UC Irvine

UNIVERSITY OF CALIFORNIA, IRVINE
IBC Minutes 07/16/25

I. **QUORUM:** MET

II. **REVIEW OF MEETING MINUTES:** Meeting minutes from June 18, 2025 APPROVED

III. **OLD BUSINESS: Table – Subcommittee Determination for BUA-R165**

- The subcommittee requires additional administrative information. All safety concerns were addressed in the subcommittee review and the BUA was approved.

IV. **NEW BUSINESS: Membership changes, recruitment proposals**

- The committee discussed strategies for the recruitment of new IBC members.

V. **REVIEW OF PROTOCOLS - 7 FCR**

#BUA-R518	**PI: Griffin, Matthew**	***Discovering molecular mechanisms of host-microbial interactions***
RENEWAL	**Department of Chemistry**	

Summary:
The overall research goal of the Griffin Lab is to discover the molecular features (molecules, biopolymers, enzymes, and receptors) that underlie host-microbial interactions. They focus on the diverse glycans produced by microbiota as causal agents of host physiology.

1. Identify active immune glycans and determine how these are produced
2. Discover host receptors for microbial glycan-mediated signaling
3. Analyze how glycans and glycan-processing can alter cancer growth and treatment
4. Characterize new host-microbial interfaces within tumors and organs distal from the gut

The experiments will include in vitro and in vivo work and analytical techniques include PCR, CFU analysis, 16S/ metagenomic sequencing, reporter assays, and flow cytometry.

REVIEW COMMENTS: No safety concerns were identified but minor clarifications and document clean-up are needed.

IBC DETERMINATION: All committee members voted to APPROVE after administrative updates are submitted. The listed agents below will be approved with the containment level and stipulations described.

Agent	Containment Level	NIH RG/CDC BL	Stipulations	Special Hazards	NIH Guidelines
Non-pathogenic E. coli used for protein expression	BSL-1	RG-1	--	--	III-F

E.coli and B. subtilis used for expression of polysaccharide biosynthetic operons derived from microbiota DNA	BSL-1	RG-1	--	--	III-F
E. coli, Lactobacillus spp., Lactococcus spp., S. cerevisiae var. boulardii, P. pastoris used for expression of carbohydrate active enzymes derived from microbiota DNA	BSL-1	RG-1	--	--	III-E
CRISPR KO of tumor suppressor genes with lentivirus	BSL-2	--	BSC, sharps minimization	--	III-D
Transduced human cell lines	BSL-2	--	BSC	--	III-E
Commercial bacteria and bacterial isolates from human fecal samples administered in vivo	BSL2/ ABSL-2	RG-1/RG-2	Sharps precautions	--	--
murine-derived tumor cell lines administered in vivo	BSL-1/ ABSL-1	--	Sharps precautions	--	III-D
PBMCs isolated from human blood	BSL-2	--	Sharps precautions	--	--

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#BUA-R14	PI: James, Anthony	*Expression of exogenous genes in mosquitoes*
RENEWAL		**Molecular Biology and Biochemistry**

Summary:
This research focuses on the genetics of mosquitoes to reduce the transmission of diseases like malaria. It explores both population suppression (reducing mosquito numbers) and population alteration (modifying mosquitoes to block pathogen transmission). Anopheles and Aedes spp. mosquitos are genetically modified using CRISPR-Cas9 constructs targeting genes to confer desirable phenotypes to prevent disease transmission.

REVIEW COMMENTS: The committee requested more information on the targets for the guide RNA sequences. No safety concerns were identified but minor clarifications and document clean-up are needed.

IBC DETERMINATION: All committee members voted to APPROVE after administrative updates are submitted. The listed agents below will be approved with the containment level and stipulations described.

Agent/Material	Containment Level	NIH RG/CDC BSL	Stipulations	Special Hazards	NIH Guidelines
E. coli used to propagate plasmids containing effector genes, guide RNAs, and Cas9	BSL-1	RG-1	--	--	III-F
Mosquito embryos (Anopheles) injected with an autonomous Gene-Drive Construct (Cas9 gene), Guide RNA (gRNA) sequences,	ACL-2/BSL-2	--	Physical Containment • Use double-door entry insectaries, fine mesh screens, and self-closing doors. • All work should occur within designated	Gene drive/ non-native species of mosquitoes	III-D

fluorescent marker genes, anti-plasmodium effector genes) • *Anopheles gambiae* (Africa/Brazil) • *Anopheles stephensii* (Indo-Pakistan strain) • *Anopheles coluzzii* (Africa)			insectary rooms with controlled access. • Secure primary containment for rearing (e.g., tightly sealed cages or cartons). Inactivation and Disposal • Ensure proper inactivation (e.g., freezing or ethanol) before disposal. • All transgenic materials must be disposed of as biohazardous waste.		
Plasmodium berghei Plasmodium gallinaceum	BSL-1	RG-1	In storage only	--	--
Aedes aegypti, modified	ACL-2	--	Colony maintenance, not used for experiments	Native to CA	--

University of California, Irvine - Institutional Biosafety Committee

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Summary:
This lab's goal is to understand how developmental and environmental factors control the cell cycle and chromosome segregation during mitosis. They will use in vivo and in vitro methods with analysis consisting of genetics, biochemistry, and live-cell imaging. They will additionally look at vulnerabilities of cancer cells during mitosis to develop anti-cancer therapies.

REVIEW COMMENTS: The committee requested the location of the FACS sorter and whose personnel are performing the sorts. Minor clarifications and document clean-up are also needed.

IBC DETERMINATION: All committee members voted to APPROVE after administrative updates are submitted. The listed agents below will be approved with the containment level and stipulations described.

Agent	Containment Level	NIH RG/CDC BL	Stipulations	Special Hazards	NIH Guidelines
Non-pathogenic E coli (DH5a, XL10-gold, BL21) used for protein expression	BSL-1	RG-1	--	--	III-F
Plasmid vectors (pcFJ151, pcFJ352) into S. cerevisiae to tag genes with fluorescent proteins	BSL-1	--	--	--	III-F
Baculovirus in Sf9/Hi5 insect cells for protein expression	BSL-1	RG-1	--	--	III-E
4th generation Lentiviral constructs (pCDH-EF1 and pX459) to express cell membrane markers, microtubule markers, probes for cell cycle, and fluorescent proteins	BSL-2	RG3	BSC	--	III-D
human cell lines	BSL-2	--	BSC	--	--
CRISPR-Cas9 into C. elegans	BSL-1	--	Sharps precaution	--	III-D

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#BUA-R85	PI: Lyon, David	*Fine Scale Tracing of Neural Circuits*
RENEWAL		**Anatomy & Neurobiology, SOM**

Summary: The goal is to understand how connections between neocortical neurons, located long distances from each other, lead to both normal function in mammals as well as altered function in disease models. The lab will utilize various viral vectors in vivo to determine specific connection patterns within and between neocortex and subcortical structures, and within the retina, by targeting retrograde tracer injections into specialized regions in the visual cortex, thalamus, and eye.

REVIEW COMMENTS: The committee requested confirmation regarding the current active in vivo models used in the lab. The current IACUC protocol does not match what is currently in the BUA. Questions regarding the viral vectors used focused on the active in vivo models. If no in vivo experiments are being performed, the committee does not have any safety concerns with the proposed work. Minor clarifications and document clean-up are needed.

IBC DETERMINATION: All committee members voted to APPROVE after administrative updates are submitted. The listed agents below will be approved with the containment level and stipulations described.

Agent/Material	Containment Level	NIH RG/CDC BSL	Stipulations	Special Hazards	NIH Guidelines
3rd generation Lentiviral constructs to target neuronal and optogenetic genes of interest	BSL-2/ ABSL-2 (72)	RG-3	BSC, housing at ABSL-2 for 72 hours	--	III-D
G deleted rabies vector, AAV expressing ENVA in Cre inducible mice, for neuronal labelling	BSL-1/ ABSL-1	RG-3/ RG-1	BSC	--	III-D
AAV for neuronal tracing and fluorescent markers	BSL-1/ ABSL-1	RG-1	BSC	--	III-D
Human cell lines	BSL-2	--	BSC	--	--
Hamster cell lines	BSL-1	--	--	--	--

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#BUA-R58	PI: Morrissette, Naomi	*Dinitroaniline Resistance in Toxoplasma gondii*
RENEWAL		**Molecular Biology & Biochemistry**

Summary: The lab studies the cytoskeletal structures of parasites in order to develop new drug targets for apicomplexan infections of humans. The focus is on selective compounds that affect microtubules in parasites but not in human cells. Genes of interest will be deleted from Toxoplasma gondii to assess its role in diverse biochemical functions. Proteins of interest will be synthesized in E.coli to determine their structure by X-ray crystallography.

REVIEW COMMENTS: The committee requested that the PI describe how the listed organisms are transfected. No safety concerns were identified but minor clarifications and document clean-up are needed.

IBC DETERMINATION: All committee members voted to APPROVE after administrative updates are submitted. The listed agents below will be approved with the containment level and stipulations described.

Agent/Material	Containment Level	NIH RG/CDC BSL	Stipulations	Special Hazards	NIH Guidelines
Toxoplasma gondii knock-outs and fluorescently tagged genes of interest	BSL-2	RG-2	BSC	Reproductive hazard	III-D
Tetrahymena thermophilia knock-outs and fluorescently tagged genes of interest	BSL-1	--	--	--	III-D
Non-pathogenic E.coli for protein production	BSL-1	RG-1	--	--	III-F
Human cell lines and primary cells	BSl-2	--	BSC, sharps precautions	--	--
COS cell lines	BSL-1	--	BSC	--	--

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#BUA-R123	PI: Prescher, Jennifer	*Chemical tools to probe and image multicellular functions*
RENEWAL		Department of Chemistry

Summary:
The research focuses on developing innovative chemical tools and imaging technologies to better understand how cells interact in complex biological systems such as the immune system, the brain, and during microbial infections. The work involves engineering luciferases for a variety of purposes, including generating mutant enzymes that accept chemically distinct luciferin analogs, emit different colors of light, function as sensors, and activate downstream proteins. Libraries of luciferase mutants are constructed (using mutagenesis) and introduced into bacterial, yeast, or mammalian expression plasmids. Targeted mutants for the above applications are also being produced. These plasmids are similarly introduced into E. coli, yeast, or mammalian cells, and the mutants are evaluated for light emission in the presence of luciferin analogs.

REVIEW COMMENTS: The committee requested that the location for flow cytometry be added to the BUA and for a description of the in vivo studies being done by this lab. No safety concerns were identified but minor clarifications and document clean-up are needed.

IBC DETERMINATION: All committee members voted to APPROVE after administrative updates are submitted. The listed agents below will be approved with the containment level and stipulations described.

Agent	Containment Level	NIH RG/CDC BL	Stipulations	Special Hazards	NIH Guidelines
Non-pathogenic E coli (BL21, Top10, DH5a) used for cloning and protein expression of libraries of luciferase mutants	BSL-1	RG-1	--	--	III-F
S. cerevisiae cloning and protein expression of libraries of luciferase mutants	BSL-1	RG-1	--	--	III-F
3rd generation lentivirus for stable integration of luciferases (firefly, Renilla, Gaussia, NanoLuc, NanoLanterns, and fragments/mutated	BSL-2/ABS2(72)	RG-3	BSC	housing at ABSL-2 for 72 hours	III-D

versions of these enzymes) + other metabolic reporters: beta-lactamase, nitroreductase, TEV protease, and engineered esterases; used in in vivo					
CRISPR-Cas9 (same targets as above)	BSL-1	--	BSC	--	III-D
Modified human established cell lines	BSL-2	--	BSC	--	III-E
Modified COS, Murine, and hamster cell lines	BSL-1	--	BSC	--	III-E

#BUA-R168	**PI: Venugopalan, Vasan**	*Investigation of mechanical signaling pathways in endothelial cells*
RENEWAL		Chemical and Biomolecular Engineering

Summary:
This research investigates how mechanical forces influence cellular signaling pathways. Using a platform based on laser-induced cavitation bubbles, the study activates and monitors mechanosignaling in cells grown in 2D and 3D cultures. By testing different mammary cell lines at various stages of disease progression, the work aims to uncover how mechanotransduction varies across cell types. Lentiviral vectors are used to target specific molecular pathways involved in this response.

REVIEW COMMENTS:
No safety concerns were identified but minor clarifications and document clean-up are needed.

IBC DETERMINATION: All committee members voted to APPROVE after administrative updates are submitted. The listed agents below will be approved with the containment level and stipulations described.

Agent	BL (species, if applicable)	NIH RG/CDC BL	Stipulations	Special Hazards	NIH Guidelines
3rd and 4th generation lentivirus expressing (GFP), calmodulin and	BSL-2	RG-3	BSC	--	III-D

the M13 domain of a myosin kinase					
Established human cell lines	BSL-2	--	BSC	--	III-D

VI. ADJOURNMENT

The next scheduled IBC meeting is **Wednesday, August 20, 2025.** It will be held via Zoom. If full committee review protocols are not received by the next deadline date and there are no agenda items for full committee discussion, the meeting will be canceled. Members will be notified via e-mail of meeting cancellations one week before the scheduled meeting.