Caltech

California Institute of Technology
Administrative Committee on Biosafety
Minutes of the Institutional Biosafety Committee (IBC)

Date: September 2, 2025 **Time: 2:30 PM** **Location: Zoom Videoconference**

Voting Members:	R. Ismagilov, M. Doshi, A. Hoelz, T. Chou, L. Quenee, S. Chatterjee, A. Grossman, M. Barsever, K. Lencioni, E. Hisserich, M. Coleman
Nonvoting:	3 attendees
Guests:	2 attendees
Other:	1 attendee

Called to order at 2:32pm, with a quorum in attendance.

1. Announcements
2. Old Business
   A. Protocols - Approved Pending Modification, Modification Complete

The following protocols were previously approved pending implementation of additional IBC-required modifications at the May 6 meeting. The modifications have been completed/implemented and the protocols are approved:

Protocol:	24-381-A2	Amendment	Expiration Date:	7/12/2027
Title:	Identifying Phages that Target Antibiotic-Resistant Bacteria			
PI Name:	Karthikeyan			
Modifications Completed: 7/7/2025				

Protocol:	25-261	De Novo	Expiration Date:	5/12/2028
Title:	Engineering and evaluation of anti-viral therapeutics in vitro and in vivo			
PI Name:	Bjorkman		De Novo	
Modifications Completed: 7/18/2025				

The following protocol was previously approved pending implementation of additional IBC-required modifications at the July 1 meeting. The modifications have been completed/implemented and the protocol is approved:

Protocol:	25-389	New	Expiration Date:	7/12/2028
Title:	Genome Engineering in Bacteria in Plant Leaves and Soil			
PI Name:	Wang			

Modifications Completed: 7/8/2025

3. New Business

A. Approval of Minutes: July 1, 2025

The July 1 meeting minutes were approved by a majority of the IBC. There were 3 abstentions from members who were not present at the July 1 meeting.

B. Occupational Health Updates

The BSO reported that there were no occupational health items to review at this time.

C. Protocols – Full Committee Review

The IBC reviewed the following protocols and conducted a robust risk assessment. The assessment included a determination of the appropriate biocontainment levels for the proposed research and confirmation that the research is compliant with the NIH Guidelines, as applicable.

Protocol:	25-278	De Novo	Expiration Date:	10/10/2025
Title:	Structure and function of the nuclear pore complex			
PI Name:	Hoelz			
COI/Recusal:	A. Hoelz was recused from the discussion of this protocol.			
Brief Description of Project: Our lab studies the architecture and function of the nuclear pore complex (NPC) and nucleo-cytoplasmic transport through biochemical reconstitution, structural analysis, and in cell validation methods.				
Biological Materials Review Summary: Biological materials used in these studies include E. coli K12 strains, S. cerevisiae, Chaetomium thermophilum, insect cell culture lines (e.g., Sf9 and High Five), and Baculovirus for protein expression in insect cells, all conducted under BSL-1 conditions. Additionally, human cell lines (e.g., HeLa, HEK293T, HCT116, and HSPCs) and mouse embryonic fibroblasts (MEFs) are used under BSL-2 conditions. This study employs a third-generation, replication-incompetent lentiviral expression system carrying non-hazardous transgenes. All lentiviral work is conducted at BSL-2 with biosafety level 3 practices.				
NIH Guidelines:	III-D, III-E, III-F	Highest BSL Level:		BSL2 w/ BSL3 practices
Training: This protocol requires the following biosafety training: Basic Principles of Biosafety (BSL1) or Comprehensive Biosafety (BSL2), Bloodborne Pathogens, and Viral Vector Training. Personnel who have not completed the required training will not begin this work until all appropriate training has been completed and documented.				
Review Summary: All facilities, procedures, and practices have been reviewed by the IBC and are considered appropriate and acceptable.				
IBC Action/Decision:	Approved			
❖ The committee reviewed and unanimously approved the protocol subject to adherence to the standard stipulations.				

Protocol:	24-296-A2	Amendment	Expiration Date:	3/12/2027
Title:	Mechanisms of interaction between gut microbiota and the immune system and nervous system			
PI Name:	Mazmanian			
Brief Description of Project: This project uses human biospecimens to investigate immune and nervous system roles in Parkinson's disease (PD) and inflammatory bowel disease (IBD), with the goal of developing actionable biomarkers and novel therapeutic approaches to improve understanding and treatment of chronic disease.				
Biological Materials Review Summary: For PD, peripheral blood mononuclear cells (PBMC) samples will be used to enable the identification of immunogenetic biomarkers that predict disease progression and define immune endotypes, supporting early diagnosis and precision treatment strategies. For IBD, leftover blood and stool samples from a clinical trial will be used to study how stress affects gut microbiome composition and enteric nervous system (ENS) function. The goal is to uncover stress-sensitive neuronal circuits and microbiome changes that contribute to colitis severity, and to evaluate neuromodulatory therapies in preclinical models.				
NIH Guidelines:	III-D	Highest BSL Level:	BSL2	
Training: This amendment requires the following biosafety training: Comprehensive Biosafety (BSL2) and Bloodborne Pathogens Training. Personnel who have not completed the required training will not begin this work until all appropriate training has been completed and documented.				
Review Summary: All facilities, procedures, and practices have been reviewed by the IBC and are considered appropriate and acceptable.				
IBC Action/Decision:	Approved pending Modification (Pending Subcommittee)			
❖ The committee reviewed and unanimously approved the protocol subject to adherence to the standard stipulations, as well as pending implementation of the following modification: • The lab must update the occupational health section of their protocol to include updated risk assessment information with relevant literature citation.				

Protocol:	25-123	De Novo	Expiration Date:	10/10/2025
Title:	Study of DNA2 helicase/nuclease in Fanconi anemia, breast cancer, colorectal cancer, and osteosarcoma			
PI Name:	Campbell			
Brief Description of Project: The overall goal of this research is to define the contribution of the 22 genes of the Fanconi anemia/BRCA pathway to genome stability. Fanconi anemia is a disease of bone marrow failure, cancer predisposition, and its cellular phenotype of genome instability. DNA2 helicase/nuclease is regulated by the pathway. The FA pathway is mediated by 22 genes, many of which also control double-strand break repair, such as BRCA1, BRCA2, PALB2, BRIP1, all of which are also associated with breast cancer. Our objective is to characterize this pathway starting with DNA2 in order to ameliorate bone marrow failure, reduce cancer incidence, and identify new targets in the pathway as anti-cancer drugs. The first objective of this study is to use recombinant viral vectors for knockdown of human DNA repair genes in the Fanconi anemia/BRCA pathway, as well as patient derived mutant cell lines, in order to				

reveal their role in genomic and telomere maintenance, two processes that have potential of being used as therapeutic targets.
Biological Materials Review Summary: 1. Viral Vectors: This study utilizes replication-incompetent viral vectors with nonhazardous or oncogenic transgenes. All work is conducted under BSL-2 with BSL-3 practices. 2. Human Cell Lines and Culture Reagents used for viral vector packaging and transfection. All work is conducted under BSL-2 conditions. 3. pZB-SgRNA, homology template, and Cas9 expression vector for Knock out experiments. All viral and cell culture will be conducted in compliance with institutional biosafety regulations. MTAs were obtained for proprietary viral vectors and infectious agents.
NIH Guidelines: III-D, III-E, III-F Highest BSL Level: BSL2 w/ BSL3 practices
Training: This protocol requires the following biosafety training: Comprehensive Biosafety (BSL2), Bloodborne Pathogens, and Viral Vector Training. Personnel who have not completed the required training will not begin this work until all appropriate training has been completed and documented.
Review Summary: All facilities, procedures, and practices have been reviewed by the IBC and are considered appropriate and acceptable.
IBC Action/Decision: Approved pending Modifications (Pending Subcommittee)
❖ The committee reviewed and unanimously approved the protocol subject to the adherence to the standard stipulations, as well as pending implementation of the following modifications: • The lab must update their protocol to include the most recent BSC certification date. • The lab must update their protocol to clarify that there will be no work with SARS-COV-2 or any SARS-CoV-2 viral components. • The lab must update the summary section to clarify that work with viral vectors will be carried out at BSL2 with BSL3 practices.

Protocol:	25-135	De Novo	Expiration Date:	10/10/2025
Title:	Pseudomonas aeruginosa			
PI Name:	Newman			
Brief Description of Project: Our research involves redox-active phenazine antibiotics produced by Pseudomonas aeruginosa, a pathogen known for infecting immunocompromised patients and individuals with respiratory/pulmonary disease, including cystic fibrosis (CF). Phenazines are often produced at concentrations below their toxic threshold and when cultures have achieved high cell densities, so we hypothesized that they might have important biological functions for their producers. Our studies of phenazines have shown that redox-active "antibiotics" can profoundly affect the physiology and development of their producers. We are intrigued by the possibility that phenazine cycling might contribute to the success of P. aeruginosa and other organisms in the context of infection. In particular, we hypothesize that phenazine cycling is important for the survival of P. aeruginosa in the lungs of CF patients, where it is thought to exist in a biofilm-like state. Bacteria living in these environments face the challenge of sustaining their metabolism under conditions where oxidants for cellular reducing power may be limited. Because the effectiveness of antibiotic treatment depends significantly on the physiological state of biofilm cells, understanding how phenazines affect metabolism may lead to development of new therapeutic avenues. In addition, many CF patients also experience long-term lung colonization with Staphylococcus aureus. Our lab will investigate the relationship between phenazine production in those 2 microorganisms and its impact on antibiotic				

resistance, persistence and biofilm formation in a variety of assays including localization and knockout assays.
Biological Materials Review Summary: We will study bacteria populations on samples (sputum and breath) directly harvested from CF patients and patients with respiratory/pulmonary disease, and wound fluid/biofilm from patients with burn wounds. We will also study bacteria harvested from wounds of animal models infected with P. aeruginosa and/or S. aureus.
NIH Guidelines: III-D, III-E, III-F Highest BSL Level: BSL2
Training: This protocol requires the following biosafety training: Comprehensive Biosafety (BSL2) and Bloodborne Pathogens. Personnel who have not completed the required training will not begin this work until all appropriate training has been completed and documented.
Review Summary: All facilities, procedures, and practices have been reviewed by the IBC and are considered appropriate and acceptable.
IBC Action/Decision: Approved pending Modifications (Pending Subcommittee)
❖ The committee reviewed and unanimously approved the protocol subject to adherence to the standard stipulations, as well as pending implementation of the following modifications: • The lab must complete the animal table and section of their protocol. • The lab must update their protocol summary to include newer aims mentioned throughout the protocol. • The lab must update their protocol with more details regarding genetic modification. • The lab must update their protocol to include the source for all human samples. • The lab must provide to the BSO information regarding their spill clean-up procedures. • Further review and subsequent approval of this protocol by a Subcommittee required.

Protocol:	25-182	De Novo	Expiration Date: 10/10/2025
Title:	Modulation of the Mammalian Nervous System for Psychiatric and Neurological Indications		
PI Name:	Gradinaru		
Brief Description of Project: The Gradinaru lab will use viral vectors to study neurodegenerative diseases such as Parkinson's Disease (PD) and Alzheimer's Disease (AD) and related neural circuits in animals and animal tissue. In parallel, we will develop viral vector technologies, using adeno associated virus (AAV), that will aid our research and provide potential gene therapies, for diseases such as Friedreich's ataxia (FA), Rett Syndrome, Angelman's Syndrome, and fertility gene related issues.			
Biological Materials Review Summary: This work utilizes the following biological materials: 1. Viral Vectors: This study utilizes replication-incompetent viral vectors with nonhazardous transgenes. All work is conducted under BSL-2 conditions or BSL-2 conditions with BSL-3 practices. 2. Human Cell Lines, Serum and Culture Reagents used for viral vector packaging and transfection. All work is conducted under BSL-2 conditions. 3. Animal Tissue: Used for assessing translational potential of engineered AAVs. Work is completed with appropriate containment and only by trained users. 4. Animal Models: Animals are housed in a specific pathogen-free facility under IACUC-approved protocols. All viral and animal work is conducted in compliance with institutional biosafety and animal ethics regulations.			

5. Prion-like Proteins: self-aggregating proteins associated with neurodegenerative diseases are maintained with tightly controlled expression models and inactivation procedures.
NIH Guidelines: III-D, III-E, III-F Highest BSL Level: BSL2 w/BSL3 practices
Training: This protocol requires the following biosafety training: Comprehensive Biosafety (BSL2), Bloodborne Pathogens, Viral Vector, Biological Toxin Training, and Agent-Specific Training. Personnel who have not completed the required training will not begin this work until all appropriate training has been completed and documented.
Review Summary: All facilities, procedures, and practices have been reviewed by the IBC and are considered appropriate and acceptable.
IBC Action/Decision: Approved pending Modifications (Pending Subcommittee)
❖ The committee reviewed and unanimously approved the protocol subject to adherence to the standard stipulations, as well as pending implementation of the following modifications: • The lab must update their protocol to ensure only the current locations are listed. • The lab must complete the incident report procedure question on the protocol. • The lab must update their protocol to include the most recent BSC certification date. • The lab must submit an IBC amendment for any changes in design of viral vector constructs with CRISPR technology. These new constructs must be approved by the IBC before the work can commence.

Protocol:	25-321	De Novo	Expiration Date: 11/12/2025
Title:	Dysregulation of p97/VCP disease mutants in IBM and FTLD-U Cell adhesion mediated by LINKIN Targeting host protein p97/VCP ATPase as anti-viral Therapy The identification of protein targets of dimeric indole alkaloids as potential anti-cancer agents Phosphoproteomic Analyses of Understudied Protein Kinases that affect Zebrafish Sleep Development of a hetero-bifunctional small molecule inducer of mitophagy for treatment of Parkinson's Disease Function of the mammalian autophagic ULK1 complex consists of ULK1, ATG13, ATG101, and RB1CC1. Function of the Histidine triad nucleotide binding proteins (HINT).		
PI Name:	Chou		
Brief Description of Project: The research goal in my lab is to understand the basic mechanism of protein function in vitro and in cells. We focus on proteins involved in intracellular regulation mechanisms such as ubiquitination, proteasome and autophagy function (p97/VCP, RuvbL1/2, GNS, FIP200, ATG101, ATG13, ATG9a) or transmembrane proteins involved in cell-to-cell adhesion mechanisms (Linkin) or a cytosolic protein (Hint1). These proteins are often deregulated or not functioning properly in various type of cancers or neurodegenerative diseases. Using the knowledge acquired from basic research on these proteins and their function, we aim to develop and test small molecule compounds to target the protein(s) to treat cancer, neurodegenerative diseases and viral infections. In addition, recombinant purified protein can be potential candidates for the treatment of genetic disorders. We are developing new therapeutic agents using hetero-bifunctional small molecule to induce mitophagy to treat neurodegenerative diseases. My lab also collaborates with a few labs on campus to utilize proteomic approaches to understand functions of a protein and identify drug targets of small molecule inhibitors.			

Biological Materials Review Summary: Infectious Agents: Our study involves use of common cold coronavirus strain obtained from ATCC with no genetic modifications. All work is conducted under BSL-2 conditions. We use human 293T cell line viral vector packaging and transfection. All work is conducted under BSL-2 conditions. We use both E. coli and human cell lines for protein purification, proteomics, and cell biology. We use C elegans for proteomics and imaging assays.
NIH Guidelines: III-D, III-E, III-F Highest BSL Level: BSL2 w/ BSL3 practices
Training: This protocol requires the following biosafety training: Basic Principles of Biosafety (BSL1) or Comprehensive Biosafety (BSL2), Bloodborne Pathogens, and Viral Vector Training. Personnel who have not completed the required training will not begin this work until all appropriate training has been completed and documented.
Review Summary: All facilities, procedures, and practices have been reviewed by the IBC and are considered appropriate and acceptable.
IBC Action/Decision: Approved pending Modifications (Pending Subcommittee)
❖ The committee reviewed and unanimously approved the protocol subject to the adherence to the standard stipulations, as well as pending implementation of the following modifications: • The lab must provide additional information regarding the type of biological materials that will be handled with the automated pipetting device. • The lab must provide additional information regarding the pseudotyped virus strain. • Further review and subsequent approval of this protocol by a Subcommittee required.

Protocol:	25-276	De Novo	Expiration Date: 10/12/2025
Title:	Olfactory processing in dipteran insects		
PI Name:	Hong		

Brief Description of Project: This project investigates the cellular, synaptic, and circuit basis of olfactory coding and behavior in dipteran insects, focused primarily on two species Drosophila melanogaster and Lucilia cuprina.

Biological Materials Review Summary: This study uses the following biological materials:

1. Recombinant E. coli: we adhere to universal BSL1 precautions and are expressing low-risk plasmids.
2. RG1 bacteria: we culture small quantities of microbes associated with food fermentation and decomposition
3. Transgenic flies: we adhere strictly to protocols that thoroughly euthanize flies before disposal and that prevent their escape from the laboratory environment.
4. Biological toxins: we use small quantities of neurological toxins (e.g., tetrodotoxin, picrotoxin, alpha-bungarotoxin); we follow strict protocols to inactivate any toxins before disposal.

NIH Guidelines: III-B, III-D, III-F Highest BSL Level: BSL2
Training: This protocol requires the following biosafety training: Basic Principles of Biosafety (BSL1) or Comprehensive Biosafety (BSL2) and Biological Toxin Training. Personnel who have not completed the required training will not begin this work until all appropriate training has been completed and documented.
Review Summary: All facilities, procedures, and practices have been reviewed by the IBC and are

considered appropriate and acceptable.
IBC Action/Decision: Approved pending Modifications (Pending Subcommittee)
❖ The committee reviewed and unanimously approved the protocol subject to adherence to the standard stipulations, as well as pending implementation of the following modifications: • The lab must update their protocol to clarify the risks associated with toxin handling. • The lab must update their protocol to clarify the type of samples transferred to WEL core facility. • The lab must provide the BSO a "Use of Toxins SOP" for review and approval. • The BSL level for Enterococcus and Providencia bacteria must be increased to BSL2.

Protocol:	25-394	New	Expiration Date:	TBD
Title:	Baculovirus as a non-replicative vehicle for the delivery of proteins and nucleic acids in Drosophila cells and whole flies			
PI Name:	Hay			
Brief Description of Project: This project aims to utilize recombinant baculovirus as a non-replicating vehicle for the targeted delivery of either nonhazardous protein or genetic cargo to Drosophila melanogaster cells.				
Biological Materials Review Summary: This project will use recombinant baculovirus carrying protein or genetic cargo, with any inserted transgenes being expressed under Drosophila-specific promoters. The recombinant baculovirus will be used to transfect insect cells, either in tissue culture (sf9 and S2 cells) or in adult insects (Drosophila melanogaster). This work is considered BSL1 but work with baculovirus and insect cells will be performed in a certified biosafety cabinet.				
NIH Guidelines:	III-D, III-E	Highest BSL Level:		BSL1 / ACL1
Training: This protocol requires the following biosafety training: Basic Principles of Biosafety (BSL1) Training. Personnel who have not completed the required training will not begin this work until all appropriate training has been completed and documented.				
Review Summary: All facilities, procedures, and practices have been reviewed by the IBC and are considered appropriate and acceptable.				
IBC Action/Decision: Approved				
❖ The committee reviewed and unanimously approved the protocol subject to adherence to the standard stipulations.				

Protocol:	25-395	New	Expiration Date:	TBD
Title:	Dynamics of bacterial communities in complex fluids			
PI Name:	Datta			
Brief Description of Project: In many natural settings, microbes self-organize into intricately structured communities, with distinct cell types coexisting by occupying distinct spatial domains. Inspired by this, we study the dynamics of bacterial communities in complex environments using confocal microscopy.				
Biological Materials Review Summary: To explore the dynamics of bacterial communities, we image bacteria in see-through complex environments created by polymers, hydrogels, salts, and minerals. We mainly work with E. coli, P. aeruginosa, and V. cholerae, along with baker's yeast. In some experiments, we explore how these dynamics are altered by various antibiotics or bacteriophages.				

NIH Guidelines:	III-D, III-E, III-F	Highest BSL Level:	BSL2
Training: This protocol requires the following biosafety training: Basic Principles of Biosafety (BSL1) or Comprehensive Biosafety (BSL2) Training. Personnel who have not completed the required training will not begin this work until all appropriate training has been completed and documented.			
Review Summary: All facilities, procedures, and practices have been reviewed by the IBC and are considered appropriate and acceptable.			
IBC Action/Decision: Approved pending Modifications (Pending Subcommittee)			
❖ The committee reviewed and unanimously approved the protocol subject to adherence to the standard stipulations, as well as implementation of the following modifications: • The lab must update their protocol to include maximum culture volumes. • The lab must provide the BSO clarification regarding spill clean-up procedures.			

D. Protocols - Expedited Review

Protocol:	25-356	De Novo	Expiration Date:	10/12/2025
Title:	Decoding protein structure-function relationships in electrochemical environments			
PI Name:	Manthiram			
Brief Description of Project: We want to power proteins and cells with electricity. To do so, we study and engineer how natural systems respond to electron transfers.				
Biological Materials Review Summary: We work with bacteria that can exchange electrons with surfaces and evaluate their behavior in electrochemical environments. We also work with purified proteins with the aim of characterizing their redox-dependent structure and biochemistry.				
NIH Guidelines:	III-E, III-F	Highest BSL Level:	BSL1	
Training: This protocol requires the following biosafety training: Basic Principles of Biosafety (BSL1) Training. Personnel who have not completed the required training will not begin this work until all appropriate training has been completed and documented.				
Review Summary: All facilities, procedures, and practices have been reviewed by the IBC and are considered appropriate and acceptable.				
IBC Action/Decision: Chair Approved				
❖ The Chair reviewed and approved the protocol subject to adherence to the standard stipulations.				

Protocol:	23-327-A1	Amendment	Expiration Date:	5/12/2026
Title:	Mechanism of protein biogenesis and quality control			
PI Name:	Shan			
Brief Description of Project: This is an amendment to update and clarify disinfection methods.				
Biological Materials Review Summary: No changes in materials.				
NIH Guidelines:	III-E, III-F	Highest BSL Level:	BSL2	
Training: This amendment requires the following biosafety training: Comprehensive Biosafety (BSL2) Training. Personnel who have not completed the required training will not begin this work until all appropriate training has been completed and documented.				
Review Summary: All facilities, procedures, and practices have been reviewed by the IBC and are considered appropriate and acceptable.				

IBC Action/Decision: Chair Approved pending Modification (Pending Subcommittee)
❖ The Chair reviewed and approved the protocol subject to adherence to the standard stipulations, as well as implementation of the following modifications: • Provide the BSO clarification of disinfectant contact times and surface decontamination methods.

Protocol:	25-261-A1	Amendment	Expiration Date:	5/12/2028
Title:	Engineering and evaluation of anti-viral therapeutics in vitro and in vivo			
PI Name:	Bjorkman			
Brief Description of Project: This amendment includes the addition of two non-infectious HIV-1 strains obtained from a collaborating lab to conduct imaging studies. Samples will be prepared and frozen for high resolution imaging at the Cryo-EM Facility.				
Biological Materials Review Summary: Two non-infectious HIV-1 strains, one of which is chemically inactivated prior to receipt, the other is replication incompetent.				
NIH Guidelines:	III-D	Highest BSL Level:	BSL2 with BSL3 practices	
Training: This amendment requires the following biosafety training: Comprehensive Biosafety (BSL2) and Bloodborne Pathogens Training. Personnel who have not completed the required training will not begin this work until all appropriate training has been completed and documented.				
Review Summary: All facilities, procedures, and practices have been reviewed by the IBC and are considered appropriate and acceptable.				
IBC Action/Decision: Chair Approved				
❖ The Chair reviewed and approved the protocol subject to adherence to the standard stipulations.				

Protocol:	23-369-A13	Amendment	Expiration Date:	10/12/2026
Title:	Detection and characterization of bacteria in human samples and cultures.			
PI Name:	Ismagilov			
COI/Recusal:	R. Ismagilov was recused from the discussion of this protocol.			
Brief Description of Project: This amendment includes the addition of murine gammaherpesvirus-68-infected mouse tissue samples and viral isolates (MHV68, Vaccinia Virus).				
Biological Materials Review Summary: This amendment includes additional materials for our project that aims to evaluate library preparation methods for testing of next-generation sequencing and low-level nucleic acid detection. This study amendment includes the use of murine MHV-68-infected mouse tissue samples (inactivation and nucleic acid preparation only; no culturing), MHV-68 viral isolates, and Vaccinia Virus DNA (no intact virus). All work is conducted under BSL-2 conditions.				
NIH Guidelines:	N/A	Highest BSL Level:	BSL2 with BSL3 practices	
Training: This amendment requires the following biosafety training: Comprehensive Biosafety (BSL2)Training. Personnel who have not completed the required training will not begin this work until all appropriate training has been completed and documented.				
Review Summary: All facilities, procedures, and practices have been reviewed by the IBC and are considered appropriate and acceptable.				

IBC Action/Decision: Vice Chair Approved
❖ The Vice Chair reviewed and approved the protocol subject to adherence to the standard stipulations.

Protocol:	23-279-A1	Amendment	Expiration Date:	2/10/2026
Title:	Developing Biosensors to Study Drug Addiction in the Brain			
PI Name:	Lester			
Brief Description of Project: This amendment includes the removal of a biological toxin.				
Biological Materials Review Summary: This amendment includes the removal of a biological toxin.				
NIH Guidelines:	III-D	Highest BSL Level:	BSL2	
Training: This amendment requires the following biosafety training: Comprehensive Biosafety (BSL2)Training. Personnel who have not completed the required training will not begin this work until all appropriate training has been completed and documented.				
Review Summary: All facilities, procedures, and practices have been reviewed by the IBC and are considered appropriate and acceptable.				
IBC Action/Decision: BSO Approved				
❖ The BSO reviewed and approved the protocol subject to adherence to the standard stipulations.				

Protocol:	25-270-A1	Amendment	Expiration Date:	5/12/2028
Title:	Adeno-associated viral (AAV) vectors in animals for visualizing host-microbe interactions in the brain and gut			
PI Name:	Mazmanian			
Brief Description of Project: The project uses precise neuronal modulation in the enteric and central nervous systems to uncover how targeted gene silencing or activation shapes neuronal function, connectivity, and behavior, revealing key mechanisms behind autophagy, circuit dynamics, and neural plasticity.				
Biological Materials Review Summary: These AAV vectors enable precise, neuron-specific gene manipulation and labeling. They allow conditional knockdown, Cre-dependent control, and targeted visualization to study gene function and neural circuits.				
NIH Guidelines:	III-D	Highest BSL Level:	BSL2	
Training: This protocol amendment the following biosafety training: Comprehensive Biosafety (BSL2), Bloodborne Pathogens, and Viral Vector Training. Personnel who have not completed the required training will not begin this work until all appropriate training has been completed and documented.				
Review Summary: All facilities, procedures, and practices have been reviewed by the IBC and are considered appropriate and acceptable.				
IBC Action/Decision: BSO Approved				
❖ The BSO reviewed and approved the protocol subject to adherence to the standard stipulations.				

Protocol:	25-317-A1	Amendment	Expiration Date:	7/12/2028
Title:	Mechanisms behind early mouse embryo development			

PI Name:	Zernicka-Goetz		
Brief Description of Project: The goal of this study is to gain insight into the growth and development of early mammalian embryos. To better observe cell dynamics and the mechanisms governing mammalian developmental stages, we will isolate early mouse embryos from uterine tissue.			
Biological Materials Review Summary: This amendment includes an additional lab location for imaging with no changes in materials.			
NIH Guidelines:	III-D	Highest BSL Level:	BSL2 w/ BSL3 practices
Training: This amendment requires the following biosafety training: Comprehensive Biosafety (BSL2), Bloodborne Pathogens, and Viral Vector Training. Personnel who have not completed the required training will not begin this work until all appropriate training has been completed and documented.			
Review Summary: All facilities, procedures, and practices have been reviewed by the IBC and are considered appropriate and acceptable.			
IBC Action/Decision:	BSO Approved		
❖ The BSO reviewed and approved the protocol subject to adherence to the standard stipulations.			

Protocol:	25-324-A1	Amendment	Expiration Date:	7/12/2028	
Title:	Early Embryo Development				
PI Name:	Zernicka-Goetz				
Brief Description of Project: The objective of this study is to uncover the mechanisms underlying human implantation and early post-implantation development by leveraging advanced technologies such as high-resolution time-lapse imaging, single-cell RNA sequencing (scRNA-seq), seqFISH+, MERFISH, and functional assays. We will employ CRISPR/Cas9 to introduce fluorescent markers into cultured human embryos, enabling lineage tracing and gene expression studies. Fluorescently tagged stem cell lines will be used to create chimeras with natural embryos or incorporated into synthetic embryo-like models. Cell lines will express nuclear (GFP-Histone H3) and membrane (RFP-tagged protein) markers, and reporter lines will be developed to monitor key developmental genes. Modified hypoblast and trophoblast lines will also be included. Embryos will be tracked using confocal and time-lapse microscopy, and endpoint analyses will include scRNA-seq, seqFISH+, MERFISH and functional assays up to day 14 of development.					
Biological Materials Review Summary: This amendment includes an additional lab location for imaging with no changes in materials.					
NIH Guidelines:	III-D		Highest BSL Level:	BSL2 w/ BSL3 practices	
Training: This amendment requires the following biosafety training: Comprehensive Biosafety (BSL2), Bloodborne Pathogens, and Viral Vector Training. Personnel who have not completed the required training will not begin this work until all appropriate training has been completed and documented.					
Review Summary: All facilities, procedures, and practices have been reviewed by the IBC and are considered appropriate and acceptable.					
IBC Action/Decision:	BSO Approved				
❖ The BSO reviewed and approved the protocol subject to the adherence to standard stipulations.					

Personnel/Admin Amendments

- 22-135 Newman
- 22-271 Prober
- 22-278 Hoelz
- 22-316 Stathopoulos
- 23-207 Shapiro
- 23-110 Shapiro
- 23-214 Oka
- 23-284 Wang
- 23-291 Newman
- 23-335 Bjorkman
- 23-336 Ismagilov
- 23-369 Ismagilov
- 23-370 Ismagilov
- 24-309 Van Valen
- 24-239 Lois
- 24-294 Wei
- 24-295 Hay
- 24-299 Clemons
- 24-304 Gregory
- 24-314 Mayo
- 24-362 Ismagilov
- 24-378 Nolan
- 24-379 Hay
- 24-380 Ismagilov
- 25-078 Chan
- 25-156 Goentoro
- 25-192 Hay
- 25-261 Bjorkman
- 25-271 Prober
- 25-281 Lois
- 25-316 Stathopoulos
- 25-350 Hajimiri
- 25-393 Taboada
- 22-266 Aravin (CLOSED)
- 22-354 Gamboa (CLOSED)
- 24-345 Wang (CLOSED)

4. Other Business

A. ACB Policy & Procedures

The BSO updated the committee that the IBC Policy & Procedures will be updated and incorporated into the overarching ACB Policy & Procedures and presented at the next IBC meeting.

B. IBC PAS

The BSO updated the committee that the IBC PAS system will be going into beta testing within the next couple of weeks.

Next Meeting – October 7, 2025

Meeting adjourned at 4:09pm

Approved by the IBC 10/7/25

Standard Stipulations:

1. Laboratory personnel must be trained regarding the hazards of the biological agents in the lab in accordance with our policy. Your lab should document and keep record of all training.
2. Changes in the scope of your work must be reported to the biosafety officer prior to implementation. Please contact the biosafety officer if you are considering modification to your protocol.
3. Any new laboratory personnel wishing to work on this project must be approved to work on this protocol PRIOR to beginning work on this protocol. In order to add new personnel, you must submit a request to add personnel to the IBC Administrator along with verification that all required training (both Caltech and laboratory-specific training) has been completed.
4. In the event of any exposure to regulated materials under this protocol, you must notify the biosafety officer as soon as possible.
5. You must adhere to applicable Chemical/Radiation Safety requirements.
6. Your lab must abide by all local, state, and federal rules and regulations regarding disposal of biological waste and requirements to obtain permits.
7. If your research uses human participants or biospecimens (IRB), animals (IACUC) or human stem cells (HESC), you must have an appropriate registration or approved protocol on file with Caltech.