Boston University
Institutional Biosafety Committee (IBC)
January 24, 2023 Meeting Agenda
Location: Zoom and/or by phone
Start time: 12:02 PM End time: 1:16 PM

Members Present:	R. Ingalls, B. Slack, E. Muhlberger, R. Davey, V. Gouon-Evans, T. Winters, E. Loechler, P. Liu, R. Morales, J. Keeney, R. Timmerman, V. Britton, J. Barton, S. Ghosh
Guests Present:	N. Dey, A. Ahmad, A. Broos-Caldwell, P. Richmond, J. Wood, B. Whitfield, T. Killeen, M. Fitzgerald
Staff Present:	L. Campbell, C. McGoff

I. Review of December 13, 2022 IBC Meeting Minutes

No concerns were voiced.
Motion: Approve
For: 14; Against: 0; Abstain: 0; Absent: 0

II. Presentation:

- Viral Vectors and their Biosafety issues in Biological Research
  S. Ghosh provided an overview on the types of viral vectors used in the introduction and expression of foreign genes in host cells in biological research. Members were informed of the basic requirements for a virus vector and specific features of all commonly used viral vectors, the suitability of their use, biosafety precautions that need to be followed during their use, and appropriate disinfection procedures for individual viral vectors.

III. New Business:

A. SQAP Report:
- IBC Member Reviewer Checklist
  Members were informed of a new optional reviewer checklist developed by IBC staff to assist reviewers in their review of IBC protocols.

B. Review of Research Occupational Health Program (ROHP) & Environmental Health and Safety (EHS) Incident Report. Members informed of three (3) incidents and their corrective actions; these were reported to the Boston Public Health Commission (BPHC). The EHS Safety Director informed members that beginning this February, EHS will be managing the Biosafety Cabinet (BSC) recertification for BUMC research laboratories and BMC labs located in BU spaces.

IV. Protocol Review

1. rDNA/Bhz – Amendment

BUA	(PI)	Title	BSL	ABSL	Campus
2352		Propagation and characterization of viruses	4	N/A	
Primary Reviewer: Elke Muhlberger		Secondary Reviewer: Robin Ingalls			
Applicable NIH Guidelines: III-D-1-a, III-D-2-a, III-E-1, III-F-1, Appendix B-II-D and G-II-B					
Meeting Comments: The original goal of this protocol is to receive and propagate viruses that cause severe disease and require BSL4 containment such as filoviruses including Ebola virus, arenaviruses including Lassa virus, bunyaviruses including Crimean-Congo hemorrhagic fever virus, and paramyxoviruses including Nipah virus. Additionally, they will investigate the biology of coronaviruses with a view to developing medical countermeasures. In this amendment they are adding human cell line SW-13, to be used for virus propagation and analysis. Furthermore, they are adding WIV1, a SARS-like coronavirus initially isolated from bats. This virus stock will be obtained from World Reference Center for Emerging Viruses and Arboviruses (WRCEVA) and other collaborators at UTMB and UNC. PI propose to study this virus to evaluate the efficacy of next-generation medical countermeasures (vaccines and therapeutics) for future outbreaks and pandemics caused by SARS-like viruses. The following will be communicated to the PI:					

- Provide full citation for previous WIV1 virus work for easier search.
- Provide specific nature of the virus stock to be received. Is it wild type or generated by recombinant technology? If both is expected to be received, indicate so in the laboratory procedure.
- It is stated that WIV1 does not cause disease in humans. Since this information may be questionable, committee suggests it to be stated as the information is unknown.
- It is stated that WIV1 will be obtained from multiple sources. Will they be different isolates or differently engineered strains?
- If the purpose of this protocol is to generate virus stock only, what is the purpose of virus inactivation by gamma irradiation or other means in this protocol. Please clarify.

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

2. Bhz – New Application

BUA	(PI)	Title	BSL	ABSL	Campus
2595		XRF Protocol for Analysis of Biological Specimens	2	N/A	BUMC

Primary Reviewer: Robin Ingalls	Secondary Reviewer: Tom Winters

Applicable NIH Guidelines: N/A

Meeting Comments: This proposed study aims to validate a non-invasive/easy to self-collect method to monitor heavy metals in two cohorts: construction workers in Boston and children/young adults in Nicaragua. The protocol involves collecting toenail clippings and hair samples from participants and using them for X-Ray Fluorescence Spectroscopy (XRF) analysis. For the Phantom toenail synthesis, the XRF instrument will be calibrated using phantom toenails which will require epoxy embedding resin use. The XRF analysis will be completed using a handheld XRF which will be used only by trained and authorized researchers. Hair and toenail clippings from study participants will be stored at ambient temperature in the BUSPH Exposure Biology Lab in a locked cabinet. As described in the protocol steps, the samples utilized in this study are hair and toenail clippings which do not pose a bloodborne pathogen risk. Utilization of these samples will only require BSL-1 practices. Epoxy has a level 1 flammability and the heavy metal standards will all be stored at ambient room temperature – they are noted to as non-flammable. PPE will be worn by research staff when handing epoxy and metals (laboratory coats, disposable gloves, safety glasses, face shields). PPE appears appropriate for the listed tasks. Liquid wastes will be appropriately disposed and Sporicidin will be used as a disinfectant in the lab space. No transport of samples or chemicals is noted to be a component of this study. IRB approval is pending. The committee discussed that the biosafety level for this study may be downgraded to BSL1. Committee had no requests for the PI.

BUA Site Assessment: Room should be added to the protocol as all human sourced biological materials to be stored there. should be removed from the protocol. The lab will ship the samples to Seattle after the studies are over. No biosafety cabinet or centrifuge is used.

Motion: Approve	For: 14	Recuse: 0	Against: 0	Abstain: 0	Absent: 0

3. rDNA/Bhz –New Application

BUA	(PI)	Title	BSL	ABSL	Campus
2586		Chromatin architecture disruption and the vicious cycle of aging	2	N/A	BUMC

Primary Reviewer: Barbara Slack	Secondary Reviewer: Elke Muhlberger

Applicable NIH Guidelines: Section III-E-1, Appendix B-1

Meeting Comments: The project will study changes in nuclear/chromatin architecture during aging. Specifically, the study will test the hypothesis that aging is associated premature disruption of heterochromatin structure and activation of retrotransposons, which leads to mis-expression of genes, disruption of nuclear architecture and ultimately cellular deterioration. Retrotransposons are gene elements that copy and paste themselves into different

genomic locations via an RNA intermediate. The study will use human fibroblast cell lines (IMR90) and human neonatal dermal fibroblasts (HDFn) from ATCC. Cells will be transfected with wild-type or mutant forms of retrotransposon L1 that lack reverse transcriptase activity or endonuclease activity. Cells will be lysed, and analyzed by western blot, RNA-seq, and senescence-associated beta-galactosidase assay. The BSL2 procedures are adequately described. The following will be communicated to the PI:

- Section VII-1. Please provide and simplified description without scientific jargon.
- Section VII-3. A brief description of the biological function of LINE-1 and its role in tumor development/senesence would be helpful in risk assessment of the proposed work.
- Please correct "SA-β-gal assay". Not clear what this meant. Note that RIMS does not support Greek letters.
- Section VII-3. Please specify the method that will be used to transfect the cells. Is it a reagent-based transfection or a viral vector-mediated transduction?
- Section VIII-1. Please check 'culture stirrers/shakers' since bacterial cultures will be grown.
- Section VIII-5. Provide BSC certification date as soon as it is available.
- Section A. All human cell lines are handled at BSL2. Please correct the hazardous agent list.
- Section H. rDNA table- the donor genes should also be listed in the prokaryotic section of the table.

BUA Site Assessment: PI is new to the University. The lab is yet to start any work. Most of the equipment are still unplugged. Biosafety cabinet is certified in January 2023.

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

4. Bhz – Three Year Renewal

BUA	(PI)	Title	BSL	ABSL	Campus
1691		A high throughput screen for inhibitors of mammalian glycerolipid biosynthesis	2	N/A	BUMC

Primary Reviewer: Valerie Gouon-Evans	Secondary Reviewer: Sajal Ghosh

Applicable NIH Guidelines: N/A

Meeting Comments: This three-year renewal investigates multiple small molecules library for their ability to inhibit animal cell lipid metabolism. Then subsequently use those identified inhibitors to determine metabolic pathways for phospholipid biosynthesis. To test the inhibitory effect, they expose CHO cells to brief irradiation with long wavelength UV light to block lipid biosynthesis. Cells are then fed with fluorescent labeled fatty acid and test compound to test if the test compound is successful in blocking cell survival. Once an inhibitor is identified, human cell lines (HeLa and Huh-7) will be fed with radiolabeled lipid precursor and the inhibitor. Cells are extracted and biosynthesis pathway intermediates are identified by thin layer chromatography. Cell culture work is done in biosafety cabinets with appropriate BSL2-specific biosafety procedures. Radioactive materials are procured through proper use license and are disposed of as per regulations defined by the radiation protection office. Straightforward and nicely described protocol. The following will be communicated to the PI:

- Section IV – Add room .
- Section VIII.11 - The transport box also needs to be shatter-proof.

BUA Site Inspection: Trainings are all current. Biosafety cabinet is duly certified. Room needs to be added.

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