Boston University
Institutional Biosafety Committee (IBC)
April 27, 2021 Meeting Minutes
Location: Zoom and/or by phone
Start time: 12:00 PM End time: 2:50 PM

Members Present:	C. Abraham, R. Ingalls, I. Afasizheva, E. Muhlberger, B. Slack, R. Davey, E. Loechler (joined 1:57 PM), P. Liu (joined 12:04 PM), X. Brown, T. Winters, R. Varada, C. Thurman, J. Keeney, R. Timmerman, V. Britton, J. Barton
Guest Present:	A. Ahmad, J. Davis, P. Richmond, J. Wood, T. Killeen, M. Fitzgerald, L. Wetzler
Staff Present:	S. Ghosh, L. Campbell, C. McGoff, J. Hutchinson

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I. Review of March 16, 2021 IBC Meeting Minutes

No comments or questions were voiced.
Motion: Approve
For: 13; Abstain: 1, Absent: 2

II. Member Training Session Talk: SARS-CoV-2/COVID-19 Overview

Dr. Lee Wetzler, Professor of Medicine and Microbiology, Boston University, gave a presentation on clinical features of COVID-19 infection and talked about molecular features that have been utilized in developing different vaccines against SARS-CoV-2 including the mRNA vaccines. The presentation also included description of molecular changes in SARS-CoV-2 variants and epidemiology of their identification around the world. He also presented current available information on the efficacy of currently available vaccines against infections by COVID-19 variants.

III. New Business

A. Safety & Quality Assurance Program (SQAP) Report:
None reported.

B. Research Occupational Health Program (ROHP) & Environmental Health and Safety (EHS) Report:
Since the last IBC Meeting on 3-16-21, ROHP has 12 Incidents to report**:**

1. 3-22-21: Researchers tested positive to SARS-CoV-2

A Post-Doc Associate working in NEIDL BSL2 and BSL3 tested positive for SAR-CoV-2 which was later deemed to be related to amplicon exposure. This is this researcher's 3rd time testing positive for SARS-CoV-2 on asymptomatic screening since 2-8-21.

2. 3-25-21: Researchers tested positive to SARS-CoV-2

Student employee researcher on the Medical Campus BSL2 tested positive for SARS-CoV-2 and deemed due to amplicon exposure.

3. 3-25-21: Researchers tested positive to SARS-CoV-2

Postgraduate student researcher in NEIDL BSL2 tested positive for SARS-CoV-2 and deemed to be related to Amplicon Exposure. This was this researcher's 2nd time testing positive and related to amplicons.

4. 3-29-21: Administrative staff tested positive to SARS-CoV-2

Administrative staff at the NEIDL tested positive for SARS-CoV-2 and deemed due to amplicon exposure.

5. 4-3-21: Researchers tested positive to SARS-CoV-2

Post Graduate Researcher working in the NEIDL BSL2 tested Positive for SARS-CoV-2 due to amplicon exposure**.**

6. 4-5-21: Saline Splash to Face during NHP Cranial Surgery/Procedure, no Biologics

A first year, first day PhD Student researcher sustained a splash of saline which possibly contained NHP (Macaque) blood to the right eye during cranial surgery/procedure. The researcher immediately flushed his face and eyes for 15 minutes at a sink (no eye wash station was available) and then went to ROHP to be evaluated. The researcher was wearing a face shield, double surgical mask, gown, long surgical gloves & shoe covers. He was not wearing any goggles, protection glasses or prescription eyeglasses.

ROHP was informed that the NHP last had negative Herpes B surveillance testing in January 2021. Herpes B Virus Post Exposure surveillance and treatment was provided by ROHP. The researcher will have a follow up on 5-18-21.

EHS Report
EHS investigated the incident, discussed it with the student and evaluated the surgery procedure room. They recommended the use a special saline eye-wash bottle that automatically keeps the eye open which helps the recommended 15 minute eye washing following an incident. PI is working on writing the SOP for safety measures to be used during NHP surgery and assured that this will be followed strictly. This information has been submitted to the BPHC.

7. 4-6-21: Syncopal episode while in the ABSL4
There was no biological exposure; the incident was a personal medical issue.

8. 4-14-21: Glass needle stick to left 3rd finger knuckle- glass stuck underneath skin
A PhD Graduate student accidentally sustained a needle stick to his left middle finger knuckle with a glass capillary tube containing adeno-associated virus (AAV). He was wearing double gloves, coveralls, shoe covers and face mask preparing to perform a procedure on a mouse. He reports they induce genetic deletion into the mouse when it is given Tamoxifen, which it had not yet received. when he accidentally stuck his hand. He reports the glass capillary needle had not yet touched the mouse prior to the needle stick. AAVs are not currently known to cause disease in humans. Since he complained of a tenderness feeling with glass just under the skin surface of the knuckle, he was referred to the emergency room and an X-Ray performed demonstrated no evidence of glass. The tenderness resolved the next day.

EHS Report
EHS also investigated the incident and interviewed the graduate student. Since this incident involves exposure of recombinantly modified virus vector into a researcher, EHS informed IBC and in consultation with the IBC office it was decided that this is a reportable incident to the NIH. The root cause of the incident was that the research was not conscientious enough. The researcher has been working on similar experiments for five years. He mentioned that he would be more mindful in the future and avoid putting his hands near the glass capillary tube set up. EHS advised him to complete the online sharps safety training as a refresher for best practices.

9. 4-15-21: Researchers tested positive to SARS-CoV-2
Researcher working in the NEIDL BSL4 tested positive to SARS-CoV-2 and deemed to be related to amplicon exposure.

10. 4-16-21: Researchers tested positive to SARS-CoV-2
Student researcher working in a BSL2 lab on the Charles River Campus tested positive for SARS-CoV-2 deemed to be related to amplicon exposure.

11. 4-19-21: Researchers tested positive to SARS-CoV-2
Graduate Student researcher in BSL2 on the Charles River Campus tested positive for SARS-CoV-2 and deemed to be due to amplicon contamination. This researcher does not work with SARS-CoV-2 but shares lab space that performs research with inactivated SARS-CoV-2.

12. 4-23-21: Researchers tested positive to SARS-CoV-2

PhD student in BSL2 on the Charles River Campus tested positive to SARS-CoV-2 and deemed to be amplicon related. His lab does not work with SARS-CoV-2 but does share lab space with others that do.

All cases involving biologics have been reported to BPHC and a biologic research laboratory report form submitted.

EHS Report

EHS provided additional information on an incident of laceration to finger from microtome blade that took place on 2-23-21 and was reported at the 3-16-21 IBC meeting. The root cause of that incident was determined to be inadequate training of the researcher on the procedure and a lack of appropriate PPE. EHS has advised them to use cut-resistant gloves during the procedure and to use a brush to clean the sectioning area of the microtome so that researcher's hands stay away from the blade at all times.

IV. Protocol Review

1. rDNA/Bhz – Three Year Renewal

BUA	(PI)	Title	BSL	ABSL	Campus
1605		Cell Wall Integrity Signaling in Yeast	2	2	BUMC

Primary Reviewer: Inna Afasizheva	Secondary Reviewers: Valeda Britton

Applicable NIH Guidelines: Section III-F-3, III-F-8, App E-II-A

Meeting Comments: This protocol studies the molecular mechanisms of stress signaling where the investigators have two main objectives: a) understanding cell wall integrity signaling pathway, and 2) cell response to osmotic homeostasis through the regulation of intracellular glycerol concentration. The model organism in the protocol is *Saccharomyces cerevisiae* (baker's yeast). Laboratory techniques include gene knock-outs, gene replacements, plasmid based gene expression, plasmid library screens for selection of mutants, glycerol transport assays and stress sensitivity assays. Standard genetic manipulations and use of *E.coli* DH5alpha and *S. cerevisiae* do not involve biosafety concerns.

- Personnel Information: Li Liu is listed twice. Please remove duplication.
- Katia Laz (long-time member of the PI's laboratory) is not included to the lab personal record. Please update accordingly.
- Please update the research facility table by removing Dr. Sahin-Toth (left BU) and Dr. Kukuruzinska (moved from indicated space). Is room 441 a shared space?
- Please remove pipets decontamination, wash, and decontamination from the laboratory procedure section.
- BSC is included. Please mark "yes" in the PPE and Safety Equipment section.
- Please remove "standard precautions, including PPE and sterile technique" or provide description in the biohazardous material transport section.
- Since Candida glabrata has been removed from the hazardous material list, remove all associated text from the PPE liquid waste section including use of 2% bleach.
- *E.coli* DH5alpha and *S. cerevisiae* qualify as BSL1. Please change the highest biosafety level of the project to BSL 1.
- There is no proposed animal work in this protocol. Therefore, highest animal biosafety level should be 'N/A'.

BUA Site Inspection: A few members need update on their medical clearance and one member needs update on chemical safety training. They have a certified biosafety cabinet, which they may use if they want to. They also have certified fume hood. Safety and emergency controls are available for this protocol.

Motion: Conditional Approval (Administrative Review)	For: 15	Recuse: 0	Against: 0	Abstain: 0	Absent: 1

2. rDNA/Bhz – Three Year Renewal

BUA	(PI)	Title	BSL	ABSL	Campus
1597		Regulation of translation through the human translation initiation factor eIF5B	1	N/A	BUMC

Primary Reviewer: Rob Davey	Secondary Reviewer: Jim Keeney

Applicable NIH Guidelines: Section III-F-8, Appendix C-II

Meeting Comments: The goal of this protocol is to study mechanisms of protein synthesis and its regulation, as well as explore the potential of using inhibitors of protein synthesis for cancer therapy. Work is done in *E. coli K12* bacteria. *E.coli* are used as a host to make proteins that regulate protein synthesis in eukaryotes and these are then structurally analyzed. Plasmids used are standard *E. coli* expression vectors. Waste is treated with final concentration of 10% bleach before disposal. The work is all BSL1. Sharps (blades) are disposed of appropriately in a sharps container. No human material is being used. The study does not require a biosafety cabinet. The work is well described, performed appropriately and is very low risk.

BUA Site Inspection: The lab is in good standing with respect to safety compliance requirements. All space and facilities are appropriate for BSL1 work. They are in the process of onboarding one new researcher; her safety training and medical clearance will be completed soon.

Motion: Approve	For: 15	Recuse: 0	Against: 0	Abstain: 0	Absent: 1

3. rDNA/Bhz – Three Year Renewal

BUA	(PI)	Title	BSL	ABSL	Campus
854		iPS Cell generation from somatic cells for disease modeling and development	2	2	BUMC

Primary Reviewer: Robin Ingalls	Secondary Reviewer: Colleen Thurman

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

Meeting Comments: This protocol focuses on the differentiation of human inducible pluripotent stem cells (iPSC) using gene transduction and treatment with various cytokines that will result in these cells terminally differentiating into specific tissues of interest (liver, kidney, lung, etc.). Once differentiated cells are obtained, they will be characterized by the expression of surface marker proteins. A great deal of detail is provided regarding the use of lentiviral vectors to engineer these cells. Some work will also use adenoviral vectors. Specific projects described include work with mouse kidney and intestine (which may or may not still be active as the IACUC approval is expired), and Creutzfeldt-Jakob disease (CJD/Prion) work involving derivation of iPS cell from patients and differentiation of iPS cells into neurons +/- prions (collaboration with David Harris). Waste from prion work is neutralized with 2N NaOH for 1 hour prior to disposal down the sink. Other liquid biohazard waste is treated with 10% fresh bleach. Solid waste is disposed of in red bags/boxes. Other hazards include P-32 radioisotope. The rDNA section describes appropriate details.

- Please clarify if animal work is ongoing. If it is, the IACUC protocol needs renewal. The referenced IACUC protocol (new number PROTO201800112) is expired. Please remove reference to animal experiments, handling, inoculation, live animal use, ABSL level, closed protocol numbers.
- Please clarify if IRB approval is required for this work as there is an IRB number listed (i.e., is the lab still collecting human blood for isolation of stem cells or only using stored cells?). If yes, please update the expiration date.
- Bat cells are listed in the table of biohazards but their use is not described elsewhere.
- Please make sure that all members update their ROHP clearance and safety training.

BUA Site Inspection: They have an updated exposure control plan for the use of primary human material. A few members need update on ROHP clearance and some need update on their safety training. The biosafety cabinet certification is current.

Motion: Conditional Approval (Administrative Review)	For: 15	Recuse: 0	Against: 0	Abstain: 0	Absent: 1

4. rDNA/Bhz – Three Year Renewal

BUA	(PI)	Title	BSL	ABSL	Campus
824		Stem cell Reconstitution of the Lung Alveolus; induced pluripotent stem (iPS) cell modeling of lung development and disease; Derivation of Transplantable Lung Epithelial Progenitors from iPS Cells	2	2	BUMC

Primary Reviewer: Elke Muhlberger	Secondary Reviewer: Rao Varada

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

Meeting Comments: The goal of this protocol is to test the potential of stem cells to reconstitute injured lung epithelium cells so that the method can be ultimately used to treat lung diseases such cystic fibrosis, pulmonary hypertension, acute lung injury and others. They use two sources of stem cells in their work, namely embryonic stem cells and induced pluripotent stem cells (iPSC) which they differentiate into lung cells. In animal models they analyze the engraftment of these regenerated lung cells by variety of molecular biological and histological studies. Protocol uses lentiviral and AAV vectors to modify gene expression in the regenerated lung cells and use mouse-adapted influenza virus PR8 to induce lung injury prior to testing the efficacy of their system. The CRISPR/Cas9 technology with single plasmid expression of guide RNA and Cas9 is also used for gene editing. The protocol is well written.

- Submission type must be changed to “3-year Re-submittal”.
- PI needs to complete BSL1/2 and BBP training.
- Hazardous biological waste may be disposed of in red biohazard box without autoclaving. Please consult EHS if autoclave must be used.
- Will influenza A virus (H1N1 PR8) be propagated in the lab? If this is the case, please describe in laboratory procedures.
- Please briefly describe recombinant DNA work with bacteria (cloning, plasmid preparation etc.)
- Please check “Pipetting infectious liquid” in the PPE question 1.
- Update BSC certification date in question 5.
- In Section A. Hazardous Biological Agents- Description of AAV and lentivirus work in animals – replace “laminar flow hood” with “biosafety cabinet”.
- Update IACUC approval number to the current format (IACUC protocol TR2020 00028 approved through 9/17/2023.
- Remove 293T cells from “other human material” list.
- IRB approval is expired. Please update.

BUA Site Inspection: The lab has an exposure control plan. All members have ROHP clearance although some of them need update on BBP training. Their biosafety cabinet and fume hood are duly certified.

Motion: Conditional Approval (Administrative Review)	For: 15	Recuse: 0	Against: 0	Abstain: 0	Absent: 1

5. rDNA/Bhz – Three Year Renewal

BUA	(PI)	Title	BSL	ABSL	Campus
776		Metabolic regulation of insulin secretion	2	1	BUMC

Primary Reviewer: Carmela Abraham	Secondary Reviewers: Colleen Thurman

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

Meeting Comments: This protocol investigates functions of fat cells and beta cells in the pancreas that produce insulin. The goal of their study is to understand how impairment of normal functions of these cells lead to diseases like obesity and diabetes. A change of the PI also has been requested. The current PI is now retired and she wants a senior member of her lab, who had been working with the PI for almost thirty years and is highly qualified, to undertake the leadership responsibility for the protocol. The committee noted that although the project description

provides a detailed work plan with animals, it was not clear whether any animal work is actually being done at this time.

- Please advise all members to update their ROHP clearance.
- PI's IACUC protocols are closed (new numbers PROTO201800016, PROTO201800017). Are rat/mouse pancreas harvested from other PIs' protocols or under a different user as PI? If no animals are used, please remove reference to tissue collection, animal handling, ABSL level, and closed IACUC protocols.
- If animals are being used, provide valid IACUC approval number.
- In Section A table IRB for human preadipocytes is marked, but on Section B an IRB number is not given. Please clarify if IRB approval is indeed required for samples obtained through BNORC core.

BUA Site Inspection: They have an exposure control plan. Some members need updated ROHP clearance which has been conveyed to the PI. Their biosafety cabinet certification has expired but they already have requested recertification by the vendor.

Motion: Conditional Approval (Administrative Review)	For: 15	Recuse: 0	Against: 0	Abstain: 0	Absent: 1

6. rDNA/Bhz – Three Year Renewal

BUA	(PI)	Title	BSL	ABSL	Campus
2027		The effect of sensory experience on cortical circuits and function	1	1	CRC

Primary Reviewer: Barbara Slack	Secondary Reviewer: Rao Varada

Applicable NIH Guidelines: Section III-D-4-a; III-E-1

Meeting Comments: Goal of this protocol is to study mechanism of spacio-temporal coding in the cortex of mice brain. They are using two-photon microscopy, electrophysiology and optogenetics in transgenic mice. They study brain function in response to visual stimuli to the animal whose brain function has been experimentally manipulated using expression of regulatory molecules and fluorescent proteins via replication incompetent AAV vectors. Animal work is carried out in LASC with appropriate precautions. At the end of the experiment animals are humanely euthanized and processed for histological analysis. EHS indicated that the paraformaldehyde perfusion work should be done in a fume hood.

- Section 1-Overview- leave space for amendments blank.
- Section VII.3- Is perfusion of animal with paraformaldehyde carried out in a fume hood?
- Section H-rDNA table: Animal Experiments section- the information about the vectors should be moved to the 'Vector Packaging System' section of the table, and the genes and species of origin should listed under 'Donor".
- IACUC protocol PROTO 201800679 is approved through 2/4/2022.

Animal experiment descriptions are adequate.

BUA Site Inspection: The ROHP clearance is due for few members. Training is current for all members. Biosafety cabinet is duly certified.

Motion: Conditional Approval (Administrative Review)	For: 15	Recuse: 0	Against: 0	Abstain: 0	Absent: 1

7. rDNA/Bhz – Three Year Renewal

BUA	(PI)	Title	BSL	ABSL	Campus
1555		Cellular and molecular mechanisms underlying neurodevelopment and Alzheimer's disease	2	2	CRC

Primary Reviewer: Carmela Abraham	Secondary Reviewer: Colleen Thurman

Applicable NIH Guidelines: Section III-D-1-a, Section III-D-2-a, Section III-E-1; Appendix B-II-D.

Meeting Comments: The lab investigates the genetics of neurodevelopment and the role of Alzheimer's disease (AD)-related proteins in the process. They integrate mouse genetics with biochemical and cell biological approaches to

address the physiological function of neuronal development and pathological processes that lead to neurodegeneration in Alzheimer's disease. The laboratory procedures include lentivirus-mediated gene manipulations in *in vitro* cell cultures and in animal models. Reviewers expressed concerns that the write-up in some sections may require clarification. The Committee discussed what should be the correct procedure for cleaning reusable equipment contaminated with brain tissue. Should there be any difference between brain samples from individuals with no known neurodegenerative diseases versus samples from AD patients or prion-infected individuals. It was noted that until we know clearly if the brain sample contain prion or other plaque-forming materials, it will be best to use precautions that are appropriate for disinfection of prion contamination.

- Please correct few typos in the laboratory procedure section and other sections and spell out acronyms (for example: DIY).
- Please add description of treatment of liquid biohazardous waste. Liquid waste should be separated into two categories. Description of treatment of organic waste such as methanol is well described, but description of treatment of biohazard waste, such as conditioned media is not described.
- In the sharp disposal question please modify the phrase “Provide sharp disposal containers” to: “Sharps will be disposed of in sharp disposal containers.”
- For liquid waste disposal indicate that 10% bleach will be the ‘final concentration’. For solid waste indicate “double red biohazard bags” within a biohazard box.
- The lab procedure section states “Neurobiobank does not require BU IRB's exempt status letter for release of brain tissues.” Whereas in Other Potentially Infectious Material section it is stated “Neurobiobank requires BU IRB's exempt status letter for release of brain tissues”. Which one is correct?
- In the Hazardous Agent list, lentivirus is indicated as replication incompetent; but in the recombinant DNA eukaryotic experiment section it says replication competent. Please correct this information.
- In section VIII.1, Check animal handling/cage changing and animal inoculations.
- In the rDNA animal experiments update the approval information: New IACUC # PROTO201800553 Approved 2/12/2021.

BUA Site Inspection: They are working with ROHP to get everyone’s medical clearance updated. Safety training is current for all. Biosafety cabinet is duly certified. They have emergency eyewash, safety showers and split kit.

Motion: Conditional Approval (Administrative Review)	For: 15	Recuse: 0	Against: 0	Abstain: 0	Absent: 1

8. rDNA/Bhz – Three Year Renewal

BUA	(PI)	Title	BSL	ABSL	Campus
1573		The Somatic Genetics of the Humoral Response to Anthrax Vaccine Adsorbed (AVA) in Humans	2	N/A	BUMC

Primary Reviewer: Inna Afasizheva	Secondary Reviewer: Bob Timmerman

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

Meeting Comments: The protocol investigates differentiation of antibody producing B cells upon exposure to a previously encountered antigen. They use B cells for their studies that are obtained from people vaccinated for anthrax and influenza. The anthrax causing bacteria (*Bacillus anthracis*) and influenza virus are not used in this study. The project is a part of the open label clinical study where both the researcher and the patient are aware of the drug or treatment being given to them. The committee felt that enough information is not available on the materials being used and on their laboratory manipulations to make a comprehensive biosafety risk assessment.

- Please consolidate all amendments and describe in individual segments what is being done in the protocol currently indicating the biosafety concerns for individual sets of experiments and how they are managed.
- Briefly describe how lung tissue samples from surgeries at BMC and from tissue banks are transported to the lab.
- Briefly describe how B-cells are isolated from patient blood and lung samples and how immunoglobulin mRNA and DNA are isolated from them.

- It is stated that cultured cells are sent outside of BU. Please complete shipping training. If no biological materials are being sent currently, modify the statement appropriately.
- Please update IRB approval information.

BUA Site Inspection: They need to update the lab personnel list. They need to remove reference of older lab location for storing biohazardous materials and provide current locations. Their medical clearance and safety training are in good standing. They currently do not ship anything outside of their lab, rather they only receive materials from outside sources.

Motion: Conditional Approval (Primary and Secondary Reviewer Review)	For: 15	Recuse: 0	Against: 0	Abstain: 0	Absent: 1

9. rDNA/Bhz – Three Year Renewal

BUA	(PI)	Title	BSL	ABSL	Campus
2277		Gene Circuitry of Human Diseases	2	N/A	CRC

Primary Reviewer: Robin Ingalls	Secondary Reviewers: Tom Winters

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

Meeting Comments: This study investigates gene expression/circuitry in a number of disease states, including CNS diseases: HIV/HAND, ALS, T2DM, Alzheimer and OUD. PBMCs and brain tissue from commercial sources or collaborators will be used for GWAS studies (single cell RNAseq). A systematic genomic characterization of gene expression changes at single cell resolution in primary human cells will be pursued. The PI and her staff are trained in handling biohazards. Human samples are IRB exempt. Human samples used under BSL2 precautions using biosafety cabinet. Handling of HIV samples will be done with BSL2+ PPE. Other biohazards include lentiviral vectors (commercial, 3rd generation). CRISPR technology is used for selecting gene of interest followed by molecular characterization. Mammalian cell culture work is described at BSL-2. Recombinant DNA work is also described. The protocol is clear and provides sufficient details. Small amounts of blood and tissues will be autoclaved prior to disposal. If not autoclaving prior to disposal, they will use hypochlorite solution instead. However, the stated required concentration of hypochlorite is incorrect. Decontamination of reusable instruments that come in contact with brain tissue is discussed separately, where they plan to use 2N NaOH or 40% bleach for 1 hour. For disinfection of metallic reusable instruments, Virkon and Trigene will be used. The Committee discussed whether Alzheimer brain tissue should be considered a prion containing tissue and prion-specific decontamination protocol must be followed, especially in light of the fact that the BMBL (6th edition) does not list Alzheimer's as a prion disease.

- Please correct the concentration of bleach used in the protocol as described in the laboratory procedure section. House bleach is generally 5% sodium hypochlorite solution. Thus a 10% household bleach (which is normally used for decontamination of biological waste) is actually a 0.5% Na-hypochlorite solution.
- Small volumes of blood or tissue does not need to be autoclaved and maybe discarded directly in the red biohazard boxes. Please consult EHS for detailed instructions.

BUA Site Inspection: Few members are currently waiting for their ROHP clearance. Safety training is current for all members. Biosafety cabinet is duly certified. EHS indicated that autoclave is not necessary for the disposal of their solid wastes.

Motion: Conditional Approval (Administrative Review)	For: 16	Recuse: 0	Against: 0	Abstain: 0	Absent: 0

10. rDNA/Bhz – Three Year Renewal

BUA	(PI)	Title	BSL	ABSL	Campus
2306		Cellular and network mechanisms of motivation, action selection, and learning in the basal ganglia	1	1	CRC

Primary Reviewer: Barbara Slack	Secondary Reviewer: Rao Varada

Applicable NIH Guidelines: Section III-E-1; Appendix B-I. Risk Group 1 (RG1) Agents

Meeting Comments: The goal of this study is to determine how neural circuits motivate and select behavioral actions in changing environments. Basic principles by which single neurons and networks transform, integrate and transmit information to downstream brain regions will be analyzed. They also plan to identify in animal models how these circuit computations are disrupted in Parkinson's and Huntington's disease. They train mice to perform tasks to receive rewards to design a real life environment. They image animals with a 2-photon microscope. Gene expression in mice are manipulated by stereotactic injection of AAV vectors that express genes of interest. Euthanized animals are perfused with paraformaldehyde in fume hoods. They do not need biosafety cabinet for their work but they do wear appropriate PPE. Animal work proposed by the PI is covered by the IACUC protocol TR202100019, which is under review.

- Section 1-Overview- leave space for amendments blank.
- Section 3-Personnel. A couple of ROHP clearance dates are overdue or not provided.
- Section VIII.1-PPE. Please check 'pipetting infectious liquid' (AAV), 'animal handling', 'animal inoculations'.
- Section IX. Hazardous Biological Agents should be checked (AAV).
- Section H. rDNA table. Please add a note under 'Vector Packaging System' that the AAV virus particles will be obtained from Vector Cores (i.e. not packaged in the lab).

BUA Site Inspection: ROHP clearance of few members are being reviewed. They will be using isoflurane in the chemical fume hood. Spill kit, safety shower and eyewash facility are all available for the lab.

Motion: Conditional Approval (Administrative Review)	For: 16	Recuse: 0	Against: 0	Abstain: 0	Absent: 0

11. rDNA/Bhz – Three Year Renewal

BUA	(PI)	Title	BSL	ABSL	Campus
2296		Recombinant Proteins for Biosensing Applications	1	N/A	CRC

Primary Reviewer: Pinghua Liu	Secondary Reviewers: Jim Keeney

Applicable NIH Guidelines: Section III-F-8. Exempt Experiments

Meeting Comments: The study uses recombinant proteins coupled with quantum dots to develop biosensors that can be used as diagnostic reagents. DNA sequence manipulations in plasmid construct, PCR amplification, molecular cloning, production of recombinant proteins from the plasmid constructs are described in detail. The Committee suggested that the protocol should include more information about the disposal of quantum dots as they are considered nanoparticles, which require a specialized waste disposal procedure. It was noted that PI does not use more than 10 liters culture of recombinant bacteria. Treatment with bleach at a final 10% concentration for 30 minutes is sufficient for their disinfection.

- Please clarify if safety coordinator Xingjian Zhong is also a member of the research team as he is not listed in the personnel list.
- It is stated that Joshua Kay will be trained by Thuy Nguyen. However, the protocol does not detail Thuy's role in the research.
- Engineering Research Building Room 720 is a shared space, which is indicated as a place for storage of biohazardous material. Is there a plan among the PIs for the use of this shared space, especially under COVID-19 restrictions/guidelines?
- Quantum dots are used in this study, please include brief discussion on the biosafety and proper disposal of the quantum dots as they are also considered as nanoparticles.

BUA Site Inspection: The ROHP clearance of few members are outstanding but safety trainings of all members are current. Their biosafety cabinet is duly certified.

Motion: Conditional Approval (Administrative Review)	For: 16	Recuse: 0	Against: 0	Abstain: 0	Absent: 0

12. rDNA/Bhz – New Application

BUA	(PI)	Title	BSL	ABSL	Campus
2513		Biogenesis and function of FeS cluster proteins	1	N/A	CRC

Primary Reviewer: Ed Loechler	Secondary Reviewers: Bob Timmerman

Applicable NIH Guidelines: Appendix B-I (Risk Group 1 Agents)
Appendix C-II (*E. coli* K-12 Host-Vector Systems)
Appendix C-III (Saccharomyces Host-Vector Systems)
Appendix E-II (*Saccharomyces cerevisiae*)
Appendix E-III (*E. coli*)
Appendix G-II A (Biosafety Level 1)

Meeting Comments: Research on this protocol focuses on understanding how iron is used by living organisms. They study both how proteins use iron to conduct the chemistry of life and how iron is acquired by living things and moved around the cell. In particular the lab studies the iron-sulfur (FeS) clusters that are found in many proteins that are involved in energy transfer (redox) reactions. Proteins from yeast and humans are studied but they are not known to be toxic to humans. Standard molecular biology/cloning techniques including gel electrophoresis, recombinant DNA manipulations and PCR are used. Protein purification and characterizations are done by standard techniques such as column chromatography, FPLC, Western blotting, kinetics, biophysical protein-protein interaction, crystallography, etc. Protein expression vectors were either purchased from a company or acquired via custom gene synthesis service. Standard laboratory safety practices will be followed. Appropriate PPE will be worn (gloves, safety glasses, lab coats, etc.). Standard safe microbiological techniques will be followed. Surfaces will be decontaminated with 70% ethanol. Liquid waste will be decontaminated with fresh bleach or 70% ethanol. Solid waste will be disposed of in standard biohazardous waste bins. Sharps will be disposed of in sharps containers.

- Please add the PI to the personnel list.
- Please check the ROHP health assessment agreement box in the Agreement Policy section.

BUA Site Inspection: The group is working on updating ROHP clearance for all delinquent members. Their safety training is current. A biosafety cabinet is not needed for their work but they have a chemical fume hood available for use.

Motion: Conditional Approval (Administrative Review)	For: 16	Recuse: 0	Against: 0	Abstain: 0	Absent: 0

13. Bhz – New Application

BUA	(PI)	Title	BSL	ABSL	Campus
2463		Lung Pre-Cancer Atlas; Lung Pre-Cancer Modeling and pre-clinical intervention studies	2	2	BUMC

Primary Reviewer: Rob Davey	Secondary Reviewers: Rao Varada

Applicable NIH Guidelines: N/A

Meeting Comments: The goal of this protocol is to study and find new treatments for lung cancers. This will involve gene expression analysis of lung biopsies, working with cell lines and in mouse cancer models to validate the role of suspected biomarker genes. The work will involve looking at gene and protein expression in biopsies in BSL2 space. Samples are taken from collaborators or through the BUMC Biospecimen Archive Research Core (BARC) tissue bank. Shipping will be done using approved packaging. Samples will be prepared for single cell sequencing in a tissue culture hood (BSC) using appropriate sterile techniques and standard precautions. Nucleic acid extraction from tissues will be done in a chemical hood using a phenol-containing reagent. For histological studies, samples will be fixed in formalin in a chemical fume hood. Liquid wastes are decontaminated appropriately using fresh 10% (final) bleach. It was also noted that working solutions for high hazard chemicals to be used in this study will be made in the chemical fume hood. The committee expressed concerns that although there are indications that *in vitro* cell culture work and recombinant DNA work will be done, the hazardous biological agent and recombinant DNA sections of the application remain completely blank. Also, the animal work description is insufficient to make a proper risk assessment. It was clarified that returning remains of euthanized animals to animal housing is a standard practice.

- Please put in relevant experience descriptions for each personnel, not just the number of years in the lab.
- Please restate the Layman's description section in simpler language for non-scientific readers (reword 'carcinogenesis').
- Please state that the work with primary human materials will be done with precautions for blood-borne pathogens.
- In the last paragraph of the laboratory procedure it is suggested (but not described in sufficient detail) that recombinant work will be done in cell lines; "Molecular candidates from our profiling studies will be perturbed (i.e. knocked up or down in expression) in epithelial cell cultures". GFP expression is mentioned. If being done at BUMC, the vectors used to perturb gene expression need to be listed. If the perturbed cell lines are made using a commercial vendor, then vectors may not need to be listed but any human cell lines should be listed as being potentially biohazardous.
- Animal experiments are not described in adequate detail in the laboratory procedure section to allow proper risk assessment. Please provide what experiments are being done in animals describing the purpose and safety practices followed by the researchers.
- VIII-4 PPE: will need shoe covers in the animal containment space.
- Must complete the Hazardous Biological Agent section.
- Check rDNA in the Materials Used in Research table and complete the Recombinant DNA section.

BUA Site Inspection: PI collaborates with Dr. Spira and shares lab space. They have an exposure control plan. Their ROHP clearance and safety trainings are current. Certified biosafety cabinet and fume hoods are available. Emergency eyewash and showers are available.

Motion: Conditional Approval (Primary and Secondary reviewer review)	For: 16	Recuse: 0	Against: 0	Abstain: 0	Absent: 0