stored in the lab and not being used. The bleach contact time should be 30 min. The lab only procures human blood and no solid tissue.

Motion: Conditional Approval (Administrative Review)	For: 13	Recuse: 0	Against: 0	Abstain: 0	Absent: 1

4. rDNA/Bhz – Three-Year Renewal

BUA	(PI)	Title	BSL	ABSL	Campus
835	Sean Elliott	Diversity of Redox Enzymes	2	N/A	CRC

Primary Reviewer: Inna Afasizheva	Secondary Reviewer: Bob Timmerman

Applicable NIH Guidelines: Section III-F-3, Appendix G-II-A

Meeting Comments:
This protocol studies on the understanding of the biological role of the iron, particularly its association as a cofactor for molecules involved in transferring energy in biochemical reactions across diverse species of living organisms. They study these iron-containing proteins from various organisms by either directly isolating from them or by expressing those proteins engineered recombinant expression vectors in non-pathogenic bacteria. Their research involve a few BSL1 bacterial organisms and one BSL2 bacteria *Burkholdeia thailandensis*. Project involves bioinformatic search for protein superfamilies that use similar protein folding with similar inorganic cofactor but possess unique functional properties. The goal is to uncover the molecular mechanisms responsible for diverse redox chemistry in these organisms. PI proposes using electrochemical, spectroscopic, and enzymatic analyses. Gene manipulations and their expression include plasmid vectors and bacterial strains that are harmless with respect to biosafety concerns. Laboratory procedures described for BSL1 organisms are well described and are suitable for BSL2 strain as well. The following will be communicated to the PI:

- ROHP clearance must be updated for all members.
- COVID-19 restriction statement may be removed from the current protocol as stated at the end of the laboratory procedures.
- Please update biosafety cabinet certification date.
- BUA site inspection must be completed before this IBC renewal may be approved. Please contact Biosafety Officer Dr. Nilay Dey (nilaydey@bu.edu) urgently to have this inspection completed.

BUA Site Inspection: PI has not been available yet for this inspection yet.

Motion: Conditional Approval (Administrative Review)	For: 13	Recuse: 0	Against: 0	Abstain: 0	Absent: 1

5. rDNA/Bhz – Three Year Renewal

BUA	(PI)	Title	BSL	ABSL	Campus
1932	Thomas Gilmore	Rel Homology Domain Signal Transduction Pathways in Basal Invertebrates	2	N/A	CRC

Primary Reviewer: Barbara Slack	Secondary Reviewers: Jim Keeney

Applicable NIH Guidelines: III-D-1-a, III-D-2-a, III-E-1

Meeting Comments: The goal of this study is to define the role of immune cell and developmental proteins in immune dysregulation diseases, using marine animals (corals, sea anemones, sponges, and single-celled protists), and other human and animal cell lines, as well as yeasts, as models. They transduce cells with plasmid or viral vectors (including avian spleen necrosis virus vectors, Murine Leukemia Virus (MLV), Murine Stem Cell Virus (MSCV), and lentivirus-based vectors) to express proteins in vitro or in bacterial, animal or human cells. All viral constructs are replication-deficient and will be packaged in BOSC23 or HEK 293T cells. In some experiments will introduce plasmids into S. cerevisiae. Their study include cDNAs cloned from a variety of eukaryotic species including mouse, human, chicken, sea anemone, coral, or other simple invertebrates. These cDNAs are generally genes in the NF-κB signaling pathway, or mutant versions of such genes from animal and human sources. They will use ^{32}P isotopes in some experiments to label DNA oligonucleotides for DNA mobility shift assays. PI indicated that some expressed genes may be oncogenic, and has provided a set of lab-specific guidelines for his personnel to follow when performing these experiments. Some of the expression plasmids will also be injected into sea anemones, corals and sponges. IACUC approval not required for these experiments. This is a well-written protocol. The following will be communicated to the PI:

- [redacted] needs to update rDNA training (last date 6/11/2020).
- ROHP clearance update needed for [redacted], [redacted] l and [redacted].
- Section VII.3- Please provide a brief description of the systems used to package the viral vectors, including the commercial sources, and specify whether the lentiviral system that will be used is second or third generation.
- Section VIII.5- Update BSC certification
- Section H. rDNA table- please provide the source(s) of the vector packaging system(s) that will be used.

BUA Site Inspection: PI has not been available yet for this inspection yet.

Motion: Conditional Approval (Administrative Review)	For: 13	Recuse: 0	Against: 0	Abstain: 0	Absent: 1

6. rDNA/Bhz – Three-Year Renewal

BUA	(PI)	Title	BSL	ABSL	Campus
2231	Nelson Lau	Genomic and biochemical studies of Piwi proteins and piRNA regulation mechanisms	2	2	BUMC

Primary Reviewer: Valerie Gouon-Evans	Secondary Reviewer: Colleen Thurman

Applicable NIH Guidelines: This work will conform to the latest NIH Guidelines for Research Involving Recombinant or Synthetic Nucleic Acid Molecules, Sections III-D-1-a, III-D-2-a and Appendix B-II of April 2016

Meeting Comments: The goal of this protocol is to investigate how Piwi pathway proteins and Piwi-interacting RNAs (piRNAs) regulate the function of transposable elements or transposons in various species and how they affect virus replication in cells. The lab uses cell culture and animal model systems (fish) or human brain tissues for their studies. The lab will be creating reporter genes that will be regulated by the endogenous Piwi and piRNAs in animal cells, and test methods to interrupt the function of the Piwi proteins and piRNAs in these systems. They ultimately want to determine the relationship between Piwi pathway mediated regulation of transposons and aging or infertility disease. In this protocol mosquito cells will be infected with mosquito insect virus and other pathogenic arboviruses such as Dengue, Zika and sindbis viruses. Infected cells or tissues will then be analyzed for transposon content, expression and regulation by piRNAs. CRISPR/Cas9 technology will also be used in some experiments to conduct genome editing in cell cultures and in live fish. For the most part the manipulations to be carried out in the lab and

safety measures that exists in the lab are described quite well. Safety procedures will include use of a designated BSC for the arbovirus infection work with cell cultures, cap-sealed T-flasks and a secondary plastic isolation container with a CO_2 gas vent to hold infected cells, disinfection and cleaning of hood and work surfaces after virus work and posting signage on all the hoods and incubators in the tissue culture room indicating arbovirus work is underway. The PPE will include latex gloves, lab coats and safety goggles/glasses when conducting virus work. All plastics and vessels coming in contact with virus cultures will be disinfected with bleach solution. Further, the lab will develop a Standard Operating Procedure document in consultation with EHS that will be reviewed and followed by all Lau lab members working with these arboviruses. Since the PI wants to start Arbovirus work independently in his lab but did not have prior direct experience with such work, IBC previously advised the PI to get hands-on experience on Arbovirus work from other experienced researchers. PI now have taken such training with other PI in the NEIDL who regularly works with Arboviruses and have provided documentation of such training. However, the committee discussed that description of the virology experiments are not described in sufficient detail to bring confidence that potential risks will be mitigated properly. The following will be communicated to the PI:

The committee appreciated PI's willingness to get hands-on experience on Arbovirus work and for attaching the letter from the colleague who helped in getting the experience. However, committee expressed concerns that the Arbovirus infection work description in the application itself lacks detail of how exactly they will be done or lacks reference to any SOP that has been reviewed and approved by the EHS. It was strongly recommended that an SOP for all of the Arbovirus work in the lab be written up, reviewed and approved by the EHS and be made available for all lab members and for all future lab inspections. This will ensure that PI can train all current or future lab members equally and efficiently on Arbovirus work, emphasizing importance of each of the steps. The following will be communicated to the PI:

- Please remove Dr. [redacted] from the personnel list.
- [redacted] and the PI need to update their ROHP clearance.
- Please provide following details for arbovirus work:
- Where from the virus stock will come? How the working stock will be prepared?
- Which cell line/s will be used to prepare virus stock. How the titer will be measured (IBC application must be self sufficient).
- For the actual infection work, which cells will be infected? What MOI will be used for such infection (required for risk evaluation).
- What will be done with the infected cells? Will live virus be saved/isolated from those infected cells?
- If the cells will be lyzed for extraction of protein/RNA/DNA, how and where lysis of infected cells be done?
- It is not clear what rDNA injection work is being done in Betta splenden fish. Please clarify.
- Use of Sonicator has been checked. Will arbovirus infected cells be sonicated for any reason? Please explain the purpose of use of sonicator in unambiguous terms. If sonicator will be used to break virus-infected cells, it must be done in BSC using N95 musk and wearing ear protection.
- It is stated in liquid waste disposal section "For arbovirus work, all infected liquid solutions will be completely decontaminated with full strength bleach to a minimum final dilution of no less than 50%." Bleach treatment at a final concentration of 10% for 30 minutes is sufficient for disinfection. Individuals rather must not be exposed to 50% bleach. Please correct this statement.
- Simple Green is not a disinfectant for arboviruses.
- The Section B states use of Rhesus monkey brain tissue, but no such experiment is described in the text. Please remove this entry if monkey brain is not being used. If it is being used, describe it in the laboratory procedure section.
- Please replace the applicable NIH guidelines statement to say "Sections III-D-1-a, III-D-2-a, III-D-4-a, Appendix B-II-D, G-II-B."

BUA Site Assessment: The Zika agent specific training has been completed by PI and [redacted] The main storage of these arboviruses will be [redacted] which is a shared facility. [redacted] remains unlocked but the floor is badge accessed. Plastic aspiration pipettes are available for use for arboviral work. Fresh 10% bleach (final conc) is adequate for liquid arboviral waste decon. Simple Green should not be used for arbovirus decontamination. Sonicator when used for biohazardous samples, should be used in a certified fume hood.					
Motion: Conditional Approval (Member review by Primary and Secondary Reviewers and IBC Chair Review)	For: 14	Recuse: 0	Against: 0	Abstain: 0	Absent: 0

V. List of Protocols reviewed by DMR (not discussed in the meeting)

List of protocols (below) that are currently being reviewed by DMR was displayed in the meeting.

Three-Year Renewals reviewed by DMR:

7. Bhz – New Application

BUA	(PI)	Title	BSL	ABSL	Campus
2612	Marc Lenburg	Transcriptomic Studies of Smoking-related lung disease	2	N/A	BUMC
Primary Reviewer: Rob Davey		Secondary Reviewer: Sajal Ghosh			
Applicable NIH Guidelines: N/A					
Motion: Conditional Approval (Administrative Review)	For: 13	Recuse: 0	Against: 0	Abstain: 0	Absent: 1

8. Bhz –New Application

BUA	(PI)	Title	BSL	ABSL	Campus
2609	Amanda Carrillo	Stress and Autobiographical Memory	2	N/A	CRC
Primary Reviewer: Tom Winters		Secondary Reviewer: Valeda Britton			
Applicable NIH Guidelines: N/A					
Motion: Conditional Approval (Administrative Review)	For: 13	Recuse: 0	Against: 0	Abstain: 0	Absent: 1

9. Bhz – New Application

BUA	(PI)	Title	BSL	ABSL	Campus
1583	Lynn Deng	Pathway-Focused Real-time PCR Arrays, Metabolic Arrays, and Protein/Cytokine Arrays	2+	N/A	BUMC
Primary Reviewer: Robin Ingalls		Secondary Reviewer: Ron Morales			
Applicable NIH Guidelines: N/A					
Motion: Conditional Approval (Administrative Review)	For: 13	Recuse: 0	Against: 0	Abstain: 0	Absent: 1

10. Bhz – New Application

BUA	(PI)	Title	BSL	ABSL	Campus
1583 1	Michael Kirber	Cellular Imaging Core	2	N/A	BUMC
Primary Reviewer: Pinghua Liu		Secondary Reviewer: Ron Morales			
Applicable NIH Guidelines: N/A					
Motion: Conditional Approval (Administrative Review)	For: 13	Recuse: 0	Against: 0	Abstain: 0	Absent: 1

11. rDNA/Bhz – Three-Year Renewal

BUA	(PI)	Title	BSL	ABSL	Campus
2460	Lan Zhou	Cerebrospinal Fluid Analysis in COVID-19	2+	N/A	BUMC
Primary Reviewer: Weining Lu		Secondary Reviewer: Barbara Slack			

Applicable NIH Guidelines: Sections III-D-1-a and III-D-2-a					
Motion: Conditional Approval (Administrative Review)	For: 13	Recuse: 0	Against: 0	Abstain: 0	Absent: 1

12. Bhz – Three-Year Renewal

BUA	(PI)	Title	BSL	ABSL	Campus
2453	Sushrut Waikar	Kidney Precision Medicine Project (KPMP) Renal Biobank VEGF Biomarkers Nicotinamide Adenine Dinucleotide (NAD) Augmentation to Treat Diabetic Kidney Disease: A Randomized Controlled Trial CKD of Unknown Etiology	2	N/A	BUMC

Primary Reviewer: Sajal Ghosh	Secondary Reviewer: Valerie Gouon-Evans				
Applicable NIH Guidelines: N/A					
Motion: Conditional Approval (Administrative Review)	For: 13	Recuse: 0	Against: 0	Abstain: 0	Absent: 1