UNIVERSITY OF South Carolina

INSTITUTIONAL BIOSAFETY COMMITTEE MEETING MINUTES

DATE: *June 18, 2025*
TIME: *3:00 PM*
LOCATION: *Virtual Meeting via Microsoft Teams*

The meeting for the University of South Carolina's Institutional Biosafety Committee (IBC) was called to order by the Chair, Dr. Doug Pittman, at 3:02pm.

Approved IBC minutes will be posted on the university's IBC website. This website includes meeting dates, times, locations, and guidance for the public to request to attend an IBC meeting.

MEETING ATTENDANCE

IBC Member	Member Role / Position / Department	Attendance
Doug Pittman	IBC Chair; Associate Professor in Drug Discovery & Biomedical Sciences	☑
Mark Robbins	Research Safety Bureau Chief & Senior Biosafety Officer in EH&S	☑
Shayne Barlow	Associate Vice President for Research; Director, Animal Resource Facilities	☑
Beth Krizek	Plant Expert; Professor in Biological Sciences	☑
Sujit Pujhari	Viral Vector Core Director in Pharmacology, Physiology & Neuroscience	☑
Jason Kubinak	Assistant Professor in Pathology, Microbiology, and Immunology	ABSENT
Michael Shtutman	Associate Professor in Drug Discovery & Biomedical Sciences	☑
Daping Fan	Professor in Cell Biology and Anatomy	ABSENT
Sean Norman	Associate Professor in Environmental Health Sciences	☑
Anna Blenda	Associate Professor and Director of Research at USC SOM Greenville	ABSENT
William Jackson	Professor/Chair in Biological, Environmental & Earth Sciences at USC Aiken	☑
Ben Montgomery	Associate Professor in Natural Sciences and Division Chair at USC Upstate	☑
Amanda Moore	Community member; SC Department of Health & Environmental Control	☑
Vida Mingo	Community member; Senior Lecturer of Biology at Columbia College	☑
Kris Kaigler	Research Specialist staff in Pharmacology, Physiology and Neuroscience	ABSENT

I. APPROVAL OF PREVIOUS MEETING MINUTES

IBC minutes from the meeting on April 16, 2025, were approved by committee vote.

- Votes: For = 11 / Against = 0 / Abstain = 0

II. ANNOUNCEMENTS

A. IBC CHAIR

i. The IBC Chair reminded all members present to identify any conflicts of interest as each registration is reviewed.

ii. The Chair shared during our last meeting that institutions subject to the *NIH Guidelines* must ensure that approved minutes from IBC meetings are posted publicly. IBC members were reminded when minutes are reviewed and approved to consider that the minutes will be posted on the IBC website. A notice is also posted when a new protocol is created that requests for the PI not to include any confidential or proprietary information in the IBC protocol.

B. RESEARCH SAFETY BUREAU CHIEF / SENIOR BIOSAFETY OFFICER

i. The IBC will review any research subject to IBC review and approval for the USC Beaufort labs under a pending services agreement. A USCB faculty member will become a new IBC member in late 2025. Then the IBC will review research that is conducted at all USC campuses (USC Columbia, SOM Columbia, SOM Greenville, USC Aiken, USC Upstate, and USC Beaufort).

III. OLD BUSINESS

No old business was discussed.

IV. PROTOCOL REVIEWS

Protocol #	1-0121-0625
Protocol Type	Amendment
PI Name	Joseph McQuail
Project Title	Modulation of Gene Expression in Brain Aging and Cognition
Section of NIH Guidelines	Section III-D-1 & III-D-4, Section III-E-1, Section III-F-8
Characteristics of	Plasmids, adeno-associated viruses (AAVs), and lentiviruses used are

Agent(s) or Material(s)	obtained from Addgene or produced by the USC Viral Vector Core. Recombinant DNA encodes for glutamate receptor proteins fused to fluorescent or ER-retention tags, deactivated Cas9 (dCas9) fusion proteins, or shRNAs that regulate expression of endogenous neurotransmitter or hormone receptor genes. These genes are not associated with pathogenesis or oncogenesis. They are cloned into plasmids and propagated in *E. coli K-12* strains at BL1 containment. Plasmids are transfected into human and mouse cells using chemical methods to confirm expression. Plasmids are packaged into 2nd generation, replication-deficient lentiviruses or into AAVs by the USC Viral Vector Core for in vivo use. AAVs are produced in HEK293 cells via triple transfection using helper plasmids; no helper viruses are used. AAV and lentivirus are injected stereotaxically into the rat brain. All surgical procedures and postoperative recovery involving viral vectors are conducted under BL2 containment, regardless of viral type. Lentiviruses are modified to be replication-deficient to reduce virulence and pathogenicity. Transgenes are not known to be toxic or allergenic. Wild-type and transgenic rats are bred under approved IACUC protocol.
Manipulations/Procedures & Risk Assessment	Plasmids will be propagated in *E. coli*. Transfection into cultured cells. All pipetting with micropipettors fitted with single-use, aerosol-resistant barrier tips to minimize exposure and cross-contamination. Transfection and related work with cultured cells will be performed exclusively in a biosafety cabinet. Surfaces and tools are disinfected with 70% ethanol after use. For larger volumes, single-use serological pipettes and an electronic pipettor are used. Culture plates are always covered before removing them from the BSC for transport to microscope or incubator. Plasmids verified for proper expression are packaged into either AAV or lentiviral vectors (2nd generation). Both AAV and lentivirus production occur in the USC Viral Vector Core and not in the PI's laboratory. AAVs are produced in HEK293 cells by triple transfection with packaging plasmids (not helper virus). Stereotaxic surgeries involving administration of viral vectors in rodents are performed at BL2 containment in the surgery room with strict adherence to protocols for handling viral vectors, animal and other waste disposal, disposal/use of sharps, and use of proper PPE.
Source(s) and Nature of Nucleic Acid Sequences **Transgene Expression & Function of Protein**	The sources of nucleic acid sequences include human, rat, bacterial species, and fully synthetic. The nature of nucleic acids and function of proteins produced include increasing expression of NMDAR subunits by inserting gene sequences that code for receptor subunits fused to GFP. Others produce synthetic glutamate receptor subunits fused to GFP or truncated segments of GABA receptor subunits. A second set of vectors express deactivated Cas9 fused to DNA methyltransferase, transcriptional activator or gene repressor. A third set of vectors are used to drive expression mutant human amyloid precursor protein and presenilin 1 protein. Lastly, viral vectors used to express shRNAs that target and decrease translational of mRNAs that encode neurotransmitter receptor subunits.

<table>
<tr><td>Host(s) & Vector(s) Used</td><td>Plasmids are maintained in E. coli strains DH5α, JM109 or Stbl3 and propagated using BL1 procedures. AAVs and lentiviruses are propagated in HEK 293T cells. All viruses are produced and packaged under a biosafety cabinet in the BSL-2 Viral Vector Core at USC.</td></tr>
<tr><td>Viral Vectors</td><td>Adeno-associated virus (AAV) & Retrovirus/Lentivirus (2nd generation) from Addgene or USC Viral Vector Core Laboratory</td></tr>
<tr><td>Biosafety Level(s)</td><td>BL1 (cloning genes in plasmids & propagating in E. coli K-12 strains)
BL2 (intracranial injection of viral vectors in rats)</td></tr>
<tr><td>Work Practices</td><td>Verified work practices for experiments conducted at BL1 & BL2.</td></tr>
<tr><td>Laboratory Facilities</td><td>Verified proper lab facilities for experiments at BL1 & BL2.</td></tr>
<tr><td>Training and Expertise of Research Personnel</td><td>PI provided CV/biosketch for IBC to verify PI’s training and expertise.
PI completed training on NIH Guidelines for Principal Investigators.
PI indicated plans to make biosafety protocols available to lab staff and train lab staff in safe work practices and procedures for incidents.</td></tr>
<tr><td>IACUC Approval</td><td><table><tr><th>IACUC Approval Number</th><th>IACUC Approval Date</th></tr><tr><td>2623-101760-092722</td><td>9/27/2022</td></tr></table></td></tr>
<tr><td>Major Discussion Points</td><td>PI needs to add a justification for using 2nd generation lentiviral vector.</td></tr>
<tr><td>Motion to Approve</td><td>A motion was made to approve this protocol, pending a condition that the PI add a justification for using a 2nd generation lentiviral vector system rather than a 3rd generation with enhanced safety features.
The PI added this justification prior to the protocol being approved.<table><tr><th>Votes For:</th><th>Votes Against:</th><th>Abstained:</th><th>Conflict of Interest:</th></tr><tr><td>11</td><td>0</td><td>0</td><td>None</td></tr></table></td></tr>
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Protocol #	1-0122-0625
Protocol Type	New
PI Name	Tanner (Chase) Francis
Project Title	Investigating the role of neuronal peptides in learning, stress, and mood disorders
Section of NIH Guidelines	Section III-D-4, Section III-F-1 & III-F-8
Characteristics of Agent(s) or Material(s)	AAVs will be purchased from a commercial source and no in-house cloning or amplification. A list of these viral constructs and titers, including promoters and expression vectors were provided. Also

<table>
<tr><td></td><td>provided a figure of generalized expression construct vector indicating sites where transgenic proteins can cause recombination. AAVs do not contain machinery for replication, they are non-pathogenic, and genetic modification would not increase pathogenicity. The viruses require a secondary helper virus (Cre) for expression which increases safety. AAV vectors may be handled at BL1 when they are made in the absence of a helper virus, used in the absence of any Risk Group 2 materials (including human cell lines), and are free of any hazardous transgenes. Since the AAV viral vectors used for our experiments meet these criteria, they will be handled at BL1 containment.</td></tr>
<tr><td>Manipulations/Procedures & Risk Assessment</td><td>Project involves the purchase & generation of BL1 transgenic rodents.
AAVs will be injected intracranially into transgenic mice expressing proteins that allow for conditional expression. The viruses will be handled at BL1. Mice injected with AAV will be housed at BL1. Animals with light-sensitive proteins for neuronal activity will be euthanized, brains removed and sectioned for electrophysiological experiments. AAVs will be transported from the lab to the animal facility in an ice-filled, airtight cooler. Lab personnel will strictly adhere to the SOP for use of AAV in animals, including the use of proper PPE, sharps precautions, cage changes, and disposal of waste.</td></tr>
<tr><td>Source(s) and Nature of Nucleic Acid Sequences
Transgene Expression & Function of Protein</td><td>All nucleic acid sequences used are synthetic.
The nature of nucleic acids and function of proteins produced include light driven activation of neurons, accessing neuronal calcium changes, and assessing release of acetylcholine & dopamine with fluorescence.</td></tr>
<tr><td>Host(s) & Vector(s) Used</td><td>All viral vectors will be injected into the brain of mice.</td></tr>
<tr><td>Viral Vectors</td><td>Adeno-associated virus (AAV) purchased from commercial sources</td></tr>
<tr><td>Biosafety Level(s)</td><td>BL1 (injection of AAV in transgenic mice & related procedures)</td></tr>
<tr><td>Work Practices</td><td>Verified proper work practices for experiments conducted at BL1.</td></tr>
<tr><td>Laboratory Facilities</td><td>Verified proper lab facilities for experiments conducted at BL1.</td></tr>
<tr><td>Training and Expertise of Research Personnel</td><td>PI provided CV/biosketch for IBC to verify PI’s training and expertise.
PI completed training on NIH Guidelines for Principal Investigators.
PI indicated plans to make biosafety protocols available to lab staff and train lab staff in safe work practices and procedures for incidents.</td></tr>
<tr><td>IACUC Approval</td><td><table><tr><th>IACUC Approval Number</th><th>IACUC Approval Date</th></tr><tr><td>2610-101728-072722</td><td>9/3/2024</td></tr><tr><td>2705-101873-022724</td><td>4/23/2025</td></tr></table></td></tr>
<tr><td>Major Discussion Points</td><td>The PI revised his protocol to justify the use of BL1 containment for use of AAV vectors by clarifying the AAV vectors are made in the absence of a helper virus, used in the absence of any RG 2 materials</td></tr>
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	(including human cell lines), and are free of any hazardous transgenes. PI clarified minor details on rodent cage signage & sharps precautions. The PI added inhalation of aerosols as a possible route of exposure.			
Motion to Approve	A motion was made to approve this protocol as is			
	Votes For: 11	Votes Against: 0	Abstained: 0	Conflict of Interest: None

V. New Business / Additional Topics

No new business was introduced.

VI. Review of Incidents

No new incidents were reported.

VII. Inspections/Ongoing Oversight

Each PI's protocol includes a link to their last lab safety inspection report for IBC review.

VIII. IBC Training

No IBC training was conducted.

IX. Public Comments

No public comments were received.

X. Meeting Adjournment

The IBC meeting was adjourned at 3:46pm.