Caltech

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

Date: December 11, 2025 **Time: 2:00 PM** **Location: In-Person/Zoom Videoconference**

Voting Members:	R. Ismagilov, M. Doshi, L. Cai, L. Quenee, A. Grossman, M. Barsever, K. Lencioni, C. Cortese, F. Chen, M. Coleman
Nonvoting:	2 attendees
Guests:	N/A
Other:	1 attendee

Called to order at 2:07 pm, with a quorum in attendance.

1. Announcements

   A. No January Meeting

   B. New Member: F. Chen

2. Old Business

   A. Protocols - Approved Pending Modification, Modification Complete

   The following protocol was previously approved pending implementation of additional IBC-required modifications at the September 2 meeting. The modifications have been completed/implemented and the protocol is approved:

Protocol:	23-327-A1	Amendment	Expiration Date:	5/12/2026
Title:	Mechanism of protein biogenesis and quality control			
PI Name:	Shan			
Modifications Completed: 11/25/25				

   B. Protocols - Approved Pending Modification, Withdrawn

   The following protocol was previously approved pending implementation of additional IBC-required modifications at the November 4 meeting. The lab has withdrawn the amendment and submitted a new amendment for review.

Protocol:	24-299-A3	Amendment	Expiration Date:	4/12/2027
Title:	Membrane Protein Characterization			
PI Name:	Clemons			
Anticipated Completion: N/A (Withdrawn)				

3. New Business

A. Approval of Minutes: November 4, 2025

The November 4 meeting minutes were approved by a majority of the IBC. There was 1 abstention from a member who was not present at the November 4 meeting.

B. Protocols – Full Committee Review

Protocol:	26-207	De Novo	Expiration Date:	2/10/2026
Title:	Molecular Engineering of Non-Invasive Biological Interfaces			
PI Name:	Shapiro			
Brief Description of Project: The Shapiro Laboratory develops new technologies to non-invasively image and control cellular and molecular function in living organisms. Our work combines advanced molecular and cellular engineering with imaging and actuation via various forms of penetrant energy (magnetic, mechanical, thermal, chemical) in vitro in bacteria, yeast and mammalian cells, and in vivo in animals.				
Biological Materials Review Summary: This project aims to develop new technologies to non-invasively image and control cellular and molecular functions in living organisms. The study utilizes different E.coli strains, Gas vesicles derived from prokaryotes, mammalian cells such as primary immune cells, cancer cell lines, and tissue sections, viral vectors such as replication-incompetent AAV and lentiviral vector, and biological toxins.				
NIH Guidelines:	III-D	Highest BSL Level:		BSL2 w/ BSL3 practices
Training: This protocol requires the following biosafety training: Comprehensive Biosafety (BSL2), Bloodborne Pathogens, Viral Vector and Biotoxin 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:	Pending Modifications - Subcommittee			

❖ The committee reviewed and unanimously deferred approval of this protocol pending implementation of the following modifications and subsequent review and approval by a subcommittee:
- Update description of PPE for in vivo ultrasound experiments so use of a face mask is consistent throughout protocol
- Update the name of OLAR-approved disinfectant
- All personnel must complete the required biosafety training within one week

Protocol:	26-279	De Novo	Expiration Date:	2/10/2026
Title:	Developing Biosensors to Study Drug Addiction in the Brain			
PI Name:	Lester			
Brief Description of Project: The goal of this project is to observe the movement of various drugs in brain cells to study addiction mechanisms. We will create fluorescent biosensors that will be delivered by AAV in vitro and subsequently in vivo. These biosensors will fluoresce when the drug is present, allowing us to visualize the drug in a cell.				

Biological Materials Review Summary: We will use E. coli and standard cloning techniques to create recombinant plasmids needed in our study. We will package our own viral vectors (AAVs) in the lab to create novel biosensors for various drugs of addiction.			
NIH Guidelines:	III-D	Highest BSL Level:	BSL2
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 for work with BSL1 materials. Additional stipulations for work with BSL2 materials are indicated below.			
IBC Action/Decision:	Pending Modifications - Subcommittee		

- ❖ The committee reviewed and unanimously approved the BSL1 work on this protocol subject to adherence to the standard stipulations.
- ❖ The committee reviewed and unanimously deferred approval of this protocol pending implementation of the following modifications and subsequent review and approval by a subcommittee:
  - Recertification of Biosafety Cabinets
  - Completion of Biosafety Refresher Training by individuals listed on the protocol
  - Submission of an IRB query for use of human serum

Protocol:	23-292-A4	Amendment		Expiration Date:	11/12/2026
Title:	Bioelectronic devices for personalized medicine				
PI Name:	Gao				
Brief Description of Project: This amendment involves the use of a diabetic wound-healing model to evaluate a hydrogel-based wound management device that generates oxygen and hypochlorous acid at the wound site and includes a sensor to monitor and regulate HOCl concentration. The study will assess wound healing outcomes under different treatment conditions using infected and uninfected wounds on each animal.					
Biological Materials Review Summary: This protocol involves the use of animals in a diabetic wound-healing model. Biological materials include controlled wound infections using Methicillin-Sensitive Staphylococcus aureus (MSSA).					
NIH Guidelines:	N/A		Highest BSL Level:		BSL2
Training: This protocol 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:	Pending Modifications - Subcommittee				

- ❖ The committee reviewed and unanimously deferred approval of this protocol pending implementation of the following modifications and subsequent review and approval by a subcommittee:
  - Update name of OLAR-approved disinfectant
  - Lab personnel must enroll in the Respiratory Protection Program and wear an N95 for handling of the infected animal model

Protocol:	24-296-A3	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 amendment involves the addition of a synthetic gut microbiome and a procedural change for handling of animal models outside of a BSC but with additional PPE and administrative procedures.				
Biological Materials Review Summary: This amendment involves the addition of a synthetic, commercially available gut microbiome.				
NIH Guidelines:	III-D	Highest BSL Level:		BSL2
Training: This protocol 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:	Pending Modification - Subcommittee			
❖ The committee reviewed and unanimously deferred approval of this protocol pending implementation of the following modification and subsequent review and approval by a subcommittee: • Clarification of procedures for separation of BSL1 and BSL2 work.				

Protocol:	25-315-A1	Amendment	Expiration Date:	6/12/2028
Title:	Genome Engineering in Bacteria			
PI Name:	K. Wang			
Brief Description of Project: We will be attempting to explore the translational potential of the in situ engineering technologies enclosed within this protocol by treating pre-screened human stool obtained from a commercial vendor with the bespoke technologies that can then be engrafted into the gut of SPF mice through FMT This would be of great value to various downstream therapeutic applications. Additionally, and unrelated to this, we are expanding our scope to include the native gut microbiome of murine models by applying our technologies in wildR mice – commercially licensed SPF mice colonies that have been colonized with microbiomes closer to that of wild mice.				
Biological Materials Review Summary: The protocol amendment contains the use of commercially-obtained and pre-screened human stool. The stool of transplanted murine recipients will be collected and screened in a similar manner, and constitutes an additional biological sample type. The protocol amendment additionally includes the WildR gut microbiome.				
NIH Guidelines:	III-D-2	Highest BSL Level:		BSL2
Training: This protocol 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:	Pending Modifications - Subcommittee			
❖ The committee reviewed and unanimously approved the murine work on this protocol subject to adherence to the standard stipulations.				

- ❖ The committee reviewed and unanimously deferred approval of this protocol pending implementation of the following modifications and subsequent review and approval by a subcommittee:
  - Human stool samples must be obtained from a commercial source
  - Samples must be screened for pathogens by the commercial vendor, an OLAR-approved vendor, and the lab (sequencing) and found negative for human and zoonotic pathogens prior to use in the described experiments

Protocol:	25-270-A2	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 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:	Pending Modifications - Subcommittee			

- ❖ The committee reviewed and unanimously deferred approval of this protocol pending implementation of the following modifications and subsequent review and approval by a subcommittee:
  - Clarification and scientific justification with the BSO for the expression of a human instead of murine gene insert in animals
  - Provide additional details for disinfection procedures

Protocol:	26-171	De Novo	Expiration Date:	2/10/2026
Title:	Customizing AAV Vectors for gene delivery – CLOVER production and training center			
PI Name:	Shay (CLOVER)			
Brief Description of Project: The CLOVER center produces customized replication-defective adeno-associated viruses (rAAVs) and lentiviral vectors for gene delivery and provides training to researchers in rAAV production.				
Biological Materials Review Summary: This study packages nonhazardous transgenes into rAAVs and lentiviral vectors using a human cell line and evaluates infectivity and transgene expression in mammalian cell lines and animal primary neuronal cultures. All procedures are conducted under BSL-2 conditions (AAV) or BSL-2 with BSL-3 practices (Lentiviral vectors).				

NIH Guidelines:	III-D-3, III-D-4	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 with Stipulations			
❖ The committee reviewed and unanimously approved this protocol subject to adherence to the standard stipulations and the following special stipulations: • Clarification of gene insert "XM_03528337.1" with updated agent table if applicable • Facility must provide the IBC with confirmation of both internal and external collaborators' IBC approvals			

C. Protocols - Expedited Review

Protocol:	26-360	De Novo	Expiration Date:	2/10/2026
Title:	Advancement of Planetary Protection to Complete Biologic Inventory via Cryo-Electron Microscopy			
PI Name:	Parker			
Brief Description of Project: The goal of this project is to determine the feasibility of using Cryo-Electron Microscopy as a methodology for total bioburden identification and quantification.				
Biological Materials Review Summary: The biological materials used in this study are non-pathogenic BSL-1 isolates of planetary protection interest.				
NIH Guidelines:	N/A	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 the adherence to the standard stipulations.				

Protocol:	24-381-A3	Amendment	Expiration Date:	7/12/2027
Title:	Identifying Phages that Target Antibiotic-Resistant Bacteria			
PI Name:	Karthikeyan			
Brief Description of Project: This amendment is to add a soil bacterium Azotobacter vinelandii to investigate Nif proteins involved in nitrogen fixation.				
Biological Materials Review Summary: Addition of Azotobacter vinelandii to be handled with BSL-1 precautions.				
NIH Guidelines:	N/A	Highest BSL Level:	BSL2	
Training: This protocol amendment 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: Chair Approved
❖ The Chair reviewed and approved the protocol subject to the adherence to the standard stipulations.

Protocol:	24-366-A1	Amendment	Expiration Date:	4/12/2027
Title:	Exploring Carbocationic Reactivity Utilizing Enzymatic Catalysts			
PI Name:	Nelson			
Brief Description of Project: This amendment includes lab E. coli expression of proteins to be further extracted, purified, and characterized.				
Biological Materials Review Summary: This amendment includes additional proteins to be expressed in lab strains of E. coli.				
NIH Guidelines:	III-F	Highest BSL Level:	BSL1	
Training: This protocol amendment requires the following biosafety training: Basic Principles of Biosafety (BSL1). 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 the standard stipulations.				

Personnel/Admin Amendments

- 23-028 Rothenberg
- 23-171 CLOVER (Shay)
- 23-205 Varshavsky
- 23-279 Lester
- 23-286 Phillips
- 23-291 Newman
- 23-292 Gao
- 23-329 Semlow
- 23-334 Patke
- 23-361 Karthikeyan
- 23-364 Cao
- 23-367 Yang (CLOSED)
- 23-369 Ismagilov
- 24-093 Hsieh-Wilson
- 24-233 Wold
- 24-296 Mazmanian
- 24-303 Collazo
- 24-304 Gregory
- 24-306 Dickinson
- 24-308 PEC
- 24-313 Cai
- 24-337 PEL (Chou)
- 24-366 Nelson
- 24-377 Dickinson
- 24-381 Karthikeyan
- 24-382 McMahon
- 24-384 Fianu
- 24-385 Morstein
- 25-065 Anderson
- 25-135 Newman
- 25-182 Gradinaru
- 25-261 Bjorkman
- 25-278 Hoelz
- 25-311 Anderson
- 25-315 Wang
- 25-389 Wang

- 25-395 Datta

4. Other Business

A. IBC PAS

The BSO provided an update regarding IBC PAS wherein training for the committee is planned to take place at the February meeting and refresher training will be provided at the March meeting.

Next Meeting – February 3, 2026

Meeting adjourned at 3:43pm

Approved by the IBC 2/3/26