UC Irvine

UNIVERSITY OF CALIFORNIA, IRVINE
IBC MINUTES 08/20/2025

I. **QUORUM:** MET

II. **REVIEW MEETING MINUTES**: Meeting minutes from July 16, 2025 APPROVED

III. **OLD BUSINESS:** None

IV. **NEW BUSINESS**: None

V. **REVIEW OF PROTOCOLS**

#BUA-R673	**PI: Kim, Gha-hyun Jeffrey**	***Investigating Glial-Neuron Communication in the Context of Neurodegeneration and Drug Discovery***
NEW		**Dept: Clinical Pharmacy**

Summary: This project aims to investigate communication between neurons and glial cells in models of neurodegeneration. Experimental models include commercially obtained human induced pluripotent stem cell (iPSC) lines and transgenic in vivo models. Gene editing tools including CRISPR and plasmid expression systems will be introduced by microinjecting DNA or ribonucleoproteins in vivo. Double-stranded plasmid DNA vectors will be used for cloning, expression, and genome editing of iPSCs in vitro. CRISPR–Cas9 gene editing will be performed using plasmid-based SpCas9 and sgRNAs.

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/Material	Containment Level	NIH RG/CDC BSL	Stipulations	Special Hazards	NIH Guidelines
E.coli for generation of plasmid vectors	BSL-1	RG1	--	--	III-F
Transgenic in vivo models	BSL-1	--	--	--	III-D
iPSC	BSL-2	--	BSC		III-E

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#BUA-R125	PI: Briscoe, Adriana	*Title: Unravelling the genetic tapestry of parallel red-green color vision evolution in butterflies*
RENEWAL		**Dept: Molecular Biology and Biochemistry**

Summary: This project studies how red-green color vision has evolved in butterflies. This type of vision has appeared multiple times in different butterflies, often giving them an advantage. In butterflies, it can evolve through changes in genes for light-detecting proteins (opsins) and pigments in the eyes. The researchers aim to understand how these changes happen by comparing different butterfly species and sexes. E.coli is used to generate plasmids for RNA-seq, CRISPR, in order to generate knockdowns of red-green vision genes of interest. Transgenic butterflies will be created and housed through all life stages. Tissues are harvested for biochemical analysis.

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/Material	Containment Level	NIH RG/CDC BSL	Stipulations	Special Hazards	NIH Guidelines
Non-pathogenic E. coli for cloning	BSL-1	RG-1	--	--	III-F
Transgenic Butterfly - superfamily Papilionoidea created with CRISPR/Cas9 and single-stranded guide RNAs injected into to knockdown vision and coloration-related genes	ACL-2	--	Double-door entry insectaries, fine mesh screens, and self-closing doors. Work in insectary rooms with controlled access. Secure primary containment for rearing. Proper inactivation before disposal. Transgenic material disposed of as biohazardous waste.	Not Native to CA	III-D
Butterfly eye tissue	BSL-1	--	--	--	--

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#BUA-R8	PI: De La Maza, Luis	*Title: Chlamydia vaccines*
RENEWAL		**Dept: Pathology**

Summary: This lab is working on creating a vaccine to protect against chlamydial infections. Vaccine candidates are recombinant proteins generated in E.coli. Genes of interest include Type 3 secretion system, heat shock proteins, and nucleotide transporters. They will use in vivo methods to test vaccine candidates and challenge with wild type chlamydia.

REVIEW COMMENTS: The committee asked that “high concentration of chlamydia stocks” be numerically defined. 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 and a lab inspection is conducted. The listed agents below will be approved with the containment level and stipulations described. A lab inspection is required to finalize approval.

Agent	Containment Level	NIH RG/CDC BL	Stipulations	Special Hazards	NIH Guidelines
Non-pathogenic E coli (BL21 and TOP10) used for protein expression	BSL-1	RG-1	--	--	III-F
Human established cell lines (HeLa, Hep2 or McCoy) to grow Chlamydia	BSL-2	RG-2	BSC	--	--
In vivo models vaccinated with Chlamydia proteins	BSL-1, ABSL-1	--	--	--	--
In vivo models inoculated Chlamydia	BSL-2, ABSL-2	RG-2	--	--	--

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#BUA-R61	PI: Huang, Lan	Title: *Investigation of Proteasome-Ubiquitin Pathways Using Mass Spectrometry-Based Proteomic Approaches*
RENEWAL		**Dept: Physiology & Biophysics**

Summary: The lab's goal is to comprehensively characterize protein complexes in proteasome-ubiquitin systems (UPS). Dysregulation and abnormal functions of these complexes have been linked to various diseases, including cancer and neurodegenerative disorders. The lab will package and use lentivirus as well as MMLV viral vectors to study the potential biological consequences of identified putative regulators and genes of interest. shRNA will be generated and transfected to cells to generate knockdown cells to study protein functions. Retroviral vectors will be used for generating stable cell lines expressing genes of interest.

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/Material	Containment Level	NIH RG/CDC BSL	Stipulations	Special Hazards	NIH Guidelines
Baculovirus genomic DNA for protein expression in SF9 insect cells	BSL-1	RG-1	--	--	III-E
S. cerevisiae for protein expression	BSL-1	RG-1	--	--	III-F
Non-pathogenic E.coli, for protein expression	BSL-1	RG-1	--	--	III-F
Lentivirus transfection of human cell lines for protein expression	BSL-2	RG-3	BSC	--	III-D, III-E
MMLV based retrovirus (amphotropic) to generate stable cell lines expressing genes of interest	BSL-2	RG-2	BSC	--	III-D, III-E

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#BUA-R571	PI: Jang, Cholsoon	*Title: Metabolic flux in vivo*
RENEWAL		**Dept: Biological Chemistry**

Summary:
This lab studies the metabolic effects and underlying mechanisms of dietary nutrients such as fructose, alcohol, and fiber on health. In vivo models will be provided with certain dietary nutrients acutely or chronically and blood/tissue metabolites will be isolated and analyzed by liquid chromatography mass spectrometry. The lab will also use AAV to overexpress or knock down genes of interest, involved in oncogenesis, cell proliferation, survival, and motility.

REVIEW COMMENTS: The committee requested additional information about the materials used and procedures being performed in order to do a thorough risk assessment. Oncogenic mutants were identified by the PI but there was no statement of the hazard for the host-vector systems described in the BUA. Information on safer sharps needs to be included. Proper sharps disposal needs to be incorporated into the procedures.

IBC DETERMINATION: All committee members voted that resubmission and full committee review are required to address committee concerns.

Agent/Material	Containment Level	NIH RG/CDC BSL	Stipulations	Special Hazards	NIH Guidelines
AAV (purchased) induced overexpression or knock down genes of interest in tumor formation. In vivo models used	BSL-1, ABSL-1	RG1	--	--	III-D

#BUA-R225	PI: Kessenbrock, Kai	*Title: Microenvironmental regulation epithelial stem cells in normal tissue homeostasis and breast cancer*
RENEWAL		**Dept: Biological Chemistry**

Summary: This lab wants to study cellular communication in normal tissue growth and in breast cancer. They want to understand how stem cell behavior is regulated by the environment within the breast epithelium and how the molecular composition changes during tumorigenesis. They also want to use single cell analysis tools to study the differences of cells in the mammary system and how the system in these cells change during tumor formation. Ultimately, they hope to identify biomarkers for early detection of breast cancer and novel therapeutic approaches to prevent breast cancer before it develops. In vitro and in vivo models will be used, and analytical techniques include DNA/RNA/protein isolation and quantification, fluorescence microscopy, flow cytometry, analytical assays on collected specimens, and RNA sequencing.

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REVIEW COMMENTS: No safety concerns were identified but minor clarifications, including a PI assessment of lentiviral risk with the use of tumor suppressors in these experiments 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 BSL	Stipulations	Special Hazards	NIH Guidelines
Non-pathogenic E. coli used for construct amplification	BSL-1	RG-1	--	--	III-F
3rd generation Lentivirus constructs to overexpress or downregulate (by shRNA or CRISPR-Cas9) tumor suppressors	BSL-2	RG-3	BSC	--	III-D
In vivo models injected with transduced human cells	BSL-2, ABSL-2	--	--	--	III-D
In vivo models injected with transduced cells	BSL-1, ABSL-1	--	--	--	III-D

#BUA-R229	PI: Lawson, Devon	*Title: Cellular and molecular mechanisms of cancer metastasis*
RENEWAL		Dept: Physiology & Biophysics

Summary: The study involves the cellular and molecular mechanisms underlying the metastatic spread of cancer cells to other tissues. The goal is to use new single cell genomics technologies, in combination with in-vivo models, to define human breast cancer metastasis-initiating cells, and look in high resolution at the cellular and molecular mechanisms regulating how they progress to produce advanced metastatic disease.

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REVIEW COMMENTS: The committee asked the PI to add a statement about the risk of the human materials in the immunodeficient mice and if there are any additional concerns for bloodborne pathogens. Minor clarifications and document clean-up are also needed.

IBC DETERMINATION: All committee members voted Tabled to Subcommittee - The investigator's response will be reviewed by a subcommittee that may approve the protocol without returning to the full committee.

Agent	Containment Level	NIH RG/CDC BL	Stipulations	Special Hazards	NIH Guidelines
Transduced human cell lines. CRISPR-Cas9 for the modulation of genes of interest.	BSL-2	--	BSC	--	III-E
Transduced primary cells, CRISPR-Cas9 for the modulation of genes of interest.	BSL-1	--	--	--	III-E
Unmodified human breast cancer xenograft line	BSL-2	--	BSC	--	--
Non-pathogenic strains of Escherichia coli used as hosts for recombinant vector cloning.	BSL-1	RG-1	--	--	III-F
Third generation lentivirus expression GFP, RFP, luciferase, mCherry, tagged genes of interest	BSL-2	RG-3	BSC	--	--
In vivo models injected with human cell lines and the breast cancer xenograft line	ABSL-2	--	--	--	III-D
In vivo models injected primary cells	ABSL-1	--	--	--	III-D

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#BUA-R87	PI: Limoli, Charles	***Using human embryonic and/or neural stem cells to treat radiation-induced stem cell loss: Benefits vs cancer risk***
RENEWAL		**Dept: Radiation Oncology**

Summary: The lab studies how adult stem cell loss compromises the recovery of normal tissue injury after irradiation in the central nervous system (CNS). Irradiated in vivo models will be implanted with stem cells or micro vesicles (EV) at the site of local irradiation (i.e., within the hippocampal formation or prefrontal cortex). Stem cells will be expanded in culture and those cells or EV from these cells will be used for implantation into the brain or leg of irradiated and unirradiated rodents. AAV8/9 vectors to express fluorescent reporters, miRNA, antioxidant response elements (ARE) as well as fluorescently tagged genes of interest used to follow proteosome activity. Stem cells harboring various candidate sequences and reporters will be used to locate implanted stem cells within the unique microenvironments of the CNS and skeletal musculature.

REVIEW COMMENTS: The committee asked the PI to address the risks to humans upon exposure to human cells and lentivirus and describe the methods used to prevent exposure and what engineered sharps are used. 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 construct amplification	BSL-1	RG-1	--	--	III-F
AAV (purchased) fluorescent reporters, miRNA, antioxidant response elements (ARE) and fluorescently tagged genes of interest	BSL-1	RG-1	--	--	III-D
3rd generation Lentivirus constructs (purchased) fluorescently labeled Antioxidant Response Element (ARE)	BSL-2	RG-3	BSC	--	III-D
Transduced human cells in vivo models	BSL-2, ABSL-2	--	--	--	III-D
Transduced non-human cells in vivo models	BSL-1, ABSL-1	--	--	--	III-D

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#BUA-R334	PI: Olabisi, Ronke	*Title: Wound Healing with Hydrogel Encapsulated Mesenchymal Stem Cells and Insulin Secreting Cells*
RENEWAL		**Dept: Biomedical Engineering**

Summary: This study uses biocompatible PEGDA hydrogels to encapsulate mesenchymal stem cells (MSCs) and/or insulin-producing cells for wound healing in diabetic in vivo models. PEGDA protects cells from immune response while maintaining viability and function. The goal is to evaluate the effects of these encapsulated cells on full thickness wound healing in diabetic in vivo models. Additionally, the hydrogels' potential to fight infection will be assessed using P. aeruginosa in vitro and in vivo.

REVIEW COMMENTS: The committee requested additional information regarding Pseudomonas work and confirmation that BSL2 are used. Minor clarifications and document clean-up are needed.

IBC DETERMINATION: All committee members voted Tabled to Subcommittee - The investigator's response will be reviewed by a subcommittee that may approve the protocol without returning to the full committee.

Agent	Containment Level	NIH RG/CDC BL	Stipulations	Special Hazards	NIH Guidelines
Pseudomonas aeruginosa - fluorescently labeled for in human cells	BSL-2	RG-2	BSC	--	III-D
Second-generation lentivirus expressing GFP, puromycin resistance [puroR], or insulin, with human cells	BSL-2	RG-3	BSC	--	III-D
Transduced human cells encapsulated in hydrogel and implanted in vivo	ABSL-2	--	--	--	III-D
In vivo inoculation with fluorescently labeled *Pseudomonas aeruginosa* prior to hydrogel implantation.	ABSL-2	--	--	--	III-D

DESIGNATED MEMBER REVIEW – III-E / Infectious agents only

1. BUA-R62 Wang, Szu-Wen   Renewal BUA

VI. ADJOURNMENT

The next scheduled IBC meeting is **Wednesday, September 17, 2025.** It will be held via Zoom. If the 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.

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