IBC Minutes 06/18/25

I. **QUORUM:** MET

II. **REVIEW OF MEETING MINUTES:** Meeting minutes from May 21, 2025 were reviewed and APPROVED with all in favor.

III. **OLD BUSINESS: None**

IV. **NEW BUSINESS:**

- This is the first month of minutes that will be posted publicly after IBC approval.
- Starting a new agenda format.
- NIH Guidelines Requirements Review for Committee members presented as continuing education.

V. **REVIEW OF PROTOCOLS**

#BUA-R659	**PI: Gokoffski, Kimberly**	*"Develop Electric Field Application into a technology to direct retinal ganglion cell integration and regeneration to restore vision from optic nerve disease"*

Type: RESUBMISSION

SUMMARY: The goal of their work is to develop a technology to regenerate the optic nerve. This lab has shown that electrical fields may be a viable technology to direct regeneration of neuronal axons. This lab will perform tissue culture and in vivo experiments to determine 1) the optimal parameters (electrode configuration, stimulation parameters, adjunctive treatments) that are safe and effective for directing axon growth and 2) investigate the underlying mechanisms through which cells respond to electrical currents. The lab will use viral vectors to activate or block different signaling pathways, label neurons, to study the effect of different chemicals and drugs in neuronal health.

REVIEW COMMENTS: Minor clarifications and document clean up are needed. Of note a Toxin SOP is required before approval. From the previous review, all committee concerns were addressed and clarified.

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 propagation of plasmids	BSL-1	RG1	--	--	III-F
Toxin use in vivo	BSL-2/ABSL-1	RG2	Sharps precautions, Toxin SOP and inventory	--	--

G deleted rabies vector, AAV expressing ENVA in Cre inducible in vivo, for neuronal labelling	BSL-1/ABSL-1	RG3/RG1	BSC	--	III-D
AAV overexpressing cytoskeleton genes of interest, and fluorescent markers	BSL-1/ABSL-1	RG1	BSC	--	III-D
Viral vector experiments in human cell lines	BSL-2	--	BSC	--	III-D

#BUA-R666	PI: Duan, Suzann	"Elucidating transcriptional and epigenetic lineage plasticity in gastroenteropancreatic neuroendocrine neoplasms"

Type: NEW

SUMMARY: This group studies gastrointestinal and pancreatic tumor development by investigating the functions of neuroendocrine signaling. They will use siRNA/plasmid and chemical methods to target genes of interest in animal and human cell lines and primary cells. The genes of interest are neuroendocrine differentiation and development genes. Transgenic in vivo models will be used as a source of primary cells.

REVIEW COMMENTS: No safety concerns were identified during discussion. A Biosafety Inspection to be scheduled before approval is finalized.

IBC DETERMINATION: All committee members voted to APPROVE after Biosafety Inspection is completed. 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
Plasmid overexpression using plasmid vectors amplified in E. coli	BSL-1	--	--	--	III-F
siRNA inoculated in primary animal cells	BSL-1	--	Sharps precautions	--	III-E
siRNA inoculated in human primary cells and established cell lines	BSL-2	--	BSC, sharps precautions	--	III-F

#BUA-R40	PI: Andersen, Bogi	*"Role of Transcription Factors in Skin"*

Type: Renewal

SUMMARY: This lab is trying to understand how the epidermis forms a barrier and the role of adult stem cells in the epidermis, the outer layer of the skin. As part of this effort, they aim to discover fundamental mechanisms in the healing of wounds that can be targeted with drugs in the future. Second, they are investigating the skin role of the circadian clock, an intrinsic timing system in our bodies that is driven by transcription factors. They are using lentivirus in cell culture models to knockdown genes of interest and testing modified cells in vivo.

REVIEW COMMENTS: No safety concerns were identified during discussion.The RNAi gene targets, and fluorescent makers used need to be added to the r/sNA section of the protocol, they are only described in the Project Description.

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 used to propagate plasmid DNA	BSL-1	RG1	--	--	III-F
Lentivirus amplified in 293T cells expressing shRNA knockdown of genes of interest; used to infect keratinocytes	BSL-2	RG3	BSC	--	III-D
Modified mouse keratinocytes and other established human cells used in vivo	BSL-2/ ABSL-2	--	--	--	III-D
Human skin transplanted in vivo	BSL-2/ ABSL-2	--	Sharps precautions	--	III-D

#BUA-R237	PI: Igarashi, Kei	*"Function of Hippocampal and Olfactory Brain Regions in Sensory Perception and Memory"*

Type: Renewal

Summary: The goal of their laboratory is to understand the neural basis of sensory perception and memory. To do this, they will record activities in the olfactory and hippocampal regions of the brain. To test if the above neuronal representation is lost, in vivo models of Alzheimer's disease will be used. They will also manipulate neuronal activities in these regions to examine the role of various genes in perception and memory.

REVIEW COMMENTS: Additional information is needed to describe the safe handling of glass micropipettes used for injections.

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
AAV in vivo	BSL-1/ABSL-1	RG1	--	--	III-D
E1-deleted, replication-defective canine adenovirus in vivo	BSL-2/ABSL-2	--	BSC	--	III-D
G deleted rabies vector, AAV expressing ENVA in Cre inducible in vivo models for neuronal labelling	BSL-1/ABSL-1	RG3/RG1	BSC	--	III-D

#BUA-R165	**PI**: Jin, Rongsheng	*"*Structural and functional studies of bacterial toxins*"*

Type: Renewal

Summary:
This project investigates botulinum neurotoxins (BoNTs) and *Clostridium difficile* toxins to enhance therapeutic applications and counteract bioterrorism threats. Key goals include understanding BoNT structure, function, and host interactions; developing neutralizing antibodies and antidotes, and advancing knowledge of *C. difficile* toxins to improve treatments for related infections.

REVIEW COMMENTS: Further clarifications are needed regarding the combination of proteins, complete or fragments, modifications made, and the expression system for each are needed to make a full assessment. It appears some proteins may just be purchased and not generated by the lab. The protocol needs clarification to determine whether Large Scale work (greater than 10L) is performed. A statement of the risks posed to workers is needed from the PI. These requests are primarily required for clarity within the document, the lab has an open dialogue with the Biosafety Office and has communicated in the past that only fragments are expressed in each model. Whole toxins are never produced/used.

IBC DETERMINATION: All committee members voted to TABLE – SUBCOMMITTEE. The listed agents below will be approved after subcommittee review with the containment level and stipulations described.

Agent/Material	Containment Level	NIH RG/CDC BSL	Stipulations	Special Hazards	NIH Guidelines
Bacillus megaterium expressing Clostridium difficile toxin fragments(TcdA and TcdB)	BSL-1	RG-1	Toxin SOP	--	III-D

Escherichia coli expressing fragments of Clostridium difficile toxins (TcdA and TcdB)	BSL-1	RG-1	Toxin SOP	--	III-D
Human established cell lines (HEK293) expressing: 1. The extracellular domain of Frizzled protein (FZD) and a protein called CSPG4, which are the receptors for TcdB 2. Expressing spike proteins of SARS-CoV-2	BSL-2	--	BSC	--	III-E
1. E coli expressing the receptor-binding domain of BoNT; the protease domain of BoNT; the translocation domain of BoNT; the nontoxic auxiliary protein. *2. E. coli* and HEK293 expressing synaptic vesical protein 2 (SV2) and synaptotagmin, which are the receptors for BoNTs.	BSL-2	--	Toxin SOP	Exempt Select Agent	III-D

#BUA-R223	**PI**: Kitazawa, Masashi	*"Unveiling the molecular mechanisms of neurodegenerative diseases"*

Type: Renewal

Summary: The overall goal is to research the mechanisms/causes of neuronal death (neurogenerative diseases such as Alzheimer's disease). They will study this by examining possible environmental and genetic risk factors, determining key underlying disease mechanisms using mouse models and cell culture models, and evaluating pharmacological and genetic approaches to reverse disease phenotypes. E.coli Nissle will also be tested in vivo models.

REVIEW COMMENTS: Administrative updates were requested to identify locations and control of aerosols during protein purification. The PI must include a statement of risk for the genes of interest in this protocol. An SOP for lentivirus work shall be attached.

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 used to propagate plasmid DNA	BSL-1	RG1	--	--	III-F
Lentivirus in 293T cells and in vivo	BSL-2 /ABSL-2 (72)	RG3	BSC, ABSL-2 for 72 hours	--	III-D

AAV in human cells and tissues	BSL-2	RG1	BSC	--	III-D
AAV in animal cells and in vivo	BSL-1 /ABSL-1	RG1	BSC, sharps precautions	--	III-D
E. coli Nissle expressing hpaB/ C genes administered in vivo	BSL-1 /ABSL-1	--	--	--	III-E, III-D

#BUA-R520	**PI**: Lew, Audrey	*"Neurogenetics Teaching"*

Type: Renewal

Summary: This project aims to teach genetics within the neuroscience context to biology undergraduates at UC Irvine, Their research evaluates the role of serotoninergic neurons and the acoustic startle reflex in vivo.

REVIEW COMMENTS: No safety concerns were identified during discussion. The plasmids and nucleic acid vectors used need to be added to the r/sNA section of the protocol, they are only described in the Project Description.

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
Plasmid administration to in vivo targeting serotonergic signaling pathways to create transgenic models. Use of purchased transgenic models for larvae live imaging	BSL-1 /ABSL-1	--	Sharps precautions	--	III-D

#BUA-R519	**PI**: Sparks, Nicole	*"Environmentally-sensitive transcriptional regulators during skeletal development"*

Type: Renewal

Summary: The group will test whether that changes in miRNA levels are key actors in the pathogenesis of toxicant-related skeletal birth defects and their suitability as biomarkers for identification. Purchased miRNA mimics and inhibitors and knockdown and overexpressing plasmids will be transfected stem cells and in vivo models. Lentiviral vectors will be used for in vitro studies only.

REVIEW COMMENTS: No safety concerns were identified during discussion. More information was requested to detail out specific procedures and controls used.

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 sub-cloning and plasmid production	BSL-1	RG1	--	--	III-F
Human embryonic stem differentiated into osteoblasts (chemical), miRNA transfection, and RNA-seq	BSL-1	--	BSC, Sharps precautions	FACS sorting, unfixed	III-E
Human embryonic stem cells (iPSC) directly implanted in vivo for teratoma formation	BSL-1 /ABSL-2 (48)	--	--	Tumor expression	--
miRNA administered to mice in utero electroporation or tail vein	BSL-1/ABSL-1	--	--	mouth pipette through in utero electroporation	--
3rd generation, Lentiviral vector delivery of shRNA targeting KO of genes involved in osteoblast differentiation	BSL-2	RG3	BSC	--	III-D
Human primary tissue, foreskin fibroblasts	BSL-2	--	BSC	--	n/a

VI. ADJOURNMENT

The next scheduled IBC meeting is **Wednesday, July 16, 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.