Vanderbilt University (Nashville, TN) Institutional Biosafety Committee (VU IBC)

August 26, 2025
10:45am to 11:55am
Virtual Meeting

Voting Members Present:

Name	Affiliation	Role/Expertise	Present?	Notes
Julian Hillyer	Vanderbilt University	Chair, Arthropod Containment Expert	☒ Yes ☐ No	
Kyle Becker	Vanderbilt University	Biosafety Officer	☒ Yes ☐ No	
Chin Chiang	Vanderbilt University	Scientist, Developmental Biologist / RDNA Delivery Expert	☒ Yes ☐ No	
Abigail Holloway	Metro Nashville Public Health	Non-Affiliated Community Member	☒ Yes ☐ No	
Ethan Lippmann	Vanderbilt University	Scientist, Engineer / Drug Delivery and Stem Cell Expert	☒ Yes ☐ No	Left at 11:25am
Ryan Mason	Tennessee Department of Health	Non-Affiliated Community Member	☒ Yes ☐ No	
Lisa McCawley	Vanderbilt University	Scientist, Biologist / RDNA and Risk Assessment Expert	☒ Yes ☐ No	
Jenny Schafer	Vanderbilt University	Scientist, Microscopist / Core Representative	☒ Yes ☐ No	
Katherine Shuster	Vanderbilt University Medical Center (VUMC)	Animal Containment Expert	☒ Yes ☐ No	
Benjamin Spiller	Vanderbilt University	Scientist, Structural Biologist / Microbiology and Toxin Expert	☐ Yes ☒ No	Communicated review of materials ahead of meeting
William Wan	Vanderbilt University	Scientist, Biochemist / Molecular Biology and Virology Expert	☒ Yes ☐ No	
Jeanne Wallace	VUMC	Alternate Animal Containment Expert	☐ Yes ☒ No	

Non-voting members in attendance:

Name	Affiliation	Title
Scott Bury	VUMC	Director of Office of Animal Welfare Assurance
Greta Messer	Vanderbilt University	Associate General Counsel, Office of the General Counsel
Andrea George	Vanderbilt University	Assistant Vice Chancellor, Environmental Health, Safety, and Sustainability (EHSS)
Matt Loch	Vanderbilt University	Safety Officer, Biosafety, EHSS
Katrina Ngo	Vanderbilt University	Safety Officer, Biosafety, EHSS
Venita White	VUMC	Infectious Disease Nursing Program Manager, Occupational Health Clinic

Quorum

Per the Vanderbilt University IBC Charter, at least five voting members of the Committee must be present to conduct business. Ten voting members were present; therefore, quorum was met.

Call to Order / Introductions / Announcements

This meeting was held in a virtual format that included an internet-based video meeting platform. Using this platform, review materials were shared, and attendance and voting were confirmed and recorded.

The Chair called the meeting to order at 10:47 am.

Dr. George provided an update on the recruitment effort for a new Associate Director of Biosafety and BSO. The position was offered and accepted by the candidate, who will join the University in mid-October. Dr. George thanked the Committee for their time during the interview process.

The Chair reminded all members present to identify any conflicts of interest (COI) as each registration is reviewed. The Chair also reminded the Committee that the current missive of the IBC is to evaluate whether registrations comply with the NIH guidelines for recombinant and synthetic nucleic acid research, and that at present, the committee does not specifically evaluate whether research constitutes dual use research of concern (DURC/PEPP) or gain of function research (GOF) since this is the function of an Institutional Review Entity (IRE).

Minutes Review / Approval

The Chair opened the floor for comments and proposed revisions of the minutes of the July 22, 2025 meeting. The Committee voted to approve the minutes as presented with no discussion or changes.

Motion to approve the minutes: For: 10; Against: 0; Abstain: 0.

Biosafety Officer's Incident Report

There were no incidents to report.

Biomaterials Registration Reviews

VU-BMR	Review Type	PI	Department	Title
007	Renewal	Brown, Breann	Biochemistry	*Structural Biology of Proteins Involved in Heme Biosynthesis and Mitochondrial Metabolism*
Research Description (as stated by PI): The Brown Lab recombinantly expresses and purifies mitochondrial proteins for structural studies, primarily X-ray crystallography, quantitative biophysical characterization, and *in vitro* enzyme assays. These proteins originate from both prokaryotic and eukaryotic organisms and are involved in maintenance of mitochondrial physiology and heme biosynthesis. For these protocols, target genes are cloned into commercially available bacterial expression vectors, which are then transformed into commercially available *E. coli* expression strains.				
Project Overview: This registration renewal includes the cloning and expression of genes involved in heme biosynthesis and mitochondrial genes (which may originate from RG1 or RG2 organisms) in non-pathogenic *E. coli* for use in downstream experiments. Additionally, RDNA will be expressed in insect culture via baculoviral vectors to produce a high yield of recombinant protein for downstream structural experiments and *in vitro* enzyme assays. Human-derived myeloid progenitor cells will also be used to study the role of heme biosynthesis and its dysregulation on protein-protein interactions and cell physiology.				
Risk Assessment and Discussion: BSL-1 practices and containment were proposed for experiments involving RG1 RDNA in non-pathogenic *E. coli.* BSL-2 practices and containment are recommended for				

experiments involving RDNA from RG2 agents in non-pathogenic *E. coli*. (The Committee may vote to lower containment for these experiments to BSL-1, per Section III-D-2-a of NIHG). BSL-1 practices and containment were also proposed for experiments involving insect cell culture including modification by baculoviral vectors. BSL-2 practices and containment were proposed for experiments involving human-derived materials.

Representatives from the VU Biosafety team inspected the lab as part of the risk assessment process and found that the procedures, practices, and expertise of personnel involved in this research were sufficient for the scope of work.

During the discussion regarding experiments involving RG2 RDNA in non-pathogenic *E. coli*, the Committee determined that the genes of interest are highly unlikely to affect virulence or pathogenicity as they are homologous throughout many species, both pathogenic and non-pathogenic. Therefore, the committee was in agreement that this research can be conducted using BSL-1 practices. The Committee also discussed the lab's use of glass Pasteur pipettes for work involving human-derived cell culture, including the justification provided by the lab for their continued use and consideration to switch to plastic alternatives when replenishing cell culture supplies.

Following the discussion, the Committee voted to approve the registration at the biosafety levels proposed, including the lowering of containment to BSL-1 for activities involving the expression of genes of interest from RG2 agents in non-pathogenic *E. coli.*

NIHG Activity Categories: III-D-2-a, III-E, III-E-1, III-F-8 / Appendix C-II

Training: Biosafety 101: Standard Microbiological Practices (all researchers), Biosafety 201: BSL-2 Principles (HDM users only), Working Safely with Human-Derived Materials (HDM users only), 2025 Biosafety Refresher for Vanderbilt Researchers (all researchers), and Know Your Responsibilities: Biomaterials Safety Standards for Current Principal Investigators (PI only).

All required trainings are complete for all lab staff listed in the registration.

Conflict of interest: No IBC members declared a conflict of interest.

Motion to approve registration	For: 10	Against: 0	Abstain: 0

VU-BMR	Review Type	PI	Department	Title
013	Renewal	Burkewitz, Kristopher	Cell and Developmental Biology	*Molecular Genetics of Aging and Organelle Integrity in C. elegans*

Research Description (as stated by PI): The Burkewitz Lab uses molecular genetic approaches and microscopy in a *C. elegans* model to identify genetic pathways that play a role in aging and age-related diseases. Using genetic tools to both manipulate nutrient-sensing pathways and to track organelle behaviors in aging animals, the lab aims to identify novel therapeutic targets to ameliorate age-related declines in health and lifespan.

Project Overview: This renewal registration involves cloning and expressing genes of interest (genes involved in aging and fluorescent markers) in non-pathogenic *E. coli*. Microinjection of the resulting plasmids, feeding with modified non-pathogenic *E. coli*, and CRISPR/Cas9 genetic manipulation are used to generate new transgenic *C. elegans* for downstream microscopy experiments and genetic assays.

Risk Assessment and Discussion: BSL-1 practices and containment were proposed for experiments involving RDNA in non-pathogenic *E. coli* and for the generation and use of transgenic *C. elegans*.

Representatives from the VU Biosafety team inspected the lab as part of the risk assessment process and found that the procedures, practices, and expertise of personnel involved in this research were sufficient for the scope of work.

No questions or concerns were raised by the Committee, and the registration was approved at the biosafety levels proposed.

NIHG Activity Categories: III-D-4-a, III-E, III-F-4, III-F-8 / Appendix C-II			
Training: Biosafety 101: Standard Microbiological Practices (all researchers), 2025 Biosafety Refresher for Vanderbilt Researchers (all researchers), and Know Your Responsibilities: Biomaterials Safety Standards for Principal Investigators (PI only). All required trainings are complete for all lab staff listed in the registration.			
Conflict of interest: No IBC members declared a conflict of interest.			
Motion to approve registration	For: 10	Against: 0	Abstain: 0

VU-BMR	Review Type	PI	Department	Title
008	Renewal	Dewar, James	Biochemistry	*Mechanisms of DNA Replication and DNA Repair*
Research Description (as stated by PI): The Dewar Lab studies mechanisms of DNA replication and DNA repair. A particular focus of the lab is mechanisms that ensure the completion of DNA synthesis, such as replication termination and replication restart mechanisms. Much of the lab's research involves use of *Xenopus* egg extracts, which support vertebrate DNA replication and repair in a test tube using the full set of vertebrate nuclear proteins.				
Project Overview: This registration renewal includes cloning and expressing genes related to DNA synthesis in both non-pathogenic *E. coli* via expression plasmids, and insect cells via lab-generated baculoviral vectors to produce proteins of interest. The resultant proteins are purified and used for downstream structural and biochemical experiments to test the function of these proteins.				
Risk Assessment and Discussion: BSL-1 practices and containment were proposed for experiments involving RDNA in non-pathogenic *E. coli* and for activities involving insect cell culture, including modification by lab-generated baculoviral vectors. Representatives from the VU Biosafety team inspected the lab as part of the risk assessment process and found that the procedures, practices, and expertise of personnel involved in this research were sufficient for the scope of work. No questions or concerns were raised by the Committee, and the registration was approved at the biosafety levels proposed.				
NIHG Activity Categories: III-E, III-E-1, III-F-8 / Appendix C-II				
Training: Biosafety 101: Standard Microbiological Practices (all researchers), 2025 Biosafety Refresher for Vanderbilt Researchers (all researchers), and Know Your Responsibilities: Biomaterials Safety Standards for Principal Investigators (PI only). All required trainings are complete for all lab staff listed in the registration.				
Conflict of interest: No IBC members declared a conflict of interest.				
Motion to approve registration	For: 10	Against: 0	Abstain: 0	

VU-BMR	Review Type	PI	Department	Title
100	Renewal	Gama, Vivian	Cell and Developmental Biology	*Molecular Principles Governing Mitochondrial and Peroxisomal Remodeling as Drivers of Cell Fate and Identity*
Research Description (as stated by PI): The Gama Lab studies how mitochondrial and peroxisomal function regulate stem cell self-renewal and pluripotency with the goal of translating this knowledge into disease models (for example, pediatric EMPF1 (encephalopathy due to defective mitochondrial and peroxisomal fission); Leigh syndrome). The work in the lab relies on inactivating (using shRNA or siRNA) or				

overexpressing various proteins in pluripotent stem cells to examine the effect on the ability of the stem cells to divide and differentiate.

Project Overview: This registration renewal involves the chemical transfection of plasmids that have been amplified in non-pathogenic *E. coli,* and the use of commercially purchased 3rd generation lentiviral vectors to knock-down or overexpress proteins of interest in human-derived cells. Proteins of interest include proteins that affect mitochondrial and peroxisomal function. The resultant modified cell lines are used for downstream imaging and biochemical experiments.

Risk Assessment and Discussion: BSL-1 practices and containment were proposed for experiments involving RDNA in non-pathogenic *E. coli.* BSL-2 practices and containment were proposed for activities involving human-derived materials and the use of lentiviral vectors.

Representatives from the VU Biosafety team inspected the lab as part of the risk assessment process and found that the procedures, practices, and expertise of personnel involved in this research were sufficient for the scope of work. However, representatives of VU Biosafety noted a concern regarding food/drink storage in an area lacking complete physical separation from the rest of the lab where biological materials are handled.

The Committee discussed the separation of food and drink from the lab space and agreed that the area currently being used to store food/drink was not appropriate for this space.

Following the discussion the Committee voted to approve the registration with the condition that food and drink storage and consumption be moved to an area that is outside the physical lab space.

NIHG Activity Categories: III-E, III-E-1, III-F-8 / Appendix C-II

Training: Biosafety 101: Standard Microbiological Practices (all researchers), Biosafety 201: BSL-2 Principles (HDM users only), Working Safely with Human-Derived Materials (HDM users only), 2025 Biosafety Refresher for Vanderbilt Researchers (all researchers), and Know Your Responsibilities: Biomaterials Safety Standards for Current Principal Investigators (PI only).

All required trainings are complete for all lab staff listed in the registration.

Conflict of interest: No IBC members declared a conflict of interest.

Motion to approve registration with the condition that food and drink storage and consumption are not permitted in the lab	For: 10	Against: 0	Abstain: 0

VU-BMR	Review Type	PI	Department	Title
018	Renewal	Gurevich, Vsevolod	Pharmacology	*Use of RDNA Clones to Study in Cell Culture and in vivo the GRK and Arrestin Functions*

Research Description (as stated by PI): The overarching goal of the Gurevich Lab is to elucidate the functional role of arrestin-1 in rod photoreceptors in the retina and of non-visual arrestin-2 and -3 and G protein-coupled receptor kinases (GRKs) that phosphorylate receptors, enabling arrestin binding in the brain. The lab focuses on mouse models of Oguchi disease (eyes), Parkinson's disease, and psychostimulant addiction (brain). The lab uses RDNA to express arrestin and GRK proteins in cultured cells. The RDNA clones are also used to produce replication-incompetent viral vectors and inject the viral vectors into research animals to induce the expression of arrestin and GRK proteins.

Project Overview: This registration renewal involves the cloning and propagation of fluorescent markers and genes related to arrestins and GRKs in non-pathogenic *E. coli* for expression in cultured rodent, and non-human primate- and human-derived cell lines. Cell lines are modified via chemical transfection, or lab generated viral vectors (adeno-associated viral vectors [AAVs], retroviral vectors, or 3rd generation lentiviral vectors) to synthesize proteins. The resultant proteins of interest are then used in downstream structural and cell biology studies. Additionally, AAVs, retroviral vectors, and lentiviral vectors will be administered to animal models for downstream phenotypic studies.

Risk Assessment and Discussion: BSL-1 practices and containment were proposed for activities involving RDNA in non-pathogenic strains of *E. coli,* and the modification of cultured rodent cell lines via expression plasmids. BSL-2 practices and containment were proposed for activities involving non-human primate- and human-derived materials, including the generation and use of AAVs, retroviral vectors, and lentiviral vectors. BSL-2 was also proposed for the administration of AAVs, retroviral vectors, and lentiviral vectors to research animals. ABSL-1 containment was proposed for subsequent animal maintenance. Representatives from the VU Biosafety team inspected the lab as part of the risk assessment process and found that the procedures, practices, and expertise of personnel involved in this research were sufficient for the scope of work. The BSO clarified that the principal investigator (PI) for the lab renewal registration was previously the Co-PI. In the renewal, ownership of the registration is being transferred to him because of the recent retirement of the previous PI. Following the discussion, the Committee voted to approve the registration at the biosafety levels proposed.			
NIHG Activity Categories: III-D-3, III-D-4-a, III-E, III-E-1, III-F-8 / Appendix C-II			
Training: Biosafety 101: Standard Microbiological Practices (all researchers), Biosafety 201: BSL-2 Principles (HDM users only), Working Safely with Human-Derived Materials (HDM users only), 2025 Biosafety Refresher for Vanderbilt Researchers (all researchers), and Know Your Responsibilities: Biomaterials Safety Standards for Principal Investigators (PI only). All required trainings are complete for all lab staff listed in the registration.			
Conflict of interest: No IBC members declared a conflict of interest.			
Motion to approve registration	For: 10	Against: 0	Abstain: 0

Prior Business/Outstanding Actions

The BSO provided an update regarding the status of Xiaoguang Dong's new registration that was first discussed at the July IBC meeting. The Committee had decided to table this registration and requested supporting documentation regarding the infectious status of the explant lung tissue to be received for proposed experiments. VU Biosafety communicated the request for more information to the PI and a response was received acknowledging the request and stating that supporting documentation was sought from the collaborator. The PI has not yet sent supporting documentation. Therefore, the registration remains pending.

Administrative Reviews

Principal Investigator	VU BMR#	Administrative Amendment Summary
Giorgio, Todd	049 R2	Roster update; lab confirmed no changes associated with IACUC three-year review (M1900074).
Lau, Ken	011 R5	Roster update.
Nordman, Jared	199 R1	Space and roster update.
Siciliano, Cody	043 R3	Roster update; lab confirmed no changes associated with IACUC three-year review (M1900114).
Tate, Ann	075 R3	Space and roster update.
Wankowicz, Stephanie	116 R1	Space and roster update.
Yull, Fiona	177 R2	Roster update; lab confirmed activities associated with IACUC three-year review (~~M2200070~~ M2200051)*, including addition of new route of administration.

A member of the Committee asked for clarification regarding the new route of administration on the Yull registration administrative amendment. The BSO clarified that the route of administration and techniques used were similar to what has previously been approved for the lab, and that what is new is the location of administration.

Following discussion of the items on the administrative review table, the Committee voted to approve the administrative reviews as specified above.

Motion to approve the administrative reviews: For: 10; Against: 0; Abstain: 0.

New Business

The BSO introduced a revised version of the guidance document developed by VU Biosafety for Principal Investigators receiving a biomaterials registration approval. This document was first introduced ahead of the July IBC meeting. At that meeting, the Committee discussed expanding the scope of the document to apply to all PIs with biomaterials registrations, and not only PIs with new registrations. The revised version of the document was updated to reflect this discussion and sent to the Committee ahead of this meeting. The Chair opened the floor to any additional edits or changes. The Committee did not have any new questions or edits and voted to adopt the guidance document as written.

Motion to adopt the guidance document for Principal Investigators receiving a biomaterials registration: For: 9; Against: 0; Abstain: 0.

Public Comments

There were no public comments.

Adjournment

The Chair adjourned the meeting at 11:29 am. The next meeting of the IBC will be held via Zoom on September 23, 2025, at 10:45 am.

* Due to a clerical error related to the IACUC protocol number on BMR #177-R2, the August IBC minutes were revised in November 2025, after an IBC approval vote during the November 2025 VU IBC meeting.