

INSTITUTIONAL BIOSAFETY COMMITTEE MEETING

Oak Ridge National Laboratory (ORNL)

June 26, 2026

Bldg. 1520, Room 304 – Green River Conference Room

Meeting Time: 1:00 PM – 4:00 PM

MEMBERS PRESENT:

B. Davison (Chair), L. Fagan (BSO), L. Manis, X. Yang, S. Davis

NON-AFFILIATED MEMBERS: L. O'Connor and A. Bettaieb

MEMBERS ABSENT:

H. O'Neill, T. Hollander, S. Guy (ex-officio)

OTHERS PRESENT:

K. Monti – QHSP

I. Opening

The meeting was called to order at approximately 1:00 PM by the IBC Chair with quorum present.

II. Preliminary Remarks and Discussion

- ORNL 562 registration document added to SharePoint and SBMS
- Email to contact BSO- BSO@ornl.gov
- Changes from BMBL 6th edition- integrated into SBMS.
- BMBL 6th hardcopies available
- “Gain of function” (was DURC-PPEP) policy in development/administration changes
- Minutes are now public on outward site <https://www.ornl.gov/content/institutional-biosafety-committee>
- NIH roster report approved and submitted to NIH

- DOE annual report submitted to DOE in March.
 - Waste representative retirement- new member perhaps from OPS in BESSD
 - Minutes from last meeting reviewed
 - Discussion-Differences between BSL1 and BSL2 controls include training and use of BSC for aerosolization activities. We discussed the use of a graded approach for BSL1 vs BSL2 based on volumes as well as rule changes for human tissues and growth chambers.
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III. Full Committee Review (FCR)

2026-01 – Manard, B.

Mass Spectrometry Analysis of Metals in Human Tissues and Spores (NEW; RG1; NIH III-F-1, 2,4, 8 C-II, III-E-1, III-D-2)

This project will develop a mass spectrometry based platform to analyze surgical tissue samples collected from collaborators containing either healthy or cancerous tissues to analyze metal distribution in tissues, and to detect and quantitate biomarkers found in tumors.

Action: Approved with updates to form

Controls: BSL 1 /BSL 2 graded

2026-02 – Del Valle Kessra, I.

Secure Ecosystem Engineering and Design – Developing Biosensors to Detect Microbes (RENEWAL; RG1, rDNA ; NIH III-E)

Develops engineered microbial biosensors to enable early detection of plant pathogens and monitor beneficial microbial activity in the rhizosphere. The project uses recombinant microorganisms designed to produce indicator gases in response to environmental inputs, providing an alternative to fluorescent reporter systems that are difficult to deploy in soil environments.

Action: Approved

Controls: BSL 1

2026-03 – Michener, J.**Protein Biochemistry** (NEW; RG1/RG2, rDNA; NIH III-E, III-D)

Characterizes diverse proteins and enzymes involved in lignin degradation, plastic waste conversion, metal binding, and related biochemical processes. Synthetic genes will be cloned into standard expression plasmids and expressed in *Escherichia coli* for purification and functional analysis. Limited studies may include specific single proteins derived from RG2 organisms that are not expected to contribute to pathogenicity.

Action: Approved with requirement for IBC Chair/BSO review prior to work involving proteins originating from RG2 organisms.

Controls: BSL 1; additional review required for RG2-derived proteins.

2026-04 – Hettich, R.**Sample Processing for Various Risk Group 1 Microorganisms** (RENEWAL; RG1; NIH III-F2)

Processes environmental samples from groundwater, sediments, and plant rhizosphere systems for metabolomic and proteomic analyses by mass spectrometry. Initial sample processing involves solvent extraction or detergent lysis, resulting in loss of cellular viability prior to downstream analytical procedures.

Action: Approved

Controls: BSL 1 practices; standard laboratory PPE.

2026-05 – Thiele, N.**Serum Stability Studies (Towards Ultrachelating Ligands for Targeted Radionuclide Therapy)** (RENEWAL; RG2; BBP; Human Tissue)

Evaluates the stability of radioactive metal-chelator complexes in commercially obtained human serum using established chromatographic methods. Human serum samples are incubated with radioactive complexes and analyzed at predetermined time points to assess complex integrity.

Action: Approved

Controls: BSL 2 practices; Bloodborne Pathogen compliance.

2026-06 – Cregar, M.

Secure Ecosystem Engineering and Design – Examining Establishment, Persistence, and Non-Target Effects of *S. musiva* and *Bacillus* spp. (RENEWAL; RG1 BL2-P)

Examines the effectiveness of beneficial microbial inoculants in promoting plant health and suppressing fungal pathogens. Studies include establishment of beneficial *Bacillus* species and interactions with the poplar pathogen *Sphaerulina musiva*. No recombinant organisms are utilized.

Action: Approved

Controls: BL1-P for beneficial microbes; BL2-P controls for *Sphaerulina musiva*.

2026-07 -Williams , A.

BRaVE Biopreparedness and CNMS User Facility (RENEWAL; RG1/RG2; NIH III-F)

Supports cryogenic electron microscopy characterization of biological samples received from ORNL researchers and external users. Small sample volumes are rapidly frozen and maintained under cryogenic conditions for structural and chemical imaging. Access is restricted to trained personnel.

Action: Approved that submitted samples must comply with established user facility biosafety requirements.

Controls: BSL 1 and BSL 2, as applicable to submitted materials.

2026-08 – Rush, T.

Fungal Systems Genetics and Biology Laboratory (RENEWAL; RG1/RG2; rDNA; BL-1P; BL-2P; NIH III-F)

Uses microbiological and molecular biology techniques to investigate gene and organismal functions in fungi ranging from non-pathogenic species to opportunistic human pathogens and plant pathogens. Research includes culture, genetic analyses, and protein characterization. Activities are conducted under the highest applicable containment level to ensure consistent safety practices.

Action: Approved with discussion on Fungi

Controls: BSL 1, BSL 2, BL1P, and BL2P as appropriate.

2026-09 – Hettich, R.

Deciphering the Impact of Exposures from the Gut Microbiome-Derived Molecular Complex in Human Health and Disease (RENEWAL; BBP; RG2)

Supports proteomic characterization of human fecal samples from studies of Parkinson's disease, rheumatoid arthritis, and healthy controls. Protein extracts are analyzed using established mass spectrometry workflows to better understand microbiome-associated inflammatory mechanisms.

Action: Approved

Controls: BSL 2 practices; Bloodborne Pathogen compliance.

2026-10 – O'Neill, H.

Neutron Studies of COVID-19 Proteins (RENEWAL; RG1; rDNA; NIH III-F. III-E)

Produces and characterizes single recombinant SARS-CoV-2 proteins to study protein-protein and protein-RNA interactions relevant to viral replication. Only synthetic DNA obtained from commercial sources will be used. No intact virus, co-culture, or multi-protein expression systems will be utilized without additional committee approval.

Action: Approved

Controls: BSL 1

2026-11 – Eckert, C.

Sequencing and Developing Genetic Tools for Environmental Isolates (RENEWAL; RG1; rDNA; NIH III-F 1, 8 C-II)

Develops genetic tools and genomic resources for environmental bacterial isolates obtained from groundwater and sediment systems. Standard molecular biology methods will be used to construct model communities and characterize isolates. Procedures are in place to halt work if isolates are suspected to be closely related to known human pathogens.

Action: Approved

Controls: BSL 1; STOP WORK requirements for potential RG2-related isolates.

2026-12 – Graham, D.

Vectors (NEW; rDNA; RG1/RG2; BL-1P; NIH III-F-8 CII, III-D 5, III-E 1, 2)

Develops plant-based production methods for replication-deficient, helper-free recombinant adeno-associated viral vectors (rAAV) using *Nicotiana benthamiana* plants and transient Agrobacterium-mediated gene transfer. Activities include plant cultivation, agroinfiltration, vector purification, characterization, and infectivity testing.

Action: Approved -pending verification of vector design documentation and containment procedures for recombinant viral vector production.

Controls: BSL 1, BSL 2, BL-1P; additional controls for AAV handling as required.

IV. Other Business

- We discussed that there are currently different wordings for practices at BSL1 and BSL2 between the current recent 6th BMBL and the NIH guidelines. This has been communicated to the lab, and we are working with PIs to update documentation and explain changes.
- CSU biosafety course in Ft. Collins. <https://absa-bbtc.org/> August 10-14, 2026
 - Discussion on potential attendee
- BSO and IBC Chair are part of eFCOG Community of Practice with other DOE labs
 - Outputs: disinfection with bleach information from CoP – share hand-out
- We have lost a few IBC members due to staffing changes. We are working to identify replacements.
- We added new security contact for the IBC per current member's request to step down Updating the lab biosafety awareness training is planned.
- NScD user proposals reviewed by IBC Chair and BSO –
 - **IPTS-36440- BL-2 BASIS, BL-17 SEQUOIA-** BASIS and SEQUOIA Investigation of Ice-Water Sublimation Dynamics in Lunar Sample from Appollo 16
 - **IPTS-35506.-BL-4B LIQREF, BL-1A USANS-** Interpreting the 2D Poisson's ratio for a polymer-laden air-water interface LIQREF 4B NIST mAb, Humanized IgG1κ Monoclonal Antibody
 - **IPTS-35093-BL-4B LIQREF, BL-1A USANS** -Structure of Human Bronchial Epithelial Cell Mucus in Pulmonary Disease and with Surfactant Therapeutics

- **IPTS-34055- BL-6 EQSANS** - Structural Insights into Interaction Mechanisms of Exosomes Derived from Mesenchymal Stem Cells (MSCs)
- **IPTS-34221 -BL-4B LIQREF** -Inhibition of the membrane-bound HIV-1 accessory protein Nef
- **IPTS-35176 - BL-11B MANDI-** Neutron diffraction of fold-type III PLP-dependent enzymes
- **IPTS-35712- BL-10 VENUS-** Exploring Bee Anatomy Across Species of Apidae Using Neutron Computed Tomography
- **IPTS -23788 -CG-1D MARS** -Scoping of samples for new research projects
- **IPTS -36202 – BL-10 VENUS** -Neutron School Experiments at VENUS: Bragg edge and resonance imaging techniques
- **IPTS-37393- BL-11B MANDI-** Validating Cryo-EM Hydrogen Models of Apoferritin Through Neutron Diffraction
- **ITPS 35452 -BL-4B LIQREF-**Elucidation of structure-induced protein antifouling behavior of ultrathin polymer thin films fibrinogen from human plasma

V. Adjournment

The meeting was adjourned at approximately 4:00 PM.
