Boston University
Institutional Biosafety Committee (IBC)
April 15, 2025 Meeting Minutes
Location: Zoom and/or by phone
Start time: 12:00 PM End time: 1:41 PM

Members Present:	R. Ingalls, R. Davey, E. Muhlberger, I. Afasizheva, V. Gouon-Evans, T. Winters, R. Morales (joined 12:05 pm), N. Dey, J. Keeney, R. Timmerman (joined 12:11 pm), V. Britton, S. Ghosh
Guests Present:	P. Richmond, A. Ahmad, J. Wood, A. Ellis, A. Broos-Caldwell
Staff Present:	C. McGoff, L. Campbell

I. Review of March 18, 2025 IBC Meeting Minutes
No concerns were voiced.
Motion: Approved
For: 9; Against: 0; Abstain: 1; Absent: 2

II. Chair's Report: Nothing to report.

III. New Business:
A. Members were informed that NIH has updated their policy on public posting of minutes and will now be posting institutions' IBC membership rosters on their website. The IBC office will send out the NIH memo to the membership to review.
B. Review of Research Occupational Health Program (ROHP) Report and Environmental Health and Safety (EHS) Report: One incident from February 2025 was reported and presented to members for review.

IV. Protocol Review

1. rDNA/Bhz – New Application

BUA	(PI)	Title	BSL	ABSL	Campus
2685	Xueling Wu	Identification and Development of Human Antiviral Antibodies and Vaccines	2+	N/A	BUMC

Primary Reviewer: Inna Afasizheva	Secondary Reviewer: Jim Keeney Additional Reviewer: Andy Henderson
Applicable NIH Guidelines: Section III-D-1-b, Section III-D-2-a, Section III-D-3-b, Section III-E-1; Appendix B-III-D, Appendix G-II-C	

Meeting Comments: The goal of this protocol is to identify and develop highly functional antiviral antibodies for curing HIV. The protocol will also expand similar approaches on designing and testing antiviral vaccines on influenza and ebola viruses. Antibody sequences will be identified, cloned, expressed and purified before testing in functional assays to determine efficiency. Protocol provides detail description of immunoglobulin gene cloning, construction of single-round replication competent pseudoviruses expressing different viral glycoproteins and the functional assays. HIV-1 work will done in BSL2 with BSL3 practices and clinical samples will be handled with universal precautions. However, no ebolavirus influenza virus will be cultured in this protocol. Disinfection and waste disposal described are appropriate for the risk associated with the work. The following will be communicated to the PI:

- Add room [redacted] also in the laboratory facility list (Section IV).
- The protocol states that antiviral antibody functional assays will be done on either single-round replication competent HIV- or VSV-pseudotypes expressing wide variety of viral glycoproteins such as those from HIV, Influenza and ebolavirus or in some cases on cells infected with HIV-1 virus. The monoclonal antibodies to be used for these testing will come from antibody sequence identified from B-cells from HIV patients or SHIV infected tissues, subsequently cloned in IgG expression vectors, followed by transfection in Expi293F cells and purification. These antibodies will work for the pseudoviruses expressing HIV envelope or the other full-length HIV-1 viruses. But it is not clear what would be the source of test monoclonal antibody for the

antibody functional assays in case of infection with pseudoviruses expressing inflenza or ebolavirus glycoproteins. Please clarify and include statement in the laboratory procedure section how a broadly neutralizing monoclonal antibody producing cell for ebola or influenza virus would be identified.
- Please state how the BSL2+ lab autoclave functionality is monitored (monthly or quarterly or other?).

BUA Site Assessment: The BSL2+ suite has an autoclave to sterilize all BSL2+ suite waste, but the lab doesn't have a autoclave maintenance program. An autoclave maintenance program must be in place for this suite. The lab needs to add [redacted] to the protocol as the lab freezer is currently located there. Sharps are not used in the protocol. Three biosafety cabinets and the fume hood are duly certified.

Motion: Conditional Approval (Admin Review)	For: 12	Recuse: 0	Against: 0	Abstain: 0	Absent: 0

2. rDNA/Bhz-New Application

BUA	(PI)	Title	BSL	ABSL	Campus
2688	Nobuyuki Ishibashi	Brain protection in congenital heart disease	2	2	BUMC

Primary Reviewer: Valerie Gouon-Evans	Secondary Reviewer: M Mazur

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

Meeting Comments: The goal of this is to study cellular and molecular events in developing brain of patients with congenital heart disease (CHD) following cardiac surgery with a long-term goal of developing new therapeutic approaches to reduce developmental impairment in children with CHD. Protocol involves *in vitro* gene editing in primary mouse cells, pig neural stem cells (NSCs), and human iPS cells, or *in vivo* gene editing in fetus pigs or mouse brains by stereotactic surgery. All laboratory manipulations involving genetically modified cells and vectors will be conducted within a certified biosafety cabinet. Transport of biohazardous materials and disposal of biological wastes are well described. IRB for collection of human samples has been approved. Recombinant work is appropriately described and include prokaryotic experiments to produce the CRISPR-Cas9 vectors. The following will be communicated to the PI:

- Add goggles (for *in vitro* work) and lab coat, goggles and safety glasses (for animal work).
- Remove head cover (for animal work).
- Use double gloves in animal facility when handling animals.
- Biosafety cabinet description and certification date should be provided.
- Indicate where from the pig dam will be obtained?
- IBC recommends influenza vaccine for members handing pigs. Please contact ROHP for vaccination.
- Approximately what age will the fetal pigs be at when they are used for study? Will the dam be euthanized? How will carcasses be disposed of?
- Is there any concern for splash risk when working with the pigs? Should a face shield also be considered for inclusion in required PPE? Depending on the setup with the pigs, also recommend considering dedicated footwear with a footbath and/or shoe covers.
- Please modify the word “scalps” to “scalpels”. This terminology is inappropriate in a scientific protocol. Scalpels and other sharps must be disposed of properly and not washed for reuse or washed prior to placing in a sharps disposal container.

BUA Site Assessment: Add goggles (for *in vitro* work) and lab coat, goggles and safety glasses (for animal work). Remove head cover (for animal work). Four biosafety cabinets are duly certified. Fume hoods in [redacted] and [redacted] are also certified. Vacuum lines are all protected.

Motion: Conditional Approval (Admin Review)	For: 12	Recuse: 0	Against: 0	Abstain: 0	Absent: 0

3. rDNA/Bhz –New Application

BUA	(PI)	Title	BSL	ABSL	Campus
2687	Jie Yang	Exploring the ER-mitochondrial calcium transfer alterations in HIV-associated neurocognitive disorder	2	N/A	BUMC

Primary Reviewer: Rob Davey	Secondary Reviewer: Tom Winters

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

Meeting Comments: This proposal is from a new PI who is interested to study how HIV-1 proteins and antiretroviral therapies disrupt mitochondria-associated ER membranes, contributing to HIV-associated neurocognitive disorders. The work involves recombinant expression of human and viral proteins in human iPS cells and insect cell lines, imaging using microscopy, FRET and calcium-transfer assays, and treatment of iPSC-derived neurons with antiretroviral therapy (ART) drugs. All work will be conducted under BSL-2 containment. Personnel listed, including the PI, have extensive and relevant experience to perform the work. Recombinant DNA work is limited to bacterial and insect cell expression of HIV proteins and host proteins involved in mitochondrial signaling, which do not pose a biological hazard. No replication-competent HIV-1 is generated or used. Solids are disposed of in biohazard bags. Liquids are treated with final concentration of 10% bleach or wescodyne or cavicide. Transport between lab and cores is by shatterproof, sealed primary and secondary containers. Safety procedures, personnel training, and agent documentation are complete and appropriate for the proposed *in vitro* molecular and cellular work. The use of rDNA, advanced microscopy, and biochemical assays is clearly justified and performed. The following will be communicated to the PI:

- Room [redacted] needs to be added to the protocol.
- Although use of HIV-1 *vpr* and *nef* genes are mentioned, their source is not mentioned in the protocol. Please include appropriate statement in the laboratory procedure section.
- Add 70% ethanol also as disinfectant.
- The protocol does not include any animal work. Please change the highest ABSL to N/A.
- Remove *E. coli* from the hazardous agent list.
- Remove Sf9 insect cells from this list (but keep it in the rDNA eukaryotic experiment section).
- Please complete the prokaryotic experiment host-vector-donor section (for cloning, plasmid preparation).
- Remove *E. coli* from the Eukaryotic host section.
- Replace the entire current three paragraph statement in the applicable NIH Guidelines question (Section H; Q19) with “Sections III-D-1-a, III-D-2-a and III-E-1.”

BUA site Assessment: This is a BSL-2 protocol and not a ABSL-1 protocol. Please remove this mention from the protocol. Lab # [redacted] needs to be added to the protocol. No flow cytometry work is conducted in this protocol. Please remove it's mention from the protocol. Wearing appropriate PPE during transportation of the biological materials is required. Add disinfectant 70% alcohol to the protocol.

Motion: Conditional Approval (Admin Review)	For: 12	Recuse: 0	Against: 0	Abstain: 0	Absent: 0

4. rDNA/Bhz – Amendment

BUA	(PI)	Title	BSL	ABSL	Campus
2674	Melissa Pergande	Mapping the proteomic, lipidomic, and metabolomic landscapes in neuron and glial cells to better understand neurodegenerative diseases	2	N/A	CRC

Primary Reviewer: Robin Ingalls	Secondary Reviewer: Bob Timmerman

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

Meeting Comments: Overall goal of this project is to study neurologic disease states in glial cells (such as astrocytes, oligodendrocytes, and microglia) that are involved in and/or mediate disease pathology in various neurological

disorders. Methodologies used in the protocol include lipidomics, proteomics, mass spectroscopy, and bioinformatics. The current amendment is to add rDNA work using third generation lentiviral vectors to knockdown and/or overexpress proteins in cell lines relative to the phenotype of neurodegenerative diseases and functions of glial cells. The rDNA work experience of the personnel involved are detailed. No concerns were noted with this amendment.

Motion: Approved	For: 12	Recuse: 0	Against: 0	Abstain: 0	Absent: 0

5. rDNA/Bhz – Amendment

BUA	(PI)	Title	BSL	ABSL	Campus
2355	Mohsan Saeed	Characterization of cellular proteins cleaved during virus infection	2	2	BUMC

Primary Reviewer: Elke Muhlberger	Secondary Reviewer: M. Mazur
Applicable NIH Guidelines: Section III-D-1-a, Section III-D-2-a, Section III-E-1, Section III-D-3-a, Section III-D-4-a	

Meeting Comments: This protocol investigates the role of proteins from many different viruses, including flaviviruses, picornaviruses and coronaviruses by making changes in the viral proteins of interest and evaluate the effect of those changes on various steps of the viral cycle. This amendment describes the transfer of SARS-CoV-2 virus stocks and mutants from BSL3 to BSL2 and describes recombinant SARS-CoV-2 clones that will be generated freshly at BSL-2. All mutant viruses that will be brought into or re-generated at BSL2 lab have previously been shown to exhibit a wildtype-like or attenuated phenotype. As per new NIH directive, SARS-CoV-2 culture work now on may be carried out at BSL2 containment. The protocol provides detail description of all laboratory procedures and construction of mutant viruses. The committee recommended that an SOP be developed that clearly describes the necessary steps for removing wild type and mutant SARS-CoV-2 from BSL3 with EHS providing the final approval. This SOP should be made available to other researchers who would like to perform SARS-CoV-2 work at BSL2. The deep sequencing data must be thoroughly examined by experienced PI and biosafety officer. The SOP should include required approval by EHS. The following will be communicated to the PI:

- Paragraph numbering in the Laboratory Procedure section is incorrect. Please revise.
- In the 4th line of the paragraph that describe transfer of stock to BSL2 there is a statement that reads 'Note also that the production of SARS-CoV'. This appears to be a typo and please correct it so that it does not get confused with SARS-CoV, which is a select agent.
- Please note that as EHS previously mentioned that any SARS-CoV-2 stocks being removed from the BSL3 must be validated to be free of cross contaminants and verification results must be reviewed by the IBC Chair and EHS prior to removal. Even if stocks have been validated by another lab, EHS must receive clear communication over what is being removed and by whom. Determination of any mutant requested to be removed from the BSL3 will be made on a case-by-case basis with final formal approval by the EHS. Please confirm and add these requirements in the body of the Laboratory Procedure description.

Motion: Conditional Approval (Admin Review)	For: 12	Recuse: 0	Against: 0	Abstain: 0	Absent: 0

6. rDNA/Bhz – Three-Year Renewal

BUA	(PI)	Title	BSL	ABSL	Campus
875	Igor Kramnik	Genetics of Host Resistance & Susceptibility to Tuberculosis	3	3	BUMC

Primary Reviewer: Rob Davey	Secondary Reviewer: M. Mazur
Applicable NIH Guidelines: Sections III-D-1-a, III-D-1-b, III-D-2-a, III-E-1; Appendix B-III-A, G-II-C	

Meeting Comments: This protocol focuses on investigating anti-tuberculosis host defense mechanisms against *Mycobacterium tuberculosis* (Mtb) using mouse models. The work involves oral, intraperitoneal, i.v. or intradermal challenge, as well as aerosol delivery with virulent Mtb strains in ABSL3 facilities at the NEIDL and includes imaging, tissue processing, and nanoparticle delivery strategies. The proposal uses BSL2 and BSL3 procedures and provides details of training, containment, waste management, and agent inactivation. Work will study pathogenic *M.*

tuberculosis strains and fluorescent protein expressing recombinant derivatives at BSL3 as well as avirulent vaccine strain *M. bovis* performed at BSL2. Work with *Francisella tularensis* vaccine strain is also proposed at BSL2. Nanoparticle-mediated drug delivery in cultured cells is also proposed. All *in vitro* work with pathogenic bacteria is done in a class II BSC at BSL3, which is appropriate. Aerosol infections of mice with virulent Mtb strains will be performed inside a glove-box type class III biosafety cabinet in aerobiology core suite at the NEIDL ABSL3. Mice are housed in top-filtered ventilated microisolator cages with HEPA filters in NEIDL ABSL3 facility which provides appropriate aerosol containment. Waste will be collected and treated with fresh 10% bleach or Vesphene (1%). Solid waste will be put into red bags. Mouse tissues are treated with formalin to inactivate bacteria. The following will be communicated to the PI:

- The rDNA section of the protocol mentions use for lentiviral vector in the protocol, but nothing is mentioned in the laboratory procedure section about the source, origin, replication competence or how they will be used in the protocol. Please provide brief description.
- There is confusion in the protocol about potential movement of animals between [redacted] and [redacted]. Please clarify animal movement (if any). Study plans seem to suggest the use of two rooms that are not connected.
- For aerobiology exposure, has an SOP been developed (this is not a condition of IBC protocol approval)? Please provide a reference for the procedure.
- Please list certification dates for all biosafety cabinets used in the protocol.

BUA Site Assessment: The BSC certifications from the different rooms are due on different dates, for each room/cabinet should be specified. Currently all BSCs are within certification date. Autoclave is under annual maintenance contract with Steris. PAPR training complete. All protocol members have completed their specific required trainings. Mentorship training required prior to granting of unescorted access into the BSL3.

Motion: Conditional Approval (Admin Review)	For: 12	Recuse: 0	Against: 0	Abstain: 0	Absent: 0

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

A list of protocols that were reviewed by DMR was displayed in the meeting.