Vanderbilt University Medical Center
Institutional Biosafety Committee (MC IBC) Minutes
July 22, 2025
Virtual Meeting

Attendance

Voting Members (Quorum = 7 voting members)

- ☒ Mark Boothby
- ☒ Alexandra Elliott (BSO)
- ☒ Iuliia Gilchuk
- ☐ Izumi Kaji
- ☐ Rachelle Johnson
- ☐ Denis Mogilenko
- ☐ Rolinda Bailey
- ☐ Paula Spitzler
- ☒ Danyvid Olivares-Villagomez
- ☒ Venita White
- ☒ Jonathan Schmitz, Chair
- ☒ Kate Shuster
- ☒ Cara Sutcliffe
- ☒ April Weissmiller

Non-Voting Members & Guests

- ☒ Rich DiTullio
- ☒ Chris Svitek
- ☒ Scott Bury
- ☒ Maria Garner
- ☒ Bettye Ridley
- ☒ Kevin Warren

Call to Order/Introductions/Announcements

The July meeting was held virtually by an internet-based meeting platform. The meeting was called to order at 12:01pm.

Minutes Review/Approval

The Chair opened the floor for comments or proposed revisions of the minutes from the June 24th meeting. The Committee voted to approve the minutes as presented.

Protocol Reviews

Bastarache, Julie – Medicine
TOPAZ Ref. # 100256 – Laboratory of Science and Translation in Critical Illness (RENEWAL)

Lab Description (as stated by PI): We are the Laboratory of Science and Translation in Critical Illness and use a bench to bedside approach to better understand critical illness and develop new treatments. In order to achieve these goals, we use cell lines, mice, and human clinical samples as our model systems. In order to accurately model lung injury seen in human patients we use bacterial and viral strains commonly seen in human disease.

Committee review: The lab propagates genes of interest in non-pathogenic *E. coli* and expresses them in human-derived cells using expression plasmids to generate stable cell lines.

The lab cultures many Risk Group 2 bacteria (*K. pneumoniae, P. aeruginosa, H. influenzae, A. baumanii, S. aureus)* and processes patient samples of fluid and tissue from patients diagnosed with respiratory diseases that can be worked with at BSL-2.

The lab has several sets of animal experiments. One set of animals will receive genetically modified murine cells from other mice. Other mice will be infected with one of the Risk Group 2 bacteria described above or with a Risk Group 2 strain of influenza A. The influenza is obtained from a collaborator.

BSL-1 practices and containment are recommended for work with non-pathogenic *E. coli* and culturing murine cell lines. BSL-2 practices and containment are recommended for experiments with Risk Group 2 agents and human-derived materials including genetic modification with plasmids. Personnel working with human-derived materials should adhere to the practices of the VUMC HDM/BBP in Basic Research Policy. ABSL-1 containment is recommended for the animals receiving modified murine cells. ABSL-2 containment is recommended for the animal receiving the infectious agents.

The Committee voted to approve the registration at the biosafety levels recommended.

NIHG activity category: III-D-4-a, III-E-1, III-E-3, III-F-8/Appendix C-II, VIII

Coffey, Robert – Medicine

TOPAZ Ref. # 100289 – Colorectal Cancer, Stem Cells, and Exosomes (RENEWAL)

Lab Description (as stated by PI): We study underlying causes of colon cancer and hope to provide a cure for it. In this endeavor, we clone various cancer causing and repressing genes and express these in cells and mice. We also handle biological materials including tissue and blood. We create and use mouse models expressing or knocking out genes of interest to test their function.

Committee review: The lab propagates genes of interest in non-pathogenic *E. coli* and expresses them in yeast *(S. cerevisiae),* human-derived, murine-derived, and other mammalian cell lines using retroviral and 3rd generation lentiviral vectors. The viral vectors are made in the lab. In addition to culturing human cells, the lab obtains patient samples of blood and GI tissue for analysis

In animal experiments, genetically modified murine cells, unmodified human cells, or lentiviral vectors will be administered to animals. The lentiviral vector is administered via a colonoscope into the colon. Previously, this work was approved at ABSL-1 containment with the extra requirement for the cages to be autoclaved due to the risk of shedding of the lentiviral vector. The BSO and IBC reviewer proposed that the work should be classified at ABSL-2 as autoclaving of the cages and wastes in standard practice there. After some discussion, the Committee concurred with that assessment.

BSL-1 practices and containment are recommended for rDNA work in non-pathogenic *E. coli, S. cerevisiae* and murine cells. BSL-2 practices and containment are recommended for experiments with human-derived materials and lentiviral vectors. Personnel working with lentiviral vectors and human-derived materials should adhere to the practices of the VUMC HDM/BBP in Basic Research Policy. ABSL-1 practices and containment are recommended for the animals receiving murine or human cells. ABSL-2 practices and containment are recommended for animals receiving lentiviral vectors via colonoscope.

The Committee voted to approve the registration at the biosafety levels recommended with the following recommendation: personnel performing the lentiviral vector work in animals will need to complete ABSL-2 training prior to restarting that work in ABSL-2 space.

NIHG activity category: III-D-3-a, III-D-4-a, III-E-1, III-E-3, III-F-8/Appendix C-II, C-III

Hatzopoulos, Antonios – Medicine
***TOPAZ Ref. # 100270 – Molecular and Cellular Mechanisms of Cardiac Tissue Repair* (*RENEWAL*)**

Lab Description (as stated by PI): Our laboratory investigates the mechanisms of cardiac tissue repair after myocardial infarction (MI) in mice. We found that canonical wnt signaling is activated during scar formation and plays a critical role in the formation of new blood vessels and fibrosis. We currently investigate the roles of endothelial cells post-MI. In addition, we discovered that the BMP antagonist Gremlin2 (Grem2) modulates the extent of inflammation during cardiac repair after ischemic injury. Our research shows that Grem2 also plays an important role in the biology of stem cells in hematopoiesis and neurogenesis. We currently investigate the molecular and cellular mechanisms of hematopoiesis and neurogenesis that require Grem2 activity using loss and gain of function Grem2 transgenic mice.

Committee review: The lab propagates genes of interest in non-pathogenic *E. coli* and expresses them in human, murine, NHP and other mammalian cell culture using 2nd generation lentiviral vectors. In addition, the lab obtains samples of patient heart tissue for analysis.

BSL-1 practices and containment are recommended for rDNA work in non-pathogenic *E. coli*. BSL-2 practices and containment are recommended for experiments with NHP cells, human-derived materials and lentiviral vectors. Personnel working with human-derived materials and lentiviral vectors should adhere to the practices of the VUMC HDM/BBP in Basic Research Policy.

The Committee voted to approve the registration at the biosafety levels recommended.

NIHG activity category: III-D-3-b, III-E-1, III-E-3, III-F-8/Appendix C-I, C-II, C-VIII

Kaji, Izumi – Section Surgical Research

***TOPAZ Ref. # 100285 – Nutrient Sensing and Absorption Mechanisms in the Gastrointestinal Tract* (*RENEWAL*)**

Lab Description (as stated by PI): The Kaji lab is studying the molecular mechanisms of microvillus inclusion disease (MVID) using mouse and organoid models. MVID is a congenital intestinal disorder resulting in malabsorption and diarrhea, caused by the loss of function in MYO5B, a motor protein that moves enzymes and transporters to the intestinal surface for nutrient uptake. In the Kaji lab, the activities of nutrient transporters are directly measured in mouse tissues or 2-dimensional organoid cultures using electrophysiological techniques in an Ussing chamber system. Our research focuses on the effect of MYO5B mutations on progenitor cell proliferation and differentiation. By using immunohistochemical assays in fixed tissue sections and fixed organoids, we investigate how MYO5B variants alter the differentiation pathways of epithelial cells that are essential for normal intestinal function. Loss of MYO5B in a mouse model led to an increase in proliferative cell population, which is not capable to absorb nutrients, and a decrease in tuft cells, which sense luminal contents. This highlights the importance of MYO5B in maturation of stem cells in the intestine. We are testing potential therapeutic drugs, such as the bioactive lipid, LPA (lysophosphatidic acid), and Notch signaling inhibitors for stimulating enterocyte and tuft cell maturation that enhance nutrient absorption. These findings reveal a greater breadth of MYO5B function and suggest potential approaches for the treatment of MVID. In addition to murine tissues, we utilize human organoid lines, which are established from patient biopsies, to study intestinal physiological functions and treatment efficacies that provide accurate knowledge to support patient care.

Committee review: The lab cultures human-derived cells and patient samples of human tissue to generate intestinal organoids.

BSL-2 practices and containment are recommended for experiments with human-derived materials. Personnel working with human-derived materials should adhere to the practices of the VUMC HDM/BBP in Basic Research Policy.

The Committee voted to approve the registration at the biosafety levels recommended.

NIHG activity category: N/A, HDM risk only

Major, Amy – Rheumatology & Immunology
***TOPAZ Ref. # 100286 – Mechanisms of Autoimmunity and Autoimmune-Accelerated Atherosclerosis* (*RENEWAL*)**

Lab Description (as stated by PI): The use of biological materials in our laboratory processes are related to understanding disease mechanisms in vitro and in vivo. This may include collection and analysis of murine and human plasma, analysis of primary tissues and cells collected from mice, and the use of specific inhibitors to better understand biological processes of disease. We also work with genetically modified animal models and immortalized cell lines. We may also genetically modify cells isolated from mice through the use of recombinant DNA.

Committee review: The lab cultures murine cell lines derived from transgenic animals. These cells are administered to recipient mice. In a separate set of experiments, commercially purchased adeno-associated viral vectors expressing a gene of interest will be administered to mice.

The lab also obtains PBMCs isolated from patient samples of blood for analysis.

BSL-1 practices and containment are recommended for handling murine cells and AAVs. BSL-2 practices and containment are recommended for experiments with human-derived materials. Personnel working with human-derived materials should adhere to the practices of the VUMC HDM/BBP in Basic Research Policy. ABSL-1 practices and containment are recommended for the experimental animals.

The Committee voted to approve the registration at the biosafety levels recommended.

NIHG activity category: III-D-4-a, III-E-1, III-E-3, III-F-8/ Appendix C-VIII

Williams, Christopher – GI Medicine
***TOPAZ Ref. # 100290 – Intestinal Development and Colorectal Cancer* (*RENEWAL*)**

Lab Description (as stated by PI): We are interested in how epigenetic regulation (Myeloid Translocation Genes or MTGs), junctional programs (Blood Vessel Epicardial Substance, or BVES), and oxidative defenses (selenoproteins and selenium) cooperate in protecting the GI mucosa from inflammatory injury.

Committee review: The lab propagates genes of interest in non-pathogenic *E. coli* and express them in murine and human-derived cells using retroviral and lentiviral (2nd and 3rd generation) vectors. In addition to human cels, the lab obtains samples of patient blood and GI tissue for analysis.

In animal experiments, modified and unmodified human cells will be administered to animals.

BSL-1 practices and containment are recommended for handling murine cells and AAVs. BSL-2 practices and containment are recommended for experiments with human-derived materials. Personnel working with human-derived materials should adhere to the practices of the VUMC HDM/BBP in Basic Research Policy. ABSL-1 practices and containment are recommended for the experimental animals.

The Committee voted to approve the registration at the biosafety levels recommended.

NIHG activity category: III-D-3, III-D-4-a, III-E-1, III-E-3, III-F-8/ Appendix C-II, C-VIII

Administrative Reviews / IBC Notification: The Chair opened the floor for comments on the administrative reviews. These reviews included:

Principal Investigator	VBMR#	Modification Summary
Bonami, Rachel	100308 V2	Personnel update
Cassat, James	100167 V5	Personnel update
Crowe, James	100309 V4	Personnel update, addition of genes and lentiviral vectors system similar to those already approved
Gonzalez-Hunt, Claudia	100318 V2	Personnel update
Haas, David	100275 V5	New CDC import permit
Idrees, Kamran	100221 V4	Lab space change; inspection of new lab addition scheduled for 7/23/2025
Ikizler, Talat	100234 V5	Personnel update
Kirabo, Annet	100136 V7	Personnel update
Peebles, Stokes	1000091 V2	Removal of one animal protocol and project (M2200030); Removal of one animal protocol (M2100025); Deletion and addition of space; Personnel updates.
Rathmell, Jeffrey	100270 V3	Deletion of space; Personnel updates.
Schmitz, Jonathan	100116 V4	Addition of lab space (new space inspected 7/21/2025)
Sherwood, Edward	100258 V3	Personnel update (including ABSL2)
Skaar, Eric	0294 V17	Update of ABSL2 personnel on M2300091; Update of RG2 agents on M1900043 (removal of some agents); Addition of ABSL2 room (CISR Core) to M1900043; General Personnel updates. Previously approved for similar materials and activities.
Tosoian, Jeffrey	100314 V2	Personnel update
Watson, Robert	100232 V4	Personnel update
Weiss, Vivian	100235 V4	Personnel update
Zinkel, Sandra	100239 V2	Personnel update

The Committee approved the administrative updates as presented. Drs. Boothby and Schmitz declared a Conflict of Interest and were not present for the pre-vote discussion or vote.

Adjournment

The meeting was adjourned at 12:55 pm.