The University of California, Berkeley
Institutional Biosafety Committee
Meeting Minutes
Zoom
Monday June 9, 2025 2:00-3:18PM

Voting Members in Attendance
Jim Baugh (BSO)
Laurent Coscoy, PhD (Chair)
Greg Timmel, DVM, MS (Animal Expert)
Janet Macher, ScD, MPH (Community Member)
Chris Anderson, PhD (Synthetic Biology)
Dirk Hockemeyer, PhD (Genetics)
Erika Schwilk, MD, MPH (Occupational Health)
Steve Brohawn, PhD (Neurobiology)
Natalie Jouravel (Community Member)
Steven Lindow (Alternate Plant Expert)

Others Present
Olga Draper, PhD (ABSO)
Laura Flores, MPH, PhD (ABSO)
Lily Montoya (ABSO, High Containment Officer)
Linda Wang (Admin)
Christina Acosta, PhD (Biosafety Specialist)
Jim Koman (Facility Liaison)
Suzanne Stone, MA, CIP (Oversight Committees)
Kelly Symmes, DVM, PhD (ABSO)

Voting Members Absent
Mary West, PhD (Core Facility)
Lu Chen, PhD (Optometry)
Roberto Zoncu, PhD (Biochemistry, Biophysics and Structural Biology)

I. Introduction- Greg Timmel – New Attending Veterinarian

The new Attending Veterinarian introduced himself. He comes from UC Davis and he was the Associate Director and Head Veterinarian at the animal facility. Prior to that, he was at Oregon Health and Science University at Legacy Health. Prior to that he worked as a veterinarian at Berkeley from 2001 to 2010.

II. Approval of the May 5th, 2025 Monthly Minutes

The members in attendance approved the meeting minutes unanimously.

III. May 5, 2025 Biological Use Authorization that was approved via Direct Member Review

- **Michel DuPage (Amendment) (BUA 449)**
  Previously, the committee requested the following items be addressed prior to review and approval by the original reviewers. The lab provided more detailed information regarding how the bacteria agents are cultured, as well as bacterial dosages being used for *in vivo* infections. They also clarified the specific PPE that will be used to handle the different bacterial agents. The lab updated the RG1 *E. coli* strain with the specific serotype and provided background literature to support handling procedures for this specific strain. Lastly, the lab added the requested information for proper spill clean up procedures.

IV. Old Business

May 5, 2025 Deferred BSL2 Biological Use Application that Requires IBC Review and Approval

1. Kim Seed (BUA 592)
Reviewers: Roberto Zoncu (via email), Laurent Coscoy, Olga Draper
Amendment – *In Box*
Project Title: Intracellular immunity to viral infection
This is a bacterial immunology lab that is looking to add clinical isolates of RG2 bacteria, some of which show resistance to multiple antibiotics. These isolates will be grown by the lab in small volumes (2mL) for gene sequencing; additional experiments with these isolates includes treatment with antineoplastic antibiotics and phage infection. The committee previously requested more information about the clinical isolates and additional details about risk mitigation measures prior to sequencing. Occupational health is aware of this amendment, and the lab will have infectious agent ID cards for these strains to address prophylaxis

regiments for the antibiotic resistance isolates in the event of an occupational exposure. The committee thought the responses were sufficient. The biosafety team mentioned that the PI is already approved to work with small volumes of RG2 bacteria at the benchtop. The PI requested twice that this new work also be approvable on the benchtop. The biosafety team explained that the infectious dose was lower for this agenta and that work can only be conducted in a BSC. One community member pointed out that some of the new bacteria species may be USDA regulated, depending on the species, so the PI may need to apply for a USDA permit to receive it. The biosafety team will check the permit requirements, it is not a condition of approval.

The committee unanimously approved the BUA amendment at BSL2 with administrative clarification. No NIH guidelines apply.

V. New Business- Full BUA Review

June 9, 2025 BSL2 Biological Use Applications that Require IBC Review and Approval

2. Cara Brook (BUA **)**
Reviewers: Laurent Coscoy, Jim Baugh, Greg Timmel, Olga Draper
Initial Application – *In RSS BUA*
Project Title: Investigating seasonal drivers of viral zoonoses from experimental models
This new lab surveys for the presence of viruses in wild animal reservoirs and the presence of viral infection in humans. Much of the work is performed internationally, both in the field and labs abroad; work here on campus focuses on heat-inactivated or chemically-inactivated samples that are used for microscopy, isotope analysis, and serological or sequencing assays. Unfixed field samples will be stored at -80C on campus and then shipped to a collaborator for analysis. Sample collection is described in detail. The work is performed with extreme caution in mind and appropriate PPE is used. However, the committee raised several concerns. They wanted to know what will be done at the partner institution. They also thought the heat inactivation step described was insufficient for the potential pathogens as described. Finally, there is no mention of an IRB for the human nasopharyngeal swab samples. The biosafety team spoke with the CDC about the work. The lab will potentially have unfixed serum, tissues, but the samples will only be stored at UCB. The biosafety team will meet with the researcher's previous institution to get a complete scope of the work and how it was done. There are biosecurity concerns about the work. The biosafety team reached out to the USDA to discuss permitting and have not heard back. The PI said she checked in about the ectoparasites with the CDC and USDA and discovered that they don't require permits. There are export permits that she has, which are required to get the samples out. Occupational Health confirmed that the only vaccine offered will be the rabies virus vaccine. The committee learned that ACUC will be reviewing the PI's two protocols this week. There are also 3 human subjects research protocols submitted. The Oversight Committees representative said it does not appear that any human specimens qualify as human subjects research because the human specimens were gathered for surveillance purposes and the PI was not involved in the gathering of the specimens. The committee talked about whether the sequencing of HIV is considered whole genome sequencing. Further clarification is needed. The biosafety team noted that a large number of samples will be used for RNA sequencing. However, the prior collection protocol included no viral inactivation in the tubes, and determined for ongoing future collection, viral inactivation at the point of sample collection is necessary. The old samples then need to be inactivated still.

The committee deferred the approval of the BUA application, the application will need to come back in front of the full committee at a later date.
Section of the Guidelines: III-D-2, III-E; BSL2+

3. Tierra Smiley Evans (BUA **)**
Reviewers: Dirk Hockemeyer, Jim Baugh, Lily Montoya
Initial Application – *In RSS BUA*
Project Title: One Health Diagnostics Laboratory
The new lab will develop diagnostic procedures for a range of microorganisms in order to improve existing technologies for detecting both known and emerging diseases. The lab will use standard analytical methods to elucidate the genetics, evolutionary history, and pathogenesis of diseases. Collaborators will provide

samples from healthy or potentially ill wild animals or humans for diagnostic purposes. All samples will be handled under the appropriate biosafety level protocols prior to inactivation. The committee noted that there was not enough information to conduct a risk assessment. There are 3 IRBs listed coming from the researcher's prior institution but there are no details given. There are also no details on the sample collection and how they are transported to UCB. The inactivation procedures are inadequately described. The PI is proposing for some of the samples (not specified) to be handled outside the BSL2 containment, but no explanation was provided. There is also an incomplete sentence about the containment of the inactivated samples. Acronyms are not explained. There is mention of a high containment laboratory to inactivate some of the samples shipped from collaborators in an active state and received by UCB, but there is not much information provided. Some of the work seems to be regulated by the USDA. The biosafety team said they wanted the PI to start the BUA because she wanted to expedite shipment of animal tissue samples from their prior institution. The lab is brand new and not ready to perform any bench work described in the BUA. The biosafety team will work with the PI to have the BUA rewritten.

The committee deferred the approval of the BUA application, the application will need to come back in front of the full committee at a later date.
Section of the Guidelines: N/A; BSL2

4. Molly Ohainle (BUA 592)
Reviewers: Laurent Coscoy, Jim Baugh, Lily Montoya
Renewal – *In RSS BUA*
Project Title: Intracellular immunity to viral infection
The lab is focused on understanding the mechanisms through which cellular defenses inhibit viral infection and how these viruses antagonize or evade these host defense mechanisms. The lab will use vectors to deliver genes, proteins, and shRNAs to established cell lines and primary cell lines. Gene editing platforms will be used to modify cell lines and primary cells to study the role of genes on virus replication. The lab will also work with lab-adapted viral strains and model viruses when possible. The committee walked through the various projects in the BUA renewal. BSL2+ is used when working with live viruses. PPE, handling, facility access, spill and decontamination protocols are appropriate. The BSO commented that the PI is very proactive about reaching out to the biosafety team for changes to the protocol. With no concerns, the committee moved for approval voting.

The committee unanimously approved the BUA renewal at BSL1, BSL2, BSL2+.

Section of the Guidelines: III-D-1, III-D-2, III-F-8, III-E-1

5. Andrew Dillin (BUA 339)
Reviewers: Roberto Zoncu (via email), Laurent Coscoy, Greg Timmel, Christina Acosta
Renewal – *In RSS BUA*
Project Title: Molecular Pathways of Aging
This lab investigates the molecular processes of aging and aging-related diseases such as Parkinson's and Alzheimer's disease. The lab is particularly interested in understanding how various stressors impact metabolic pathways that maintain the homeostasis related to the longevity of organisms. They are interested in the quality control of proteins that impact these age-related diseases by using various cell cultures and experimental models. For age-related studies, mutants are achieved by chemical mutagens, UV irradiation, and/or gene editing platforms. Experimental models are exposed to various bacterial pathogens to investigate the impact they have on the nervous system's control of immune and stress responses. Downstream assays include microscopy and lifespan analysis. The *in vivo* studies aim to better understand the fundamental mechanism of aging, the role of protein aggregation in neurodegenerative diseases, and the unfolded protein response signals in transgenic experimental organisms. Viral vectors will be used to knock down liver genes involved in metabolic pathways and to express proteins of interest. *In vitro* work includes the use of primary isolated cells and established cell lines. Viral vectors are produced in lab and subsequently used for cell transduction to introduce fluorescent proteins targeted to intracellular organelles, and gene editing platforms are used to knockdown/knockout related genes. The committee thought the handling, containment, and spill response was appropriate. They had no concerns with the renewal request but would like the source of the primary cells to be included in the BUA. The biosafety team will work with the lab to get clarification on this point.

The committee unanimously approved the BUA renewal at BSL1, BSL2, ABSL2 with administrative clarification.
Section of the Guidelines: III-D-1, III-D-2, III-D-4, III-E-3

VI. New Business- Amendments

BSL2 Biological Use Amendments that Require IBC Review and Approval

6. Leah Guthrie (BUA 637)
Reviewers: Chris Anderson, Jim Baugh, Laura Flores
Amendment – *In Box*
Project Title: Decoding and Reprogramming Microbiota-mediated Mechanisms of Kidney Injury and Repair
The lab wants to work with de-identified urine samples from a biobank; the participants have mild to moderate Chronic Renal insufficiency but are otherwise healthy. The lab is looking for metabolite extraction for untargeted metabolomics. All work will be done inside of a glove box or similar containment. The committee thought the spill response, waste disposal, handling, PPE, and spill notification procedures were consistent with BSL2 practices. The reviewer asked if human urine really needs BSL2 containment and if the glove box was appropriate instead of a BSC if it is BSL2. The reviewer also wanted to know if BBP training was required since there is a statement about personnel getting BSL1 training and in lab instruction for use of the glove box. The biosafety team noted that urine is exempt from the CalOSHA BBP standard in the absence of visible blood, nevertheless the lab already has BBP training for use of human cell lines and are covered for any chance occurrence of blood in the urine. The glove box has been approved for prior BSL2 work in the lab and the group offered to carry out all work at BSL2. The committee questioned whether it is a concern that the lab considers the work BSL2 but is training at BSL1. If urine is BSL1, the committee does not require any more training than BSL1. The BSO commented that the lab is going above and beyond our containment expectation by working in a glove box. The lab is allowed to work at this level of higher containment if they want to, as long as they meet the minimum requirements. The committee members speculate that the PI may think she needs to do more than she has to do. The biosafety team noted that the glove box affords better protection than the BSC so it could be a matter of sample fidelity. The biosafety team will let the PI know that she can work on the bench since the IBC committee view human urine as BSL1.

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

7. Ben Rubin (BUA 611)
Reviewers: Laurent Coscoy, Chris Anderson, 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 by using gene editing platform-based approaches and transposons that will add antibiotic resistance selection markers. This amendment addresses personnel changes and the addition of a large number of RG1 and RG2 bacteria from healthy gut-microbiomes that will be the recipients of new plasmids that deliver the same components already described by the lab. The lab wishes to add machine learning and large language models to generate novel host-specific plasmid components. The lab wishes to add a system to deliver protein cargos. The lab may also deliver or alter genes involved in metabolic pathways, immune responses, antibiotic resistance, or binding to substrates; some of these may increase microbial fitness. The committee found the standard procedures and waste disposal adequately described. They learned that most of the bacterial species are BSL1 with a few BSL2. They wanted to know what will be done with RG1 and RG2 yeast, and identified incorrect biosafety level containment for one of the described yeasts. The committee questioned why the lab will use lab strain bacteria to deliver plasmids through conjugation to other bacterial species. One reviewer recommended that all the work be conducted at BSL2 due to the nature of the work. Half of the work is already done at BSL2. The biosafety team will reach out to the lab for clarification and to make the recommendation.

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

8. Fyodor Urnov (BUA 532)
Reviewers: Dirk Hockemeyer, Steve Brohawn, Kelly Symmes
Amendment – *In RSS BUA*
Project Title: Development of therapeutic tools for mammalian epigenetic control
This lab aims to apply gene editing and epigenetic editing in vitro via non-viral and viral platforms. This amendment adds two vectors, one containing an antibiotic inducible promoter for gene activation, and the other for packaging viral vectors. The amendment also adds an in vitro model for epigenetic and gene editing techniques. The committee would like the lab to include descriptions for the FACS procedures (Are cells infected with viral vectors handled in the BSLC and are they ever taken out of the hood? Are these cells taken out of the BSC for FACS? What is done with these cells downstream?). The biosafety team will reach out to the lab for clarification.

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

9. Ross Wilson (BUA 418)
Reviewers: Roberto Zoncu (via email), Dirk Hockemeyer, Christina Acosta
Amendment – *In RSS BUA*
Project Title: Development of delivery technology for therapeutic genome editing
This lab is requesting to add primary cells derived from patients bearing numerous neoplastic mutations, as well as established neoplastic cell lines to test their genome editing capacity. The human primary cells from outside collaborators are deidentified and under an approved IRB. The lab aims to test various gene editing enzymes to evaluate their oncogene-targeting genome editing strategies. The overall goal is to inactivate the oncogenes that are leading to the tumor phenotype. In addition, they will also test this genome editing in primary cells isolated from two different experimental models of neurodegenerative disease. The committee talked through the BUA amendment and thought the handling of the cell lines, risk assessment, and safety precautions are all adequately described. With no concerns, the committee moved for approval voting.

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

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

10. Moises Exposito-Alonso (BUA 644)
Reviewers: Steve Lindow, Jim Baugh, Lily Montoya
Amendment – *In RSS BUA*
Project Title: Elucidation and engineering of polygenic adaptation in drought survival
The lab is interested in studying plant resistance to abiotic stress such as drought and high temperatures. The lab will use greenhouse space to grow model organism plants under approved protocols and USDA approval. Lab strain *E. coli* K12 derivatives will be used for cloning and transformation of plants to study early germination and flowering. The committee walked through the amendment to add fieldwork and thought the proposal was straightforward. The committee learned that this would require a special USDA APHIS permit, which is attached to the BUA. The lab is aware of the potential issues they could face (e.g. plant free parameters around the field and the need to bring the plants back in before they shed seeds). The mature plants will be retained in the greenhouse. The BSO said the USDA was on site for an inspection and there were no findings. With no concerns, the committee moved for approval voting.

The committee unanimously approved the BUA amendment at BSL1.
Section of the Guidelines: III-D-5, III-E-2

11. Filipa Rijo Ferreira (BUA 581)
Reviewers: Steve Brohawn, Laurent Coscoy, Greg Timmel, Christina Acosta

Amendment – *In RSS BUA*
Project Title: Circadian rhythms in Parasitic diseases
This lab is requesting to use viral vectors from commercial vendors to generate tissue-specific knockout experimental models in conjunction with commercially available tissue-specific recombination enzyme. The lab aims to use these viral vectors as fluorescent markers as well as to knockdown genes involved in the circadian rhythm. Downstream experimentation includes behavioral assays and temporal sample collection. The committee found it difficult to review because there were not enough details provided and not all biological materials were listed in the materials section.

The committee unanimously deferred the BUA amendment for a Direct Member vote.

Section of the Guidelines: III-D-1, III-D-3, III-E-3; BSL1, BSL2 work practices

12. Robert Tjian/Xavier Darzacq (BUA 12/388)
Reviewers: Steve Brohawn, Roberto Zoncu (via email), Kelly Symmes
Amendment – *In RSS BUA*
Project Title: Mechanism and Regulation of Transcription
This lab is investigating the basic mechanism of transcription through biochemistry, cell biology and in vivo work. This amendment adds an experimental model to study transcription factors via genetic and fluorescence imaging experiments. Standard methods for transgenesis will be employed. The committee thought the proposal was straightforward and well described. They had no concerns with the BUA amendment.

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

13. Ashley Wolf (BUA 547)
Reviewers: Chris Anderson, Steve Brohawn, Lily Montoya
Amendment – *In RSS BUA*
Project Title: Defining the impact of the gut microbiome on dietary metabolism and infection
The lab will introduce genes from RG2 bacteria for protein overexpression in *E. coli* K-12 for characterization of metabolites in bacterial carbon catabolism in the gut. The lab will use *E. coli* plasmids following established recombinant DNA procedures approved under their BUA. The committee had no concerns with the BUA amendment.

The committee unanimously approved the BUA amendment at BSL1.
Section of the Guidelines: III-D-2, III-E-8

VII. <u>Biosafety Officer Report</u>

- Laura Flores is retiring, this is her last IBC meeting. Thank you for your hard work and effort over the years!

VIII. <u>NIH Reports</u>

- **None**

IX. <u>May 2025 Biological Use Amendments that were Administratively Approved by Biosafety staff</u>

- **Kara Nelson (BUA 564)** Addition of a BSL1 space for nucleic acid assays already approved under their BUA
- **Dan Fletcher (BUA 435)** Addition of gene editing plasmids plasmids for *E. coli* expression; The committee previously approved this usage in the lab.
- **Michael Rape (BUA 248)** Addition of cell cycle regulators, some of which may be oncogenes; these are in line with other previously approved cell cycle regulators. Clarified that no sharps will be used with viral vector work and that lipid-based transient delivery systems are used with stem cell differentiation factors. No changes in protocol.

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

Meeting adjourned at 3:18PM. **Meeting minutes prepared by EH&S Compliance Specialist**

Meeting minutes approved by the IBC on 07/07/2025