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

July 22, 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	
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	Left at 10:57
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	
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
Selene Colon	Vanderbilt University	Assistant Dean, Research, School of Medicine-Basic Sciences
Andrea George	Vanderbilt University	Assistant Vice Chancellor, Environmental Health, Safety, and Sustainability (EHSS)
Kendra Hoffsmith	Vanderbilt University	Safety Officer, Biosafety, 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. Eleven 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 10:46 am. There were no introductions of guests or new members.

Dr. George provided an update on the status of the recruitment effort for the new Associate Director of Biosafety and BSO. One candidate who meets the qualifications has recently entered the early stages of the interview process. Another candidate has had virtual interviews with Dr. George and the Biosafety team and is scheduled for an on-campus interview in early August; they will meet with available members of the IBC at that time.

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 June 24, 2025 meeting.
There was no substantive discussion as the minutes were deemed to accurately summarize the meeting.
The Committee voted to approve the minutes as presented.
Ethan Lippmann abstained from the vote because he was not present at the June meeting.

Motion to approve the minutes: For: 10; Against: 0; Abstain: 1.

Biosafety Officer's Incident Report

There were no incidents to report.

Biomaterials Registration Reviews

VU-BMR	Review Type	PI	Department	Title
133	New	Dong, Xiaoguang	Mechanical Engineering	*Effect of a Smart Airway Stent in the Central Airway*
Research Description (as stated by PI): The Dong Lab seeks to develop functional soft machines or minimally invasive medical devices for biomedical, fluidics, and biomechanics applications. To accomplish this goal, the lab plans to test a smart airway stent in a human central airway *ex vivo*. The goal is to test the airway stent inside a human trachea *ex vivo* to validate the anchoring of the device.				
Project Overview: This new registration involves the use of explant human lung tissues provided by a collaborating lab at VUMC. This tissue will be used to test a smart device (i.e., airway stent) that will function in the central airway. This registration does not include the use of RDNA.				
Risk Assessment and Discussion:				

The Committee discussed the potential for the explant tissues received by the lab to contain infectious agents. While the PI indicated that the lung tissue received would not be infected, there was no supporting documentation from the VUMC collaborator to support the non-infected status of the tissues. The potential for infectious agents being present in the lung tissue affects the risk assessment and safety practices that would be implemented for these activities. The Committee decided that without supporting documentation regarding the infectious status of the lung tissue, they could not assign a containment level or vote on the registration.

Representatives from VU Biosafety visited the lab to provide an initial lab consult as part of the risk assessment process. Information on PPE, appropriate disinfectant, and biohazardous wastes for the proposed experiments was provided.

Following the discussion, the Committee decided to table the registration. The Committee will assign containment and vote on the registration at a future IBC meeting once the PI provides documentation or more information pertaining to the infectious status of the tissues.

NIHG Activity Categories: N/A

Training: Biosafety 101: Standard Microbiological Practices (all researchers), Working Safely with Human-Derived Materials (HDM users only), 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.

The Committee tabled this registration until supporting documentation regarding the infectious status of materials used by the lab is provided by the PI.	For: N/A	Against: N/A	Abstain: N/A

VU-BMR	Review Type	PI	Department	Title
099	Renewal	Egli, Martin	Biochemistry	*Structure/Function/Stability/Activity Studies of Chemically Modified Oligonucleotides and Nucleic Acid Analogs (XNAs), Protein-Nucleic Acid Complexes, and Protein-Inhibitor Complexes.*

Research Description (as stated by PI): Research in the Egli Lab concerns the structure, function, stability, and activity of four different classes of macromolecules: (i) chemically modified nucleic acids with applications in RNAi and as aptamers, and xeno-nucleic acids (XNAs) that are being investigated in the context of synthetic biology and synthetic genetics, (ii) Y-family DNA trans-lesion synthesis (TLS) polymerases and their interactions with adducted DNA, (iii) transcription-repair coupled repair factor Mfd from *E. coli* and its UvrB homology domain as targets of small molecule inhibitor lead compounds to limit the ability of bacteria to mutate, and (iv) complexes between the Za-domain and novel DNA and RNA binding partners. The lab relies on recombinant proteins for 3D-structural (mainly cryo X-ray crystallography and, increasingly, cryo-neutron crystallography, as well as cryo-EM), biophysical (e.g., stability using DSC, ITC, UV melting; solution conformation by scattering; etc.), and activity studies.

Project Overview: This registration renewal includes cloning and expressing genes related to classes of macromolecules involved in synthetic biology, transcription, DNA repair, and DNA/RNA binding in non-pathogenic *E. coli* to produce proteins of interest. The proteins are purified and used for downstream structural and biophysical experiments to test the protein's function and stability.

Risk Assessment and Discussion: BSL-1 practices and containment were proposed for activities involving RDNA in non-pathogenic strains of *E. coli.*

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-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
108	Renewal	Sanders, Charles	Biochemistry	*Membrane Protein Folding, Misfolding, and Related Diseases*

Research Description (as stated by PI): Research in the Sanders Lab focuses on understanding how defects in human membrane proteins cause diseases like peripheral neuropathy and cardiac rhythm abnormalities. The lab studies the structures, misfolding, membrane trafficking, and other molecular mechanisms of several proteins involved in such disorders. In this work, the lab produces recombinant proteins using *E. coli* expression methods and uses biochemical, biophysical, and computational techniques to determine three-dimensional protein structures. Mammalian cell culture is also used to express near-native membrane proteins of interest and study their cellular behavior and interactions with possible drug target molecules**.**

Project Overview: This registration renewal includes the use of expression plasmids and third-generation lentiviral vectors to express proteins of interest (i.e., human membrane proteins) or mutated proteins in non-pathogenic *E. coli* and mammalian cells, including human cells. These proteins are then purified for use in downstream structural, biophysical, and cell biology studies.

Risk Assessment and Discussion: BSL-1 practices and containment were proposed for the use and modification of non-pathogenic *E. coli* and rodent cells via expression plasmid. BSL-2 practices and containment were proposed for activities involving human derived materials and the generation and 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.

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

NIHG Activity Categories: III-D-3, 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

VU-BMR	Review Type	PI	Department	Title
098	Renewal	Spraggins, Jeffrey	Cell and Developmental Biology	*Development of Advanced Imaging Mass Spectrometry and Integrated Multimodal Molecular Imaging to Elucidate the Molecular Basis of Health and Disease*

Research Description (as stated by PI): The Spraggins Lab uses Imaging Mass Spectrometry (IMS) with matrix-assisted laser desorption ionization (MALDI), microscopy, proteomics, and lipidomics for biological and medical sciences. Using multi-omics, the lab is bringing a new fundamental approach to molecular pathology through direct tissue analysis using multiplex molecular signatures for improved diagnosis, prognosis, and evaluation of treatment regimens. The laboratory also processes human plasma, serum, cells and tissues for analysis of drugs, metabolites, and proteins. All biological materials are used for imaging or bulk -omic analysis. There is no propagation of any biological derivatives.

Project Overview: This registration renewal includes the receipt and preparation of cell lines and rodent and human fluid and tissue samples, some of which may have been previously genetically modified, from collaborating labs for imaging using mass spectrometry and multi-omics analyses. The lab may receive unmodified mammalian tissues from populations with select Risk Group 2 bacterial agents (i.e., *Staphylococcus aureus, Clostridiodes difficile*, and *Pseudomonas aeruginosa*) for analysis. New types of infectious materials will not be accepted by the lab without a formal risk assessment and approval from VU Biosafety. The lab does not directly genetically modify, propagate, or culture any biological materials.

Risk Assessment and Discussion: BSL-1 practices and containment were proposed for activities involving previously genetically modified materials. BSL-2 practices and containment were proposed for activities involving the use of human derived materials and Risk Group (RG) 2 bacterial samples.

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 Committee discussed the process for cryosectioning tissues to prepare them for analysis and the BSO clarified that the lab has an intake process that includes training and qualification on the cryostats, and the lab also has specific cryostats for various biomaterials to reduce the chance of cross-contamination or exposure to samples containing RG2 bacteria. The Chair noted that the intake process for accepting materials into the lab for imaging is very thorough and the lab is diligent with how they handle various biomaterials, adhering to BSL-2 containment practices for all biological materials in the lab even those that minimally require BSL-1 practices. The BSO added that, in addition to the intake form, the lab has agreed to reach out to VU Biosafety for consultation and additional approval before accepting new types of infectious material.

Following the discussion, the Committee voted to approve the registration at the biosafety levels proposed.

NIHG Activity Categories: Section III-F-8, Appendix C-I

Training: Biosafety 101: Standard Microbiological Practices (all researchers), Biosafety 201: BSL-2 Principles (HDM or infectious agent users only), Working Safely with Human-Derived Materials (HDM or infectious agent 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

There were no biomaterials registrations with conditional approvals or outstanding actions.

Administrative Reviews

Principal Investigator	VU BMR#	Administrative Amendment Summary
Arrojo E Drigo, Raphael	066 R1	Roster update.
Calipari, Erin	091 R1	Cold storage of human derived tissue samples, roster update, and addition of RG1-based viral vectors for administration to animals on IACUC protocol M1700189; previously approved for similar materials.
Carrasco, Nancy	032 R3	Roster update; the lab confirmed no changes associated with IACUC three-year review (M1900072).
Castiglione, Gianni	021 R11	Space and roster update.
Nguyen, Quynh Anh	072 R3	Roster update; addition of RG1-based viral vectors for administration to animals on IACUC protocol M2300092; previously approved for similar materials.
Karbstein, Katrin	114 R4	Roster update.
Sando, Richard	109 R1	Addition of RG2-based viral vectors for *in vitro* experiments; previously approved for similar materials.
Zanic, Marija	169 R2	Roster Update.

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 new guidance document developed by VU Biosafety for Principal Investigators receiving a new biomaterials registration. The purpose of this document is to provide guidance regarding biomaterials and IBC related topics, including updating the biomaterials registration (roster updates, amendments and modifications), biosafety course requirements, administering biomaterials to research animals, biohazardous wastes, shipping biomaterials and permits, and injury and exposure response. The Chair suggested broadening the scope of this document to include all PIs with a biomaterials registration rather than limiting the scope to PIs receiving a new biomaterials registration. The guidance document was distributed to Committee members to review, suggestions were made, and a revised document will be distributed to the Committee for a vote on whether to endorse the document at the August meeting.

Public Comments

There were no public comments.

Adjournment

The Chair adjourned the meeting at 11:17 am. The next meeting of the IBC will be held via Zoom on August 26, 2025, at 10:45 am.