UNIVERSITY OF South Carolina

INSTITUTIONAL BIOSAFETY COMMITTEE MEETING MINUTES

DATE: February 18, 2026
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 3:04pm.

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; Director, Graduate Studies in Drug Discovery & Biomedical Sciences	☑
Sherika Smith	Biological Safety Officer in Environmental Health & Safety	☑
Shayne Barlow	Animal Expert; Associate Vice President for Research & Director, DLAR	☑
Beth Krizek	Plant Expert; Professor in Biological Sciences	☑
Sujit Pujhari	Viral Vector Core Director in Pharmacology, Physiology & Neuroscience	ABSENT
Jason Kubinak	Associate Professor in Pathology, Microbiology, and Immunology	☑
Michael Shtutman	Associate Professor in Drug Discovery & Biomedical Sciences	☑
Daping Fan	Professor in Cell Biology and Anatomy	ABSENT
Sean Norman	Director, Molecular Microbial Ecology Lab in Environmental Health Sciences	☑
Anna Blenda	Clinical Professor in Biomedical Sciences at USC SOM Greenville	☑
William Jackson	Professor/Chair in Biological, Environmental & Earth Sciences at USC Aiken	☑
Anita Nag	Associate Professor of Biochemistry at USC Upstate	☑
Emily Webb	Assistant Professor of Genetics & Molecular Biology at USC Beaufort	☑
Amanda Moore	Community member; Special Pathogens at SC Department of Public Health	☑
Ryan McCormick	Community member; Infectious Diseases Clinical Pharmacist at Prisma Health	☑
Kris Kaigler	Research Specialist (technical staff) in Pharmacology, Physiology & Neuroscience	☑

* Mark Robbins (Research Safety Bureau Chief & Non-Voting IBC Contact Person)

I. APPROVAL OF PREVIOUS MEETING MINUTES

IBC minutes from the meeting on December 10, 2025, were approved by committee vote.

- Votes: For = 14 / Against = 0 / Abstain = 0

II. ANNOUNCEMENTS

A. IBC CHAIR

- Introduction of new IBC members from USC Upstate and USC Beaufort, a new community member from Prisma Health, and the Biosafety Officer.
- Reminder for all members present to identify any conflicts of interest as each protocol registration is reviewed.

B. BIOLOGICAL SAFETY OFFICER

- Review highlights in the 2025 Biological Safety annual report.

C. RESEARCH SAFETY BUREAU CHIEF

- IBC annual report was submitted to the NIH OSP and is pending approval.

III. OLD BUSINESS

No old business will be discussed.

IV. PROTOCOL REVIEWS

Protocol #	1-0145-0226
Protocol Type	Amendment
PI Name	Kristy Welshhans
Project Title	Molecular mechanisms regulating axon growth and guidance in health and disease
Section of NIH Guidelines	Section III-D-1, Section III-E-1 & III-E-3, Section III-F-1 & III-F-8
Characteristics of Agent(s) or Material(s)	The biological materials that will be used are recombinant constructs (both in plasmid and viral form), synthetic nucleic acids, viral vectors (lentivirus, adenovirus), and transgenic mouse models. Plasmids will be transfected into primary mouse neurons and human

	cell lines. Plasmids will be propagated in *E. coli* K-12 strains. Lab will use Stellaris probes to perform FISH (fluorescent in situ hybridization) on cultured primary mouse neurons and human cells. These probes are fluorescently labeled oligonucleotides. The probes will be to label mRNAs. The cells are fixed before probes are used. Lab will use commercially available lentivirus to infect primary mouse cortical neurons and human cell lines. The 3rd generation lentiviral vectors used are replication-incompetent (require 4 separate plasmids). There should be no off-target effects. The titer is at least 3 x 10E8 IFU/ml. Lab will use it at a MOI of 1-20. The gene products are not associated with oncogenic potential, toxicity, or allergenicity. The virus will only be used in cell culture (primary mouse neurons, human cells). Lab will use commercially available adenovirus to infect primary mouse cortical neurons. The adenoviral vectors used are replication-incompetent (E1 & E3 genes deleted). Adenoviral vector is non-integrating. LifeAct (fragment of actin binding domain) is used in living cells to label the dynamic F-actin cytoskeleton. The sequence for LifeAct has no off-target effects. The titer is at least 1 x 10E9 IU. Lab will use it at a MOI of 1-20. The gene products are not associated with oncogenic potential, toxicity, or allergenicity. This virus will only be used in cell culture (primary mouse neurons).
Manipulations/Procedures & Risk Assessment	Recombinant DNA and viral vectors will only be used in cell culture. The cells are either primary mouse neurons or human cell lines. rDNA will be transfected into these cells by electroporation, lipid-based transfection methods, or the calcium phosphate method. Lentivirus or adenovirus will be transduced by adding the virus at an MOI of 1-20 to the cell culture media. After two days, the cells will either: (1) be fixed, followed by immunocytochemistry, and then imaged using a widefield microscope, or (2) used in a live cell imaging experiment on a widefield microscope. This work will be conducted in a biosafety cabinet. Synthetic nuclei acids will be used in fluorescence in situ hybridization (FISH) experiments on cultured primary mouse neurons or human cell lines. These cells will be grown in culture and then fixed. Following fixation, FISH will be performed using Stellaris probes (fluorescently labeled oligonucleotides). Then the cell cultures will be imaged. The use of sharps is limited to minimize the risk of exposure. Lab will routinely use plastic pipettes. However, some experiments do require glass Pasteur pipettes because some factors and cells may "stick" to plastic pipettes, resulting in loss during transfer. Lab will use glass slides and coverslips due to high resolution microscopy requirements. The risks from these sharps will be mitigated through the use of PPE and training. Individuals will wear gloves, lab coats, and eye protection whenever they work with these materials. Furthermore, all steps involving rDNA and viral vectors that have potential for creating aerosols or splashes (e.g., pipetting) are performed in a biosafety cabinet. The lids will remain on the culture dishes when moving them between the BSC and incubator. Lab will not use high concentrations or large volumes of infectious agents, or whole animals or plants. All

<table>
<tr><td></td><td>work surfaces will be decontaminated before and after use with 70% ethanol. For lentivirus and adenovirus, all work surfaces will be decontaminated with either Sani-Cloths or a fresh 10% bleach solution, followed by a wipe down with 70% ethanol to prevent corrosion. All culture dishes and associated material that have been exposed to virus will be initially disinfected with a fresh 1% bleach solution, and later autoclaved (121˚C for 1 hour). All materials exposed to rDNA will be autoclaved. During transport, all viral vectors and rDNA will be in primary and secondary containment that is securely closed and leak-proof. Lentivirus and adenovirus will be stored in primary and secondary containment at -80˚ in a clearly marked leak-proof box.</td></tr>
<tr><td>Source(s) and Nature of Nucleic Acid Sequences
Transgene Expression & Function of Protein</td><td>The source of nucleic acid sequences includes Mus musculus, Rattus norvegicus, Homo sapiens, Gallus gallus, Dendronephthya sp., Aequorea victoria, Discosoma sp., Entacmaea quadricolor, Rhodococcus rhodochrous, and Saccharomyces cerevisiae.
The function of nucleic acid sequences includes cytoskeletal proteins, cell adhesion molecules, mRNA binding protein, scaffolding protein and ribosomal binding protein, focal adhesion proteins, Actin binding proteins in adhesions, photoconvertible fluorescent protein, green, red & blue fluorescent proteins, laminin receptor subunits, and a 17 amino acid fragment of a protein that binds to actin</td></tr>
<tr><td>Host(s) & Vector(s) Used</td><td>The hosts used are primary neuronal cell cultures, human cell lines (including iPSCs), and E. coli K-12 strains (NEB DH5alpha).
Plasmid vectors (e.g., pUC19, pGEM, pCMV, pcDNA3, pcDNA6.2)</td></tr>
<tr><td>Viral Vectors</td><td>Adenovirus (replication-deficient) from a supplier.
Retrovirus / Lentivirus (3rd generation) from a supplier.</td></tr>
<tr><td>Biosafety Level(s)</td><td>BL1 (plasmids transfected into primary mouse neurons & propagated in E. coli K-12 strains, use of Stellaris probes on cultured cells after fixed)
BL2 (plasmids transfected into human cell lines, cell culture experiments involving lentiviral and adenoviral vectors)</td></tr>
<tr><td>Work Practices</td><td>Verified proper work practices for experiments conducted at BL1, BL2.</td></tr>
<tr><td>Laboratory Facilities</td><td>Verified proper lab facilities for experiments conducted 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>2683-101852-092723</td><td>9/27/2023</td></tr></table></td></tr>
<tr><td>Major Discussion Points</td><td>PI verified viral vectors are replication-deficient & biosafety level used.</td></tr>
</table>

Motion to Approve	A motion was made to approve this protocol as is			
	Votes For: 14	Votes Against: 0	Abstained: 0	Conflict of Interest: None

Protocol #	1-0146-0226
Protocol Type	Amendment
PI Name	Jeff Twiss
Project Title	Modifying intrinsic growth capacity through axonal mRNA translation
Section of NIH Guidelines	Section III-D-1 & III-D-4, Section III-E-1 & III-E-3, Section III-F-3 & III-F-8.
Characteristics of Agent(s) or Material(s)	cDNAs from rat and/or mouse will be used. Lab will focus on mRNAs linked to growth of peripheral axons. Lab will engineer the coding sequences of these mRNAs for altered transport into axons. Standard plasmids used for cloning, expression in mammalian cells, and generation of replication-deficient lentivirus (3rd generation). Viral titer utilized is ~ 10 to -10 to -12 MOI and < 5 µl viral preparation solution. cDNA inserts for expression plasmids and lentiviral shuttle plasmids will be generated by RT-PCR or direct cloning from plasmids. Plasmids amplified in *E. coli* K-12 strains. Lab will transiently transfect cell lines and primary cultures from adult mice. Replication deficient lentiviral preparations will be used to transduce primary mouse neuron cultures. Genetic alterations to replace the 5' and/or 3'UTRs of the mRNAs with ones that increase transport of the mRNA into axons or translation of the mRNA within axons. Transgene derivatives are not a known safety hazard (i.e., no oncogenes). Schwann cells are included in cultures of primary neurons and used as an initial test of pathogenicity in non-neuronal systems. Constructs that generate unanticipated effects in Schwann cells (excessive proliferation or death) will not be pursued. Lab will use a core facility for the generation of lentiviral vectors. AAVs used to study effect of RBPs and axonally synthesized proteins – (a) test cDNA and shRNA expression constructs, titer AAV preps and validate expression/depletion, test function of AAV preps in modifying axonal growth, test ability of AAV preps to modify growth using mouse cultures, and test the possibility that expression of axonally targeted mRNAs or RBPs may influence CNS axonal regeneration. (b) cDNA expression constructs for RNA binding proteins (RBPs) and axonally targeted mRNAs for regeneration associated genes (RAGs). shRNAs developed to target different RBPs and mRNAs. Each will be tested by transfection prior to generating AAV for in vivo expression. Expression of RBP proteins and axonal localization of RAG mRNAs

	will be validated by in situ hybridization and immunofluorescence. For cDNAs encoding axonal RAG mRNAs, lab will generate a cell body-restricted RAG mRNA encoding construct for control. For the RBPs, lab will generate mutants that lack RNA binding activity for each. (c) Lab will use the above constructs and experimental controls to generate replication-deficient AAV that will ultimately be used for expression in retinal ganglion cells in vivo. The AAV ITRs are the only component packaged into viral particles (< 10% of wild-type genome). Axonal mRNA translation is needed for retrograde transport of HSV viral particles but not for entry into axons. Both wildtype HSV-1 and HSV1-VC2 mutant virus tested for retrograde transport using cultures. Lab will use a replication-deficient adenoviral vector (commercial & not produced in lab) is fused with GFP to label the actin cytoskeleton in primary cultures. After transduction, virus remains epichromosomal. Lentiviral vectors (replication-deficient) used in cases where we genes of interest are too large for packaging into AAVs. LV vectors will be generated by a core facility. No two viruses will be used at the same time.
Manipulations/Procedures & Risk Assessment	cDNA inserts for expression plasmids and LV shuttle plasmids will be generated by RT-PCR or direct cloning from plasmids by restriction digestion. Plasmids will be amplified in *E. coli* K-12 derivatives. Standard gel electrophoresis is used for analysis. Electroporation used to transiently transfect neuronal-like cell lines and primary cultures of dorsal root ganglion neurons from adult mice. Replication-deficient LV preparations will be used to transduce primary mouse neurons cultures. AAV characterized initially in cell lines. Lab will use serial dilutions of AAV preps to transduce dissociated DRG cultures. Expression of encoded construct tested in DRG cultures using immunofluorescence. For testing function of the AAV encoded mRNAs, lab will use the optimum AAV concentration to transduce dissociated DRGs cultured. This provides an estimate of function of encoded mRNAs or depleted mRNAs for modifying axonal growth capacity. For expression of proteins, lab will transduce with an AAV encoding soluble GFP as a control for viral effects. Lab will determine if AAV encoding axonally targeted mRNAs and RBPs can support growth. The optic nerve of mice will be crushed and vitreous injected with one AAV for expression of exogenous mRNAs or shRNA based depletion. Transducing exogenous transgenes into cultured cells and mice and rats. AAV serotypes 2, 5, 9 and Php.S (< 10 µl) used as these have neuronal selective transduction. CO_2 incubator fitted with HEPA filter. Electroporation used to transiently transfect neuronal-like cell lines and primary DRG and cortical neurons from adult mice/rats. Virus is diluted into culture medium and lab pipets virus onto cells, which decreases virus concentrations by 300-500-fold, For transducing animals, ≤ 5 µl aliquot of viral solution is aspirated into

	a Hamilton microsyringe in a biosafety cabinet. Injection of AAV2 into the vitreous humor of the eye in a Class I BSC. Hamilton microsyringe is the only sharp used for injection into sciatic nerve of rats and mice. HSV shipped from a collaborator. Virions stored in a secured -80˚ freezer and labeled 'biohazard' in small aliquots. Cultures later imaged. Lab will use replication-deficient adenoviral vector fused with GFP to label the actin cytoskeleton in our primary cultures. Virion isolates added to primary cultures. Cultures will be imaged on a microscope. Lab uses replication-deficient lentiviral vectors to express transgenes fused to fluorescent proteins or epitope-tagged versions in for genes of interest too large to package into AAVs. LVs only used in culture. Cultures for imaging or lysed for immunoprecipitation/immunoblotting. HSV, adenovirus, and AAV experiments will not be done in the same biosafety cabinet at the same time. After the BSC is used for any virus work, it will be cleaned & decontaminated before use by other lab staff. Only trained individuals are allowed to work with rDNA in the lab. Aerosol-resistant centrifuge rotors are used. All staff wear PPE (gloves, lab coat, face shield/glasses) while handling virus. Viral preparations are only pipetted with aerosol-resistant pipets (i.e., plugged) in a biosafety cabinet. Microliter quantities of virus are used, and all surfaces are decontaminated with 10% bleach. Biohazard waste will be transported to the autoclave room in a durable, leak-proof container. The main routes of transmission for LV, AAV, and adenovirus are percutaneous or mucous membrane exposure. No other sharps will be used besides the Hamilton syringe for AAV tissue injections. HSV infections can occur through contact with skin and mucous membranes. Laboratory access is controlled by closing doors during any BL2 work. Post-exposure plans and biological spill procedures are posted in labs.
Source(s) and Nature of Nucleic Acid Sequences **Transgene Expression & Function of Protein**	The source of nucleic acid sequences includes human, mouse, rat, *Aequorea victoria*, *Discosoma*, and a synthetic fusion of proteins. The nature and function of nucleic acid sequences includes RNA binding proteins, lectin-like signaling protein, transcriptional regulator & acetyl transferase, fluorescent proteins, genetically encoded calcium indicator, survival protein, and deacetylase.
Host(s) & Vector(s) Used	Host – *E. coli* Vectors – Lentivirus, AAV, plasmids, HSV-1 (wild-type, VC2 mutant), rAV-LifeAct-TagGFP2 (ibidi) vector
Viral Vectors	AAV (replication-deficient) from UNC Viral Vector Core or supplier. Adenovirus (replication-deficient) from a supplier. Herpesvirus / Herpes Simplex Virus Type 1 (HSV-1) from LSU. Retrovirus / Lentivirus (3^{rd} generation) from UNC Viral Vector Core.
Biosafety Level(s)	BL1 (plasmids for cloning, plasmids amplified in *E. coli* K-12 strains)

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<tr><td></td><td>BL2 (viral vector experiments - lentivirus, adenovirus, AAV, HSV-1)</td></tr>
<tr><td>Work Practices</td><td>Verified proper work practices for experiments conducted at BL1, BL2.</td></tr>
<tr><td>Laboratory Facilities</td><td>Verified proper lab facilities for experiments conducted 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.
PI verified lab personnel that will administer viable recombinant or synthetic nucleic acid molecule-modified microorganisms on whole animals received training to strictly follow all procedures in the SOP.</td></tr>
<tr><td>IACUC Approval</td><td><table><tr><th>IACUC Approval Number</th><th>IACUC Approval Date</th></tr><tr><td>2741-101976-120624</td><td>12/6/2024</td></tr><tr><td>2789-102080-120125</td><td>12/01/2025</td></tr></table></td></tr>
<tr><td>Major Discussion Points</td><td>PI verified adenoviral, AAV, and lentiviral vectors are all replication-deficient, helper-free systems that cannot produce infectious progeny.
PI added more descriptions of lentivirus transduction.
PI verified that HSV, adenovirus, and AAV experiments will never be conducted in the same biosafety cabinet at the same time, and all work surfaces will be cleaned and decontaminated after each experiment</td></tr>
<tr><td>Motion to Approve</td><td>A motion was made to approve this protocol as is<table><tr><td><u>Votes For:</u>
14</td><td><u>Votes Against:</u>
0</td><td><u>Abstained:</u>
0</td><td><u>Conflict of Interest:</u>
None</td></tr></table></td></tr>
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<table>
<tr><td>Protocol #</td><td>1-0147-0226</td></tr>
<tr><td>Protocol Type</td><td>Renewal</td></tr>
<tr><td>PI Name</td><td>Katie Kathrein</td></tr>
<tr><td>Project Title</td><td>Epigenetic regulation of hematopoietic stem cells</td></tr>
<tr><td>Section of NIH Guidelines</td><td>Section III-F-8</td></tr>
<tr><td>Characteristics of Agent(s) or Material(s)</td><td>Eukaryotic plasmid expression vectors will be used for expression of human genes into human or mouse cells. Vectors all contain less than one-half of any eukaryotic viral genome. Plasmids will not be used to make viral particles. Genes expressed are tumor suppressor proteins that are not oncogenic.
Prokaryotic (E. coli) expression vectors for cloning human, mouse, and</td></tr>
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	zebrafish genes. Zebrafish genes would only be for use during in situ hybridization and not for generation of transgenic animals.
Manipulations/Procedures & Risk Assessment	For cell culture studies, eukaryotic plasmid expression vectors and prokaryotic (*E. coli*) expression vectors will be used to clone human DNA fragments. These fragments will be inserted into vectors to create individual clones expressing or containing the DNA fragments. Cloning procedure and DNA propagation performed in *E.coli* K12 stains. Constructed vectors introduced into culture cells by transfection or electroporation. Genetic modifications do not affect pathogenicity. Lab personnel are trained and wear appropriate PPE to prevent exposure.
Source(s) and Nature of Nucleic Acid Sequences **Transgene Expression & Function of Protein**	The sources of nucleic acid sequences include human, mouse, zebrafish, and jellyfish. The nature and function of nucleic acid sequences includes to visualize hematopoietic stem cells, and to regulate chromatin structure, stem cell differentiation and activity
Host(s) & Vector(s) Used	Mammalian expression vectors
Viral Vectors	None
Biosafety Level(s)	BL1 (use of plasmid & *E. coli* expression vectors)
Work Practices	Verified proper work practices for experiments conducted at BL1.
Laboratory Facilities	Verified proper lab facilities for experiments conducted at BL1.
Training and Expertise of Research Personnel	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.
Major Discussion Points	PI plans to leave USC in July 2026, so she decided to stop virus work. Her protocol was updated and will be inactivated when she leaves.
Motion to Approve	A motion was made to approve this protocol as is

Votes For:	Votes Against:	Abstained:	Conflict of Interest:
14	0	0	None

Protocol #	1-0148-0226
Protocol Type	Renewal
PI Name	Cameron McCarthy & Camilla Wenceslau
Project Title	Using AAV's to manipulate gene targets in vascular cells

Section of NIH Guidelines	Section III-D-4
Characteristics of Agent(s) or Material(s)	Lab will use adeno-associated viruses (AAV) to knock down specific gene products of interest. The AAV vectors will employ tissue-specific promoters and/or serotypes to restrict expression & enhance specificity. No gene targets are known tumor suppressors, oncogenes, or regulators of genomic stability. Knockdown strategies are not expected to increase the risk of cancer or other unrelated disease processes. shRNA sequences are selected to maximize specificity for the intended gene and avoid homology with unrelated transcripts. Candidate constructs are screened, tested *in vitro* to confirm effective target knockdown, and evaluated for lack of off-target effects. All AAV vectors used are replication-incompetent. Administered AAVs cannot generate new virus *in vivo*. Recombinant AAVs persist primarily as episomal DNA, with rare random genomic integration.
Manipulations/Procedures & Risk Assessment	Procedures with AAV will include: (i) intravenous administration to mice or rats using a syringe and needle (single injection); (ii) collection and processing of blood and tissues; and (iii) *in vitro* incubation of isolated vessels from untreated rodents or cultured cells with AAV. Only trained personnel perform animal handling and sample processing to minimize the risk of exposure. Animals restrained using devices to reduce the risk of needlestick injury, and needles will not be recapped. Tissue collection will be conducted using surgical instruments. Samples will be centrifuged for the isolation of specific cellular components. Personnel will wear appropriate PPE (lab coats, gloves, eye protection). All *in vitro* procedures involving AAV, including vector preparation and tissue or cell incubation, will be conducted in a certified biosafety cabinet. Centrifugation is performed using sealed rotors or safety cups. Following AAV administration, animals will be transported back to the animal facility in securely closed and labeled cages. Other procedures include animal dosing, euthanasia, tissue harvest, and blood collection. Centrifugation, mixing, and sonication will be conducted using closed systems and containment. Opening containers containing infectious materials will be performed in a biosafety cabinet. Waste decontamination and disposal will include autoclaving, chemical disinfection, and incineration of animal carcasses.
Source(s) and Nature of Nucleic Acid Sequences **Transgene Expression & Function of Protein**	The sources of nucleic acid sequences include *Rattus norvegicus*, *Aequorea Victoria*, and *Discosoma*. The nature and functions of nucleic acid sequences include Ser/Thr glycosylation (embryogenesis & cell viability), and a visual marker.
Host(s) & Vector(s) Used	293T cells used to produce the AAV viral vectors at Viral Vector Core.
Viral Vectors	Adeno-Associated Virus (AAV) from USC-SOM Viral Vector Core.
Biosafety Level(s)	BL1 (all experiments involving AAV & animals administered AAV) – AAV constructs do not encode any hazardous transgenes (tumorigenic,

<table>
<tr><td></td><td colspan="4">toxin molecules, etc.) and are produced in the absence of a helper virus.</td></tr>
<tr><td>Work Practices</td><td colspan="4">Verified proper work practices for experiments conducted at BL1.</td></tr>
<tr><td>Laboratory Facilities</td><td colspan="4">Verified proper lab facilities for experiments conducted at BL1.</td></tr>
<tr><td>Training and Expertise of Research Personnel</td><td colspan="4">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.
PI verified lab personnel that will administer viable recombinant or synthetic nucleic acid molecule-modified microorganisms on whole animals received training to strictly follow all procedures in the SOP.</td></tr>
<tr><td>IACUC Approval</td><td colspan="4"><table><tr><th>IACUC Approval Number</th><th>IACUC Approval Date</th></tr><tr><td>2762-102015-050225</td><td>05/02/2025</td></tr><tr><td>2764-102014-050625</td><td>05/06/2025</td></tr></table></td></tr>
<tr><td>Major Discussion Points</td><td colspan="4">PI verified that AAV vectors are recombinant and replication-deficient, and how shRNA constructs are designed/validated for off-target effects.
PI added a description of proper use of PPE and procedures to securely transport animals after injection from the lab back to the animal facility.
BSO verified PI completed NIH Guidelines training prior to approval.</td></tr>
<tr><td rowspan="2">Motion to Approve</td><td colspan="4">A motion was made to approve this protocol as is</td></tr>
<tr><td><u>Votes For:</u>
14</td><td><u>Votes Against:</u>
0</td><td><u>Abstained:</u>
0</td><td><u>Conflict of Interest:</u>
None</td></tr>
</table>

Protocol #	1-0150-0226
Protocol Type	New
PI Name	Edward D’Antonio
Project Title	Expression of Proteins from Pathogens in Non-Pathogenic *E. coli*
Section of NIH Guidelines	Section III-D-2, Section III-E, Section III-F-8
Characteristics of Agent(s) or Material(s)	Lab uses plasmid DNA that has pET-28a(+) vector plus the gene encoding a protein of interest. The lab will express several different pathogen genes, including *Trypanosoma cruzi, Trypanosoma brucei, Leishmania braziliensis,* and *Leishmania infantum* are unicellular eukaryotic parasites. SARS-CoV-2 and Dengue virus are both viruses. Lab will use pre-cloned plasmids for the helicases from SARS-CoV-2

	(Wuhan-Hu-1 isolate strain) and Dengue Virus (serotype 2). There are no hazards associated with the expression of these genes.
Manipulations/Procedures & Risk Assessment	Target genes from pathogens undergo gene synthesis and subsequently cloned into *E. coli* expression vectors to prepare the plasmid DNA. Transformation of plasmids is performed by heat shock method using non-pathogenic *E. coli* (BL21 or DH5-α). Lab will decontaminate work surfaces (e.g., benchtop) by adding 91% (by vol.) isopropanol (or fresh 10% beach solution) to the surface and wiping it down with a paper towel. The laboratory worker must be wearing gloves, a lab coat, and goggles during this decontamination. Pipet tips that deliver volumes of the *E. coli* will be used. All bacteria will be disposed in the biohazard waste bag and then autoclaved. Liquid media with *E. coli* cells are decontaminated by adding bleach (final concentration of 10%) with at least 30 minutes of contact time.
Source(s) and Nature of Nucleic Acid Sequences **Transgene Expression & Function of Protein**	The sources of nucleic acid sequences include *Trypanosoma* (*cruzi*, *brucei*), SARS-CoV-2, Dengue Virus, *Amphitrite ornata*, *Lepidametria commensalis*, *Pista macrolobata, Leishmania* (*braziliensis*, *infantum*), and *Homo sapiens,* The nature and function of nucleic acid sequences includes kinases, helicases, peroxidase, hemoglobins, ureohydrolases, and isomerase.
Host(s) & Vector(s) Used	Hosts: E. coli (BL21, DH5-α) Vector: pET28a(+)
Viral Vectors	None
Biosafety Level(s)	BL1 (transformation of plasmids)
Work Practices	Verified proper work practices for experiments conducted at BL1.
Laboratory Facilities	Verified proper lab facilities for experiments conducted at BL1.
Training and Expertise of Research Personnel	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.
Major Discussion Points	PI verified use of pre-cloned plasmids for helicases from SARS-CoV-2 and Dengue Virus (serotype 2). PI verified gene for SARS-CoV-2 helicase is from Wuhan-Hu-1strain, and gene for Dengue Virus (Type 2) helicase is from mi0002 strain. PI described how liquid media is disposed of after collecting cells, and procedures for decontamination of work surfaces, and verified training.
Motion to Approve	A motion was made to approve this protocol as is

	Votes For:	Votes Against:	Abstained:	Conflict of Interest:
	14	0	0	None

Protocol #	1-0151-0226
Protocol Type	Renewal
PI Name	Joseph McQuail
Project Title	Modulation of Gene Expression in Brain Aging and Cognition
Section of NIH Guidelines	Section III-D-4, Section III-F-8
Characteristics of Agent(s) or Material(s)	Plasmids will be propagated in *E. coli* (K-12–derived strains). AAV vectors are produced by the USC Viral Vector Core and provided as small-volume aliquots for lab use. Typical vector titers of 1E12–1E13 vg/mL and aliquots are diluted for stereotactic intracranial injection. AAV vectors are replication-deficient in the absence of helper virus. AAV serotypes used (e.g., AAV2, AAV5) have neuronal or glial tropism for intracerebral delivery in rats (a non-permissive for AAV replication). shRNA-mediated knockdown carries a risk of off-target transcript suppression. Constructs are designed to minimize sequence homology to non-target transcripts. Overexpression constructs may alter physiological pathways (no anticipated infectious risk). None of the transgenes used are known hazards such as oncogenes.
Manipulations/Procedures & Risk Assessment	Plasmids will be propagated in *Escherichia coli* (K-12–derived strains). Transfection in cultured mammalian cells is performed to verify transgene expression. All pipetting of small volumes (<1 mL) is performed using micropipettors fitted with aerosol-resistant barrier tips. All transfection procedures, media changes, and manipulations of cultured cells are conducted in a certified biosafety cabinet. Surfaces and tools are disinfected after use. Plasmids verified for proper expression are packaged into recombinant adeno-associated virus (AAV) vectors by the USC Viral Vector Core. Finished AAV preparations are provided as small-volume aliquots (≤20 µL) and diluted to working concentrations. Stereotaxic surgeries involving intracranial injection of AAV vectors are performed in an approved procedure room by trained personnel. Sharps used include needles and syringes for viral loading and injection. Potential exposure risks include droplets when loading virus, needlestick injury, other sharps injury (cryostat, microtome) or mucous membrane contact. Personnel wear PPE, including gloves, laboratory coats or gowns, eye protection, and face masks. Mechanical and articulated devices (e.g. stereotaxic frames, motorized microinjectors, cryostats) are used to minimize direct hand contact with needles or blades. Lab personnel are trained in biosafety procedures and SOPs to use AAV.

	Work surfaces and reusable equipment are decontaminated following procedures involving recombinant nucleic acids or AAV vectors. Surfaces are disinfected using fresh 10% bleach solution or other EPA-approved disinfectants. Corrosion-sensitive instruments (e.g., injector needles) are cleaned with 70% ethanol. Materials transported outside of the laboratory are placed in durable, leak-proof secondary containers. Liquid biohazard waste (media containing rDNA, transfected cells, or unused AAV material), is decontaminated with bleach (10% final concentration) with a minimum 20 minute contact time prior to disposal. Solid biohazard waste (e.g., pipette tips, culture plates, gloves, and tissues from injected animals) is collected in labeled, autoclave-safe biohazard bags and autoclaved prior to disposal. Animal carcasses will be disposed of by DLAR for pickup by contractor for incineration. Any potential exposures or accidents will be reported to the IBC & BSO.
Source(s) and Nature of Nucleic Acid Sequences **Transgene Expression & Function of Protein**	The sources of nucleic acid sequences include human, *Aequorea Victoria*, *Rattus norvegicus* (*SRR*, *DAO*), and fully synthetic. The nature and function of nucleic acid sequences include enhanced amyloidgeneic processing, increased cleavage of APP, shRNA to disrupt translation of receptor genes, shRNA (inert control), fluorescent reporter protein, enzyme that converts L-serine to D-serine, enzyme regulating D-serine synthesis and receptor function, and enzyme that degrades D-serine and other D-amino acids.
Host(s) & Vector(s) Used	Plasmids are maintained and propagated in *E. coli* K-12 strains. Recombinant adeno-associated virus (AAV) vectors are produced in HEK293 producer cells using plasmid-based transfection systems at the USC-SOM Viral Vector Core laboratory.
Viral Vectors	Adeno-associated virus from USC-SOM Viral Vector Core or supplier.
Biosafety Level(s)	BL1 (propagation of plasmids in *E. coli*, transfection procedures, and stereotaxic surgeries involving intracranial injection of AAV vectors)
Work Practices	Verified proper work practices for experiments conducted at BL1.
Laboratory Facilities	Verified proper lab facilities for experiments conducted at BL1.
Training and Expertise of Research Personnel	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. PI verified lab personnel that will administer viable recombinant or synthetic nucleic acid molecule-modified microorganisms on whole animals received training to strictly follow all procedures in the SOP.
IACUC Approval	

IACUC Approval Number	IACUC Approval Date
2786-102065-110425	11/4/2025

<table>
<tr><td rowspan="1">Major Discussion Points</td><td colspan="4">PI verified proper disposal of animal waste via infectious waste contract.
PI verified proper selections under III-F-8 and NIH Guidelines training.</td></tr>
<tr><td rowspan="2">Motion to Approve</td><td colspan="4">A motion was made to approve this protocol as is</td></tr>
<tr><td><u>Votes For:</u>
14</td><td><u>Votes Against:</u>
0</td><td><u>Abstained:</u>
0</td><td><u>Conflict of Interest:</u>
None</td></tr>
</table>

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

Four new IBC members received training on laboratory safety and implementation of the *NIH Guidelines* on 1/23/2026, including an overview of the IBC conduct of business.

IX. Public Comments

No public comments were received.

X. Meeting Adjournment

The IBC meeting was adjourned at 3:58pm.