The University of California, Berkeley
Institutional Biosafety Committee
Meeting Minutes
Zoom
Monday September 8, 2025 2:00-3:32PM

Voting Members in Attendance
Jim Baugh (BSO)
Dirk Hockemeyer, PhD (Genetics) (Alternate Chair)
Greg Timmel, DVM, MS (Animal Expert)
Steve Brohawn, PhD (Neurobiology)
Chris Anderson, PhD (Synthetic Biology)
Lu Chen, PhD (Optometry)
Erika Schwilk, MD, MPH (Occupational Health)
Mary West, PhD (Core Facility)
Roberto Zoncu, PhD (Biochemistry, Biophysics and Structural Biology)
Michael Shapira, PhD (Integrative Biology)
Natalie Jouravel (Community Member)
Janet Macher, ScD, MPH (Community Member)

Others Present
Olga Draper, PhD (ABSO)
Christina Acosta, PhD (Biosafety Specialist)
Lily Montoya (ABSO, High Containment Officer)
Rob Miers, MPH (ABSO)
Linda Wang (Admin)
Suzanne Stone, MA, CIP (Oversight Committees)
Jim Koman (Facility Liaison)
Michael Yartsev, PhD (Guest)

Voting Members Absent
Russell Vance, PhD (Immunology, Infectious Diseases)
Laurent Coscoy, PhD (Chair)
Anastasios Melis, PhD (Plant and Microbial Biology)

I. Introductions

- **New Assistant Biosafety Officer - Rob Miers**
  Rob transferred from UC Riverside where he managed the COVID-19 programs and then later moved into the ABSO/IBC Admin role.
- **New committee member - Michael Shapira (Integrative Biology)**
  Dr. Shapira studies microbe interactions and works primarily with *C. elegans* and soil bacteria.

II. Approval of the August 11th, 2025 Monthly IBC Minutes
The members in attendance approved the meeting minutes unanimously.

III. Old Business
-None

IV. New Business- Full BUA Review

September 8, 2025 BSL2 Biological Use Applications that Require IBC Review and Approval

1. Chunlei Liu (BUA 428)
Reviewers: Steve Brohawn, Dirk Hockemeyer, Greg Timmel, Jim Baugh
Renewal – *In RSS BUA*
Project Title: Use of magnetic fields and ferritin-coupled ion channels to remotely control cell activity
The lab aims to use a magnetogenetic technique FeRIC (Ferritin-iron Redistribution to Ion Channels) to: 1) manipulate neuronal excitability with radio-frequency (RF) magnetic fields; 2) manipulate astrocytic calcium activity with RF; and 3) manipulate the activity of neuronal progenitors derived from human-induced pluripotent stem cells. FeRIC channels are expressed via chemical transfection or viral transduction to control the activity of neurons, astrocytes, and neuronal progenitors. The lab uses experimental models that express FeRIC channels in target cell populations acquired from collaborators. They study cellular iron localization in the substantia nigra in the Parkinson's disease brain using fixed human brain tissue. *E. coli* lab strains are used for cloning ion channels. The committee thought the BUA renewal was straightforward and

well described. The committee found no dangerous gain of function in this research proposal. However, they would like clarification on how the brain tissue is handled from start to finish, as well as how it will be disposed of. In response to the question of what will happen in the event of an auto-inoculation under the sharps section, the lab stated that they will not do gene auto-inoculation. The lab should rewrite the response as there may have been a misunderstanding of the question. The biosafety team will work with the lab to get clarification and to have the BUA updated.

The committee unanimously approved the BUA renewal at BSL1, BSL2 with administrative changes.
Section of the Guidelines: III-D-1, III-D-2, III-F-8

2. James Olzmann (BUA 353)
Reviewers: Laurent Coscoy (via email), Roberto Zoncu, Christina Acosta
Renewal – *In RSS BUA*
Project Title: Mechanisms and targeting of cellular protein and lipid homeostasis in health and disease
This lab investigates liquid droplet formation in healthy cellular function and evaluates how this process is disturbed in a diseased setting (i.e neurodegenerative disorders, fatty liver disease, and cancer). The lab employs a variety of molecular and biochemical assays to investigate this *in vitro*. The lab utilizes laboratory strains of bacteria to propagate plasmids that are used in both animal and human established cell lines. In addition, the lab generates their own viral vectors for use in downstream transduction into the above-mentioned cell lines. Furthermore, gene editing tools are employed to conduct functional genomics, transcriptional suppression, and genome-wide pooled screens to identify critical genes that may serve as potential therapeutic targets. The committee talked through the BUA renewal and thought the waste disposal, transport, PPE, and sharps disposal was appropriate. Viral vectors are replication-incompetent. The committee found no dangerous gain of function in this research proposal. With no concerns, the committee moved for approval voting.

The committee unanimously approved the BUA renewal at BSL1, BSL2.
Section of the Guidelines: III-D-2, III-E, III-F-1, III-F-2, III-F-3, III-F-8

<u>BSL1 Biological Use Applications that Require IBC Review and Approval</u>

3. Peidong Yang (BUA 1048)
Reviewers: Chris Anderson, Steve Brohawn, Lily Montoya
Initial Application – *In RSS BUA*
Project Title: Understanding physical interaction and charge transfer between acetogenic bacteria-semiconductor electrode for fuel generation and enzyme biocatalysis for further bio-upgrade fuels
The lab is reinstating their Biological Use Authorization. RG1 bacteria are modified to overexpress redox-active proteins associated with extracellular electron uptake. The bacteria will be grown on a mix of growth medium and photocathodes to study microbial electron uptake activity. Another project will include the use of RG1 bacteria for generating enzymes that will be purified for downstream biochemical conversions. The committee found the waste disposal, handling, sharps safety, spill clean-up, and PPE consistent with BSL1. A nonpathogenic and nontoxic gene from a RG2 or higher organism will be used to produce an enzyme in the RG1 bacteria, necessitating the addition of III-D-2. The committee found no dangerous gain of function in this research proposal. The biosafety team will work with the lab to have the BUA updated with the requested changes.

The committee unanimously approved the BUA renewal at BSL1 with administrative changes.
Section of the Guidelines: III-D-2, III-E-1, III-F-8

4. Caroline Williams (BUA 505)
Reviewers: Steve Brohawn, Chris Anderson, Olga Draper
Renewal – *In RSS BUA*
Project Title: Expression and characterization of candidate experimental model ice-binding proteins
This lab studies tardigrade proteins predicted to be ice-binding genes by cloning, over-expressing and purifying them in *E. coli* lab strains. These proteins are sent to collaborators for biochemical characterization. In addition, the impact of heterologous expression of the putative ice-binding proteins in *E. coli* is assessed

via cold-tolerance tests. The committee thought the renewal request was straightforward and well written. The committee found no dangerous gain of function in this research proposal. With no concerns, the committee moved for approval voting.

The committee unanimously approved the BUA renewal at BSL1.
Section of the Guidelines: III-E, III-F-8

V. New Business- Amendments

BSL3 Biological Use Amendment that Requires IBC Review and Approval

5. Rachel Brem (BUA 223)
Reviewers: Laurent Coscoy (via email), Jim Baugh, Lily Montoya
Amendment - *In RSS BUA*
Project Title: Natural variation genetics in fungi and mammalian cells
The amendment includes three project changes: Project 1 is the use of a RG1 bacterial strain for co-culturing with avirulent *Coccidioides posadasii* to study competition effects. RNA extractions, RNA seq, and qPCR will be done on the isolated fungal strain. Project 2 is to perform antifungal susceptibility testing on environmental isolates of *Coccidioides immitis* within the BSL3 lab. Samples are heat-killed and visualized via plate reader, no material is cultured after antifungal exposure. Project 3 is the addition of *Coccidioides immitis* clinical isolates for DNA extraction and library sequencing, procedures already approved under the BUA. The committee talked through the 3 projects and thought they were all well described. The work for Project 1 will be performed under BSL2 with approved procedures, pending NIH approval for containment downgrade; none of the organisms will be genetically modified. For Project 2, there will not be post-antifungal culturing. The new heat inactivation method will be validated before use on pathogenic isolates. The lab is already approved for *Coccidioides immitis* at BSL3. In Project 3, the de-identified clinical *C. immitis* samples are IRB-reviewed and will be handled with Category A shipment procedures. The lab already has approval for *C. immitis* strains, and this amendment only changes the source of the isolates without altering procedures or risk levels. The committee found no dangerous gain of function in this research proposal. With no concerns, the committee moved for approval voting.

The committee unanimously approved the BUA amendment at BSL2, BSL3. No NIH guidelines apply.

BSL2 Biological Use Amendments that Require IBC Review and Approval

6. Britt Glaunsinger (BUA 188)
Reviewers: Roberto Zoncu, Laurent Coscoy (via email), Lily Montoya
Amendment - *In RSS BUA*
Project Title: Herpesvirus-host interactions and gene regulation during cellular stress
The lab is interested in the function of post translation modifications in host cells during viral infection. Established human cell lines will be used to study ADP-ribosylation during infection with a RG2 viral vector system. The viral vector system will be used to generate doxycycline-inducible versions of host and viral macrodomains. The committee found the BUA amendment well described including the risk assessment and mitigation. The viral vectors are replication incompetent. The committee found no dangerous gain of function in this research proposal. The amendment is ready for approval.

The committee unanimously approved the BUA amendment at BSL2.
Section of the Guidelines: III-D-1, III-E-1

7. Molly Ohainle (BUA 592)
Reviewers: Dirk Hockemeyer, Roberto Zoncu, Lily Montoya
Amendment - *In RSS BUA*
Project Title: Intracellular immunity to viral infection
Addition of primary and immortalized cell lines from a variety of experimental models, provided by a commercial repository. New cell lines will be used for approved BUA procedures to study immune effectors that inhibit viral infection. Cell lines will be transduced with lenti viral vector systems for manipulation of

genes of interest. Lentiviral infections will be performed in BSL2 and BSL2+ containment as approved under their BUA. The committee found the BUA amendment well described including the spill clean-up. One reviewer asked if it was a concern that these cell lines are being worked on at BSL2 and BSL2+ as they could potentially be harboring infectious agents that could affect humans. Another concern is that they propose to do replication-incompetent viral vector infections in the cell lines that could potentially complement replication. The second reviewer clarified that the complementation could possibly be endogenous. The only genome that would be packaged is the one that will be introduced, which could then complement any viral protein being expressed by the cells, but these are third generation vectors which are packaging and signaling incompetent, so those vectors/genomes do not get repackaged. The BSO agreed with the reviewer's assessment and clarified that it does not add to the risk of what the lab is already working with. Anything that is from an infectious agent's standpoint already exists in the lab. The biosafety team confirmed that the lab is approved for BSL2 and BSL2+ for work with animal cell lines and replication-incompetent viruses in high titers. The committee found no dangerous gain of function in this research proposal. The committee would like a statement added to the BUA to specify the known disease status of the cell lines, potential disease outcomes that will be anticipated, or state that these are healthy samples.

The committee unanimously approved the BUA amendment at BSL2, BSL2+ with administrative changes.
Section of the Guidelines: III-D-1, III-E-1

8. Benjamin Rubin (BUA 611)
Reviewers: Laurent Coscoy (via email), Jim Baugh, Olga Draper
Amendment - *In Box*
Project Title: Microbial Community Editing
This lab is interested in making a number of RG2 human gut bacteria genetically tractable. This amendment adds a handful of RG1 bacteria and yeast and three RG2 bacteria for metabolic engineering in order to convert bioprocessing waste streams into value-added products by harnessing their innate metabolic pathways, including the erythritol metabolic pathway. The committee talked through the BUA amendment and noted that several of the RG1 and RG2 organisms could not be approved because the experiments were not described. For two other organisms, the committee requests that should any of the mutant phenotypes show evidence of increased fitness or pathogenicity, or changes in tropism or host range, work with those mutants must be stopped, the observations must be discussed immediately with the biosafety team, and the institutional biosafety committee defines a path forward based upon a risk assessment. The committee decided to approve the work for the two organisms with a request for administrative clarification for the above, as well as to remove the RG1 and RG2 organisms that are not experimentally described in the amendment.

The committee unanimously approved the BUA amendment at BSL1 and BSL2 with administrative changes.
Section of the Guidelines: III-D-1, III-D-2, III-E

9. Michael Yartsev (BUA 408)
Reviewers: Dirk Hockemeyer, Laurent Coscoy (via email), Greg Timmel, Christina Acosta
Amendment - *In RSS BUA*
Project Title: Investigation of neural circuits underlying complex behavior in experimental models
The lab is amending their BUA to conduct field work overseas alongside experienced local biologists to capture a new species of experimental models, in order to conduct behavioral and neurophysiological recordings. The overall aim of this research is to bridge the gap in understanding neural circuits in natural environments, as most of neuroscience is largely conducted in laboratory conditions. Specifically, their research focuses on mammalian brain regions associated with severe mental and clinical disorders. The lab will not be conducting the capturing; however, they will be accompanying the local biologists during surgical procedures, as well as the behavioral assays. The lab personnel have stated they have all been vaccinated. No recombinant work will be performed.

2:14PM – The PI was put into a waiting room.

The committee talked through the proposal and learned that the work is done on two islands. Experimental models are allowed to roam free in a netted area. The containment, PPE, transport, and handling of the experimental models are well described. The veterinarian thought the work was low risk and well thought out from an animal care perspective. This population of experimental models is less likely to have agents that would be of concern to humans. One committee member wanted to know: the recovery rate of the experimental models, how the lab ensures that the experimental models do not escape, if it is acceptable for the experimental models to roam freely on the island, if there are island regulations, and if this work is approved by the island government.

2:25PM – The PI was re-admitted to the meeting to address the questions.

The PI clarified that the recovery rate of the free roaming experimental models was 100% because they are not able to leave the island. The experimental models carry weight which prevents them from traveling out of the island. The closest island is more than 11km away and it is impossible for them to travel that distance with the weight they are carrying. Before performing any surgical procedures, the lab will verify this in a cohort of experimental models carrying a tracker with an equivalent amount of weight to ensure they don't escape. The location of experimental models are always known. The PI confirmed that there is no recombinant or viral work. The committee also learned that the experimental models being worked on on the island are smaller than the models that are approved for use in the lab. The surgical procedure is the same but smaller devices will be used. All of the procedures are approved by the IACUC. The lab also has permits for this work and it is approved by the island government. The lab is working with two other collaborators.

2:30PM - The PI left the meeting.

With all of the questions and concerns addressed by the PI, the committee decided to move forward with approving the amendment. The committee found no dangerous gain of function in this research proposal.

The committee unanimously approved the BUA amendment at ABSL2. No NIH guidelines apply.

<u>BSL1 Biological Use Amendments that Require IBC Review and Approval</u>

10. Fei Lin (BUA 236)
Reviewers: Chris Anderson, Steve Brohawn, Christina Acosta
Amendment - *In RSS BUA*
Project Title: Undergraduate instruction in biochemistry, molecular biology, genetics and molecular therapy
This is a BUA amendment for a new course that is being conducted in the Fall semester. The students, staff, and GSIs in MCB 120L study the function and activity of specific proteins involved in mitosis. They compare full-length and truncated versions of these proteins from budding yeast and filamentous fungi. Laboratory strains of bacteria are used for plasmid propagation and downstream transformation assays. They will also use genome editing tools to analyze the absence of GFP protein in laboratory strains of bacteria. Lastly, the students will conduct assays in established animal cell lines where they will test a variety of inhibitors followed by protein analysis via Western blot. The committee walked through the amendment and found the spill clean-up, waste disposal, and PPE adequately described. The committee found no dangerous gain of function in this research proposal. With no concerns, the committee moved for approval voting.

The committee unanimously approved the BUA amendment at BSL1.
Section of the Guidelines: III-F-1, III-F-8

11. Niren Murthy (BUA 328)
Reviewers: Chris Anderson, Roberto Zoncu, Olga Draper
Amendment - *In RSS BUA*
Project Title: Gene Delivery by Lipid Nanoparticles
This lab works on lipid nanoparticle delivery for therapeutic purposes; in this amendment, they are expanding their scope to establish lipid nanoparticle delivery to archaea. They will attempt to deliver plasmids, mRNA, or ribonucleoprotein complexes. They will target the methane-producing pathways of archaea to reduce

methane generation. The committee found the PPE, spill clean-up, and procedures appropriate. The protocols are consistent with BSL1, including autoclaving. The committee would like the lab to explicitly state that the work in the amendment is BSL1. The committee found no dangerous gain of function in this research proposal.

The committee unanimously approved the BUA amendment at BSL1 with administrative changes.
Section of the Guidelines: III-D-2, III-E

12. Filipa Rijo Ferreira (BUA 581)
Reviewers: Roberto Zoncu, Laurent Coscoy (via email), Christina Acosta
Amendment - *In RSS BUA*
Project Title: Circadian rhythms in Parasitic diseases
This is a BUA amendment for the addition of a new species of transgenic experimental models that have been modified to display no functional circadian rhythm. No further genetic manipulation will be done with these experimental models. They propose to conduct behavioral studies to determine the effects of transmission, such as blood feeding preference, and/or laying eggs. In addition, mutant experimental models will be backcrossed with wild type experimental models for line maintenance and progeny production. Lastly, the transgenic experimental models will be used for *in vivo* experiments where they will receive blood meals from the experimental organisms to become subsequently infected with the parasites of interest, which is similar to work already approved in this BUA. The committee found the PPE, decontamination, handling and containment of the experimental models appropriate. They learned that the parasite is not human-tropic. The committee found no dangerous gain of function in this research proposal. With no concerns, they moved for approval voting.

The committee unanimously approved the BUA amendment at BSL1.
Section of the Guidelines: III-D-4

13. Michiko Taga (BUA 262)
Reviewers: Steve Brohawn, Chris Anderson, Lily Montoya
Amendment - *In RSS BUA*
Project Title: Nutrient sharing in microbial communities, Corrinoid specificity of enzymes and riboswitches, corrinoid biosynthesis and dependence in archaea, corrinoids in fermented foods
The lab will use CRISPR/Cas systems established for *Pseudomonas* to study cobamide biosynthesis and elucidate corrinoid effects on microbial communities. New protocols will be used on RG1 *Pseudomonas* species already approved in the lab's inventory. RG1 *E. coli* will be used for plasmid generation. The committee found the work straightforward and well described; safety procedures are appropriate. The committee found no dangerous gain of function in this research proposal. With no concerns, they moved for approval voting.

The committee unanimously approved the BUA amendment at BSL1.
Section of the Guidelines: III-E

VI. Biosafety Officer Report

- **None**

VII. NIH Reports

- **Close out of NIH report**
  The biosafety team submitted an NIH report regarding an incident that involved AAV in a glass capillary tube that broke the surface of the back of a lab member's hand during training. The response from the NIH was that no additional follow-up was necessary. For corrective actions, the biosafety team went over the procedures in-house with the lab manager. The biosafety team then helped to create an SOP to ensure that the lab could easily move the injection apparatus out of the line of fire, so the glass capillary tube is away from hands during experimental set up. Additionally, a hazard poster was created for the group and is now posted in the procedure space.

VIII. August 2025 Biological Use Amendments that were Administratively Approved

- **Matthew Francis (BUA 240):** Addition of established human cell lines with the same risk profile as others that are already approved.
- **Lydia Sohn (BUA 296):** Collection of menstrual blood; menstrual blood is already approved under the BUA.
- **George Bentley (BUA 415):** Addition of fixed tissue for immunohistochemistry (IHC) and microscopic analysis. An SOP is provided to address the handling of the tissues, PPE, disinfection, waste management, spill response, and emergency procedures.
- **Ross Wilson (BUA 418):** The lab is requesting to add another CRISPR enzyme for laboratory bacterial strain transformations, it has the same risk profile as similar enzymes that are already approved in their BUA.

All training requirements must be met and verified by the biosafety team prior to official approval notification to PIs.

Meeting adjourned at 3:32PM.

Meeting minutes prepared by the EH&S Compliance Specialist in collaboration with the biosafety staff.