

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

Date: July 7, 2026

Time: 2:35 PM

Location: Zoom Videoconference

Voting Members: R. Ismagilov, M. Doshi, L. Cai, W. Gao, L. Quenee, A. Grossman, M. Barsever, N. Singh, K. Lencioni, C. Cortese, E. Hisserich, F. Chen, M. Coleman

Nonvoting: 3 attendees

Guests: 1 attendee

Other: 1 attendee

Called to order at 2:37 pm, with a quorum in attendance.

1. Announcements

2. Old Business

A. Protocols - Approved Pending Modifications, Modifications Complete

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

Protocol:	24-314-A3	Amendment	Expiration Date:	12/12/2027
Title:	Computational protein Design – in vitro testing phase.			
PI Name:	Mayo			
Modifications Completed: 6/2/2026				

B. Protocols - Approved Pending Modifications, Modifications Pending

The following protocol was previously approved pending implementation of additional IBC-required modifications from the May 5 meeting. The lab is still working on completing the modifications:

Protocol:	25-395-A2	Amendment	Expiration Date:	10/12/2028
Title:	Dynamics of bacterial communities in complex fluids			
PI Name:	Datta			
Anticipated Completion: 8/1/2026				

3. New Business

A. Approval of Minutes: June 2, 2026

The June 2 meeting minutes were unanimously approved by the IBC.

B. Protocols – Full Committee Review

Protocol:	23-369-A16	Amendment	Expiration Date:	10/12/2026
Title:	Detection and characterization of bacteria in human samples and cultures.			
PI Name:	Ismagilov			
Brief Description of Project: The lab develops methods to detect and characterize small quantities of whole bacteria and fungi in various types of samples. The lab is looking to expand their nucleic acid processing methods to additional sample types such as wastewater.				
Biological Materials Review Summary: This amendment is to add wastewater influent, which may contain various bacteria, fungi, and parasites. Samples will be handled in small volumes with BSL-2 precautions prior to immediate inactivation via a chemical or mechanical means for nucleic acid extraction.				
NIH Guidelines:	N/A	Highest BSL Level:	BSL2 w/ BSL3 practices	
Training: This protocol requires the following biosafety training: Comprehensive Biosafety (BSL2), annual Bloodborne Pathogens, ATD 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.				
COI/Recusal: R. Ismagilov was recused from the discussion of this protocol.				
IBC Action/Decision: Approved				
❖ The committee reviewed and unanimously approved this protocol subject to adherence to the standard stipulations.				

Protocol:	26-289	De Novo	Expiration Date:	8/12/2026
Title:	Generating a single-cell transcriptome data bank of human tissues			
PI Name:	Thomson			
Brief Description of Project: Human single-cell transcriptomes will be produced from diverse tissues, cell lines and primary cells, to establish a local database of cell-type-resolved gene expression measurements relevant to human disease progression and normal tissue function.				
Biological Materials Review Summary: Single-cell suspensions prepared from commercially obtained tumor samples, tumor samples from collaborating labs, primary immune cells isolated from PBMC collections, and established human cell lines, will be run through a droplet encapsulation technique (10x Genomics) for the production of single cell full transcriptome libraries.				
NIH Guidelines:	N/A	Highest BSL Level:	BSL2	
Training: This protocol requires the following biosafety training: Comprehensive Biosafety (BSL2) and annual 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			

❖ The committee reviewed and unanimously approved this protocol subject to adherence to the standard stipulations.
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Protocol:	26-397	New	Expiration Date:	Pending
Title:	Geometric design of anti-infection catheters			
PI Name:	Sternberg			
Brief Description of Project: This project will evaluate, using in vitro laboratory assays, whether urinary catheter materials or prototypes reduce microbial migration, colonization, and biofilm formation by microorganisms commonly associated with catheter-associated urinary tract infections. The work will use approved laboratory strains under controlled conditions and will not involve human subjects or animal models under this protocol.				
Biological Materials Review Summary: This protocol uses approved laboratory strains or clinical isolates of microorganisms commonly associated with catheter-associated urinary tract infections, including bacterial and fungal species such as Escherichia coli, Candida spp., Enterococcus spp., Pseudomonas aeruginosa, Klebsiella pneumoniae, and Enterobacter spp. All work will be conducted in vitro under institutionally approved biosafety conditions, using standard microbiological containment and decontamination procedures.				
NIH Guidelines:	N/A	Highest BSL Level:	BSL2	
Training: This protocol requires the following biosafety training: Comprehensive Biosafety (BSL2) 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 with Stipulations				
❖ The committee reviewed and unanimously approved the protocol subject to the adherence to the following special stipulations, along with all standard stipulations: ○ Completion of Agent-specific training with the BSO ○ Development of an Exposure Response Binder to be reviewed and approved by the BSO				

Protocol:	26-327-A1	Amendment	Expiration Date:	5/12/2029
Title:	Molecular mechanism of protein biogenesis and quality control			
PI Name:	Shan			
Brief Description of Project: The Shan lab has generated a set of novel molecular chaperones targeting alpha-synuclein (aSyn) through directed evolution. Preliminary results show that the evolved chaperones efficiently suppress seeded aSyn fibrillation in vitro and reduce aSyn aggregation toxicity in the yeast PD model. To test the clinical relevance of the evolved chaperones, we would like to test their activity in fibrillation reactions seeded by patient derived fibril.				
Biological Materials Review Summary: The patient-derived fibril will be generated using the brain tissue of Lewy Body Disease (LBD) and Multiple System Atrophy (MSA) patients.				
NIH Guidelines:	III-E, III-F	Highest BSL Level:	BSL2	
Training: This protocol requires the following biosafety training: Comprehensive Biosafety (BSL2),annual Bloodborne Pathogens, and Material-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: 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 the risk assessment to address additional unknown biological hazards potentially present in human-derived material ○ Completion of Material-Specific Training with the BSO

Protocol:	25-392-A2	Amendment	Expiration Date:	5/12/2028
Title:	FUA Beckman Asymptote for Gene Therapy Startup			
PI Name:	Wheeler (Asymptote)			
Brief Description of Project: The proposed research involves use of molecular tools that modulate human gene expression by activating or inhibiting transcription of target genes. The purpose of the work is to shed light on mechanisms of central nervous system delivery of systemically administered gene therapy vectors.				
Biological Materials Review Summary: The proposal seeks approval for use of commercially sourced libraries of lentiviral vectors that harbor CRISPRa/CRISPRi cassettes for activating/inhibiting human gene expression without altering the DNA sequence. These vectors will be used exclusively for research purposes involving human cell lines and will not be administered to animals.				
NIH Guidelines:	III-D-3	Highest BSL Level:	BSL2 w/ BSL3 practices	
Training: This protocol requires the following biosafety training: Comprehensive Biosafety (BSL2), annual 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 this protocol subject to adherence to the standard stipulations.				

C. Protocols - Expedited Review

Protocol:	24-295-A1	Amendment	Expiration Date:	5/12/2027
Title:	Cas9 Gene Drive			
PI Name:	Hay			
Brief Description of Project: The goal of this research is to utilize previously developed genetic methods to investigate the ability for suppressing populations of the superweed Palmer amaranth (Palmer pigweed). Using an undifferentiated cell line, we will create insertions of a gene drive element into the male determining locus of the Palmer Y chromosome. Cells with the proper insertion will be provided				

to our collaborator, where they will continue this project to attempt to develop Palmer plants in which males only produce male progeny. No plants will be handled at Caltech for this project.			
Biological Materials Review Summary: Addition of plant cells (not whole plants) derived from Palmer amaranth, additional transgenes for lab strains of E. coli, and Agrobacterium tumefaciens.			
NIH Guidelines:	III-D-8	Highest BSL Level:	BSL2
Training: This protocol 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 with Stipulation			
❖ The Chair reviewed and approved the protocol subject to the adherence to the following special stipulation, along with all standard stipulations: ○ The scope of this approved amendment is strictly limited to in vitro research utilizing Palmer amaranth cell cultures. No work involving whole plants, regeneration of cells into whole plants, or seeds is permitted at Caltech. Any variation in this scope requires an IBC amendment, review, and approval.			

Protocol:	25-261-A4	Amendment	Expiration Date:	5/12/2028
Title:	Engineering and evaluation of anti-viral therapeutics in vivo and in vitro			
PI Name:	Bjorkman			
Brief Description of Project: The overall research goals in the Bjorkman lab are to understand the basic biology of immune response to viral antigens using in vitro and in vivo techniques in order to design and assess the efficacy of novel anti-viral therapeutic reagents. We are adding human tonsil tissue, which will be used as a model by which we will test anti-viral therapeutic reagents in the future.				
Biological Materials Review Summary: This amendment involves the addition of human tonsil tissue from healthy donors.				
NIH Guidelines:	III-D	Highest BSL Level:	BSL2 w/ BSL3 practices and room/temporal segregation of incompatible items.	
Training: This protocol requires the following biosafety training: Comprehensive Biosafety (BSL2), annual Bloodborne Pathogens, Viral Vector and NHP samples/B-virus 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:	23-335-A3	Amendment	Expiration Date:	11/12/2026
Title:	BSL2/3 Laboratory – Risk assessment and Access Process			
PI Name:	Bjorkman			

Brief Description of Project: The overall research goals in the Bjorkman lab are to understand the basic biology of immune response to viral antigens using in vitro and in vivo techniques in order to design and assess the efficacy of novel anti-viral therapeutic reagents. We are adding human tonsil tissue, which will be used as a model by which we will test anti-viral therapeutic reagents identified from neutralization data from replication-incompetent pseudovirus neutralization assays.			
Biological Materials Review Summary: This amendment involves the addition of human tonsil tissue from healthy donors.			
NIH Guidelines:	III-D	Highest BSL Level:	BSL2 w/ BSL3 practices
Training: This protocol requires the following biosafety training: Comprehensive Biosafety (BSL2), annual 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: Chair Approved			
❖ The Chair reviewed and approved the protocol subject to the adherence to the standard stipulations.			

Protocol:	25-356-A1	Amendment	Expiration Date:	10/12/2028
Title:	Decoding protein structure-function relationships in electrochemical environments			
PI Name:	Manthiram			
Brief Description of Project: Our group will start using K. phaffii GS115 (yeast) to do glucose oxidase protein expression. This entails transformation of plasmid into yeast for expression our protein of interest. We are additionally adding room locations for another lab at Caltech so that we can use their equipment for sequencing work.				
Biological Materials Review Summary: Addition of Komagataella phaffii GS115 (yeast) that will be handled at BSL-1.				
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 the adherence to the standard stipulations.				

Protocol:	25-358-A1	Amendment	Expiration Date:	12/12/2028
Title:	Developing biotechnologies for plant and microbial genetic engineering			
PI Name:	Demirer			
Brief Description of Project: The overarching aim of this collaborative project is to leverage the selective carbon source approach developed in the Demirer lab (Caltech) to improve establishment,				

persistence, and effectiveness of plant growth promoting bacteria and biocontrol agents used in the Burdman & Helman labs (HUJI) for increasing crop resistance to abiotic and biotic stresses			
Biological Materials Review Summary: Biological material to be used: plant-beneficial bacterial species: Paenibacillus dendritiformis, Paenibacillus glucanolyticus, and Bacillus mycoides. These have been shown by collaborators to improve salt resilience of crops and protect them from pathogens.			
NIH Guidelines:	III-D-5	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:	26-287-A1	Amendment	Expiration Date:	6/12/2029
Title:	Protein Biosynthesis and quality control			
PI Name:	Voorhees			
Brief Description of Project: Diverse membrane-bound organelles play essential roles in human physiology. Their importance is underscored by the numerous genetic diseases caused by mutations that disrupt biogenesis of mitochondrial, ER, nuclear, and other organelles. We will utilize complementary cell biological, biochemical, and genetic approaches to identify and characterize the factors that mediate de novo membrane protein biogenesis across diverse organelles. Together, these studies will define the cellular factors that mediate de novo membrane biogenesis and provide mechanistic insight into diseases resulting from defects in these processes.				
Biological Materials Review Summary: This amendment includes the use of an additional human cell line (K562) that will be transduced with previously approved lentiviral vectors.				
NIH Guidelines:	III-D	Highest BSL Level:	BSL2 w/BSL3 practices	
Training: This protocol requires the following biosafety training: Comprehensive Biosafety (BSL2), annual 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 the standard stipulations.				

Protocol:	24-314-A4	Amendment	Expiration Date:	12/12/2027
Title:	Computational protein Design – in vitro testing phase.			
PI Name:	Mayo			
Brief Description of Project: Small molecule induced dimerization vesicle cytotoxicity assays: Mammalian cells will be transiently transfected with DNA encoding sequences that induce vesicle				

budding. Human T cells and HER2+ SKBR3/MCF7 cells will be co-cultured with engineered vesicles in the presence or absence of small molecule inhibitors to assess target cell killing.			
Biological Materials Review Summary: HER2+ MCF7 is a well-described widely used human breast cancer cell line that weakly expresses the Human Epidermal growth factor Receptor 2 (HER2) protein on its surface, essential for studying HER2-positive breast cancer. All work with this cell line is performed at BSL2. Extracellular vesicles are engineered to display bispecific antibodies to bind human T cells and tumor cells.			
NIH Guidelines:	III-D	Highest BSL Level:	BSL2 w/ BSL3 practices
Training: This protocol requires the following biosafety training: Comprehensive Biosafety (BSL2), annual 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 the standard stipulations.			

Personnel/Admin Amendments

- 24-093 Hsieh-Wilson
- 25-135 Newman
- 25-182 Gradinaru
- 25-192 Hay
- 26-207 Shapiro
- 23-218 Zinn
- 23-221 Sternberg
- 24-226 Guttman
- 24-234 Elowitz
- 25-261 Bjorkman
- 25-268 Pierce
- 25-271 Prober
- 25-278 Hoelz
- 26-287 Voorhees
- 23-291 Newman
- 23-292 Gao
- 24-295 Hay
- 24-297 Hay
- 24-296 Mazmanian
- 24-299 Clemons
- 24-309 Van Valen
- 24-312 Rees
- 24-314 Mayo
- 25-316 Stathopoulos
- 26-323 Glover
- 23-334 Patke
- 24-341 Tissot
- 24-343 Chong
- 25-349 Ruby
- 26-364 Cao
- 24-366 Nelson
- 23-371 Gray
- 24-378 Nolan
- 24-379 Hay
- 25-393 Taboada
- 25-394 Hay
- 25-395 Datta

4. Other Business

A. NIH Incident Report – Human Derived Material

The BSO informed the committee about a sharps injury sustained by an individual handling tumor tissue derived from a human cell line. Corrective actions were discussed and are in progress. The NIH was notified and a formal report will be filed.

B. IBC PAS

The BSO provided an update regarding the transition to the online IBC PAS system. IBC PAS has already soft launched with orientations with a handful of laboratories. A full rollout to campus is anticipated for mid-July, and the first IBC meeting transitioned to the system to occur in September. IBC Member Training will be provided prior to the transition.

Next Meeting – September 1, 2026

Meeting adjourned at 3:20pm

Approved by the IBC 9/1/26