INSTITUTIONAL BIOSAFETY COMMITTEE
12:01 p.m.
President's Conference Room
Meeting Minutes
April 8, 2026

Members Present:	Jovanka Voyich-Kane, Microbiology & Cell Biology, chair Amy Robison, Biosafety Officer Josh Charles, Bozeman Fire Department, Community Member Alyssa Evans, Microbiology & Cell Biology Jerod Skyberg, Microbiology & Cell Biology Kristen Connolly, Center for Biofilm Engineering Matt Taylor, Microbiology & Cell Biology, IACUC Chair Kim Hilmer, Chemistry/Biochemistry Mike Giroux, Plant Sciences & Plant Pathology Dale Huls, Office of Sponsored Programs Katie Rowse, Community Member
Members Absent:	Blake Wiedenheft, Microbiology & Cell Biology Jennifer DuBois, Chemistry/Biochemistry
Ex-Officio Members Present:	Jaspur Kolar, Bridger Occupational Health & Urgent Care Kirk Lubick, Research Integrity & Compliance Nicole Soll, Research Integrity & Compliance
Ex-Officio Members Absent:	Tammy Lynn, Safety & Risk Management
Guests:	Mark DeWald, Research Integrity & Compliance Ryan Brickman, Safety & Risk Management

I. Review and approval of IBC Meeting Minutes from March 11, 2026.

The minutes were approved as written. Approved 11, Nays 0, Abstained 0

II. Announcements from the Chair:

III. Originals/Amendments/Renewals/Interim Reviews Approved since September Meeting:

1. Originals
    - 2026-590 Bassing: Understanding prairie dog colony connectivity to inform conservation
2. Amendments
    - 2023-64 Bimczok: updated notice of moving animal to new location and how they will be transported, description of animal experiments, personnel and funding
    - 2024-75 Carlson: updated personnel
    - 2026-445 Pratte: updated protocol objectives, biological materials, disinfectant to be used in the ARC, laboratory biosafety manual, and BSC details
3. Interim Reviews
    - 2025-109 Franklin: updated personnel, funding source, biosafety cabinet certification and lab self-inspection dates, personnel training, and bleach contact time
    - 2025-36 Drobizhev: updated personnel and lab self-inspection date
    - 2025-385 Litt: updated personnel and added language to related IACUC related protocol
4. Renewals
    - 2026-149 Pincus: Immune Response to Virus Proteins

New Business

A. Review of Protocols

Originals
none

Renewals
124 Dubois “Understanding how commensal bacteria metabolize iron”
Overview: Current research leverages "lessons learned" from well-studied aerobic scenarios, and aims at identifying and defining the roles of biochemical pathways involved in iron metabolism by diverse anaerobes that are important for human health and/or energy-generating processes. Informatics indicates that known pathways are typically absent or incomplete. The motivating objective is to understand how the numerically dominant bacterial genera, independently and collectively, help process iron within their respective anaerobic ecosystems.
Risk mitigation includes: Experiments with live bacteria involve low culture volumes and BSL1 or BSL2 strains, and are therefore considered to present a low-biohazard risk for healthy individuals. All bacterial manipulation, growth, plating, and optical density monitoring will take place either in a biosafety cabinet or in a COY anaerobic chamber. Liquid waste from bacterial cultures will be decontaminated by incubating with 10% bleach for at least 30 minutes before washing down the drain. Solid wastes will be placed in autoclave bags and autoclaved before removal to the trash.

Biohazardous Agents: Escherichia coli cloning
Strains: Cloning and expression strains (BL21 derivatives including BL21(DE3)) will be used for routine manipulation of genes. Protein expression strains, also derived from K12, will be used.
Biosafety Level: 1
Biohazardous Agents: Lactobacillus spp
Strains: Lactobacillus rhamnosus GG (Lr: ATCC53103)
Biosafety Level: 1
Biohazardous Agents: Clostridium scindens
Strains: VPI13733(ATCC35704)
Biosafety Level: 1
Biohazardous Agents: Bacteroides thetaiotaomicron
Strains: VPI5482 (ATCC29148)
Biosafety Level: 2

Recombinant/Synthetic Nucleic Acid Molecules:
Host: E. coli BL21 derivatives (BL21DE3)
Vector/Plasmid: pET vectors
Inserted Nucleic Acids/Genes of Interest: hmuS
Biosafety Level: 1
Host: E. coli Bl21(DE3)
Vector/Plasmid: pET vectors
Inserted Nucleic Acids/Genes of Interest: cytochrome B5 fragment
Biosafety Level: 1
Host: E. coli Bl21(DE3)
Vector/Plasmid: pET vector: pDZ2087
Inserted Nucleic Acids/Genes of Interest: protease
Biosafety Level: 1
Host: E. coli BL21(DE3)
Vector/Plasmid: pET vector
Inserted Nucleic Acids/Genes of Interest: hmuX, fldA associated with HmuS functionally
Biosafety Level: 1

NIH Guidelines: Section III-D

Motion to return for modification and DMR upon submission
Approved 11, Nays 0, Abstained 0
Approved items to be addressed include:

Protocols Objectives:

- For #2 the question regarding how samples are transferred from sealed hungate tubes to sealed centrifuge tubes is not addressed. Are you using a syringe?

Protocol Associates:

- Protocol Associates need to complete Occupational Health and Medical Surveillance forms
- Add new protocol associate

Laboratory Biosafety Manual

- Attach updated manual

144 Wiedenheft "Evaluation of RNA-Targeting CRISPR Systems"
Overview: This project is to develop and evaluate CRISPR-based tools that target RNA. Specifically, we are studying whether RNA-targeting CRISPR systems can recognize and degrade the RNA genome of Sindbis virus (SINV) in cultured mammalian cells. These experiments will help determine whether programmable RNA nucleases can be used to study viral gene function and potentially guide the development of future antiviral strategies.
Risk mitigation includes: Lentiviral vectors used in this work are replication-incompetent and produced using split packaging components to minimize the possibility of generating replication-competent virus. All lentiviral work, virus handling, infections, manipulations of infected cultures and DNA extraction through the lysis step is performed in a certified BSC. All biological waste, including bacterial cultures, mammalian cells, viral stocks, and disposable materials that contact biohazardous agents, is decontaminated by chemical disinfection (e.g., bleach) or autoclaving prior to disposal.

Biohazardous Agents: Escherichia coli cloning
Strains: DH5-alpha, BL21DE3
Biosafety Level: 1
Biohazardous Agents: Lentivirus
Strains: 3rd generation
Biosafety Level: 2
Biohazardous Agents: Alphavirus (Sindbis)
Strains: Sindbis-GFP
Biosafety Level: 2

Recombinant/Synthetic Nucleic Acid Molecules:
Host: HEK293
Vector/Plasmid: lenti-guide-puro
Inserted Nucleic Acids/Genes of Interest: sgRNAs
Biosafety Level: 2
Host: eHAP
Vector/Plasmid: lenti-guide-puro
Inserted Nucleic Acids/Genes of Interest: sgRNAs
Biosafety Level: 2
Host: SH-SY5Y
Vector/Plasmid: lenti-guide-puro
Inserted Nucleic Acids/Genes of Interest: sgRNAs
Biosafety Level: 2
Host: Hep G2
Vector/Plasmid: lenti-guide-puro

Inserted Nucleic Acids/Genes of Interest: sgRNAs
Biosafety Level: 2
Host: Huh-7
Vector/Plasmid: lenti-guide-puro
Inserted Nucleic Acids/Genes of Interest: sgRNAs
Biosafety Level: 2
Host: Caco-2
Vector/Plasmid: lenti-guide-puro
Inserted Nucleic Acids/Genes of Interest: sgRNAs
Biosafety Level: 2
Host: Lund human mesencephalic cells
Vector/Plasmid: lenti-guide-puro
Inserted Nucleic Acids/Genes of Interest: sgRNAs
Biosafety Level: 2
Host: HEK293
Vector/Plasmid: pDAC439
Inserted Nucleic Acids/Genes of Interest: Cas genes
Biosafety Level: 2
Host: HEK293
Vector/Plasmid: pDAC435
Inserted Nucleic Acids/Genes of Interest: Cas genes
Biosafety Level: 2
Host: HEK293
Vector/Plasmid: pDAC627
Inserted Nucleic Acids/Genes of Interest: Cas genes
Biosafety Level: 2
Host: HEK293
Vector/Plasmid: pDF0159 pCMV
Inserted Nucleic Acids/Genes of Interest: Cas7-11
Biosafety Level: 2
Host: HEK293
Vector/Plasmid: pB-bsd-Flag-Trl1
Inserted Nucleic Acids/Genes of Interest: Trl1
Biosafety Level: 2
Host: HEK293
Vector/Plasmid: pAT-WT-Myc
Inserted Nucleic Acids/Genes of Interest: SERPINA1
Biosafety Level: 2
Host: HEK293
Vector/Plasmid: pATZ-Myc
Inserted Nucleic Acids/Genes of Interest: SERPINA1 (E342K mutation)
Biosafety Level: 2
Host: HEK293
Vector/Plasmid: pcDNA3.1-C-(k)DYK
Inserted Nucleic Acids/Genes of Interest: human cDNA clones of HBB, PPIB, CFTR, PARK7, SERPINA1, or DMD
Biosafety Level: 2
Host: HEK293
Vector/Plasmid: pCBh-NLS_hfCas13d
Inserted Nucleic Acids/Genes of Interest: Cas13d
Biosafety Level: 2
Host: HEK293
Vector/Plasmid: pCBh_NLS_hfCas13X

Inserted Nucleic Acids/Genes of Interest: Cas13x
Biosafety Level: 2
Host: HEK293
Vector/Plasmid: pSauCas9
Inserted Nucleic Acids/Genes of Interest: Cas9
Biosafety Level: 2
Host: HEK293
Vector/Plasmid: BPK2660
Inserted Nucleic Acids/Genes of Interest: CRISPR
Biosafety Level: 2
Host: HEK293T, K562
Vector/Plasmid: pHR-UCOE-SFFV-Zim3-dCas9-P2A-Hygro
Inserted Nucleic Acids/Genes of Interest: Zim3-dCas9 fusion
Biosafety Level: 2
Host: HEK293T, K562
Vector/Plasmid: pHR-SFFV-dCas9-BFP-KRAB
Inserted Nucleic Acids/Genes of Interest: dCas9-BFP-KRAB fusion
Biosafety Level: 2
Host: HEK293T, K562
Vector/Plasmid: pCRISPRia-v2
Inserted Nucleic Acids/Genes of Interest: sgRNA for dCas9, puro-T2A-BFP
Biosafety Level: 2

NIH Guidelines: Section III-D

Motion to return for modification and administratively approve
Approved 11, Nays 0, Abstained 0
Approved items to be addressed include:

Human/Non-Human Primate Material:

- Clarify if using both HEK-293 and HEK-293T cells
- Last row, K-562 can be removed as it is listed above

Laboratory Biosafety Manual

- Attach updated manual

49 Stowers "Functional role of dual neurotransmitter usage in aggression"
Overview: The goals of the project are to understand the role of glutamate and octopamine in male aggression in glutamate/octopamine dual neurotransmitter neurons. Transgenic and genome-edited Drosophila will be generated that allow identification and genetic manipulation of neuronal subsets. Recombinant DNA constructs will be assembled using Gibson cloning. These recombinant DNA constructs will be used as donor templates to edit the Drosophila genome using CRISPR-Cas9.
Risk mitigation includes: None of the genome-editing of these genes would be expected to create an evolutionary advantage as compared to wildtype flies. A gene drive system will not be used. In order to work with the flies, they are anesthetized using carbon dioxide. Flies are frozen at -20C overnight and autoclaved before disposal, or submerged in ethanol and disposed of as chemical waste.

Biohazardous Agents: Escherichia coli cloning
Strains: DH10B
Biosafety Level: 1
Biohazardous Agents: Escherichia coli cloning
Strains: DH5-alpha

Biosafety Level: 1
Biohazardous Agents: Escherichia coli cloning
Strains: HB101
Biosafety Level: 1

Recombinant/Synthetic Nucleic Acid Molecules:
Host: E.coli DH10B
Vector/Plasmid: pHSG298
Inserted Nucleic Acids/Genes of Interest: genomic DNA, GFP
Biosafety Level: 1
Host: Drosophila melanogaster
Vector/Plasmid: pDESTP10
Inserted Nucleic Acids/Genes of Interest: genomic DNA
Biosafety Level: 1
Host: E.coli
Vector/Plasmid: pDESTP10
Inserted Nucleic Acids/Genes of Interest: GCAMP8m
Biosafety Level: 1
Host: E.coli
Vector/Plasmid: pDESTP10
Inserted Nucleic Acids/Genes of Interest: GRAB-g5-HT3.0
Biosafety Level: 1
Host: E.coli
Vector/Plasmid: pDESTP10
Inserted Nucleic Acids/Genes of Interest: iGluSnFR3.v858.PDGFR
Biosafety Level: 1
Host: E.coli
Vector/Plasmid: pUC19
Inserted Nucleic Acids/Genes of Interest: pAAV-hSyn1-FLEX-NEPLDCV-P2A-mRUBY3-WPRE
Biosafety Level: 1
Host: E.coli
Vector/Plasmid: pUC19
Inserted Nucleic Acids/Genes of Interest: iGluSnFR4
Biosafety Level: 1
Host: E.coli
Vector/Plasmid: pUC19
Inserted Nucleic Acids/Genes of Interest: pmScarlet3_C1
Biosafety Level: 1
Host: E.coli
Vector/Plasmid: pUC19
Inserted Nucleic Acids/Genes of Interest: Lamp1_mNeonGreen
Biosafety Level: 1
Host: E.coli
Vector/Plasmid: pUC19
Inserted Nucleic Acids/Genes of Interest: 3X3P-DsRed
Biosafety Level: 1

NIH Guidelines: Section III-E and III-F.

Motion to return for modification and administratively approve
Approved 11, Nays 0, Abstained 0
Approved items to be addressed include:
Transportation and Shipment of Biological Agents:

- Check the second box for shipping to non-MSU locations per Protocol Objectives of sending materials to Bestgene Inc and UofM
- A material transfer agreement (MTA) is likely applicable, reach out to TTO@montana.edu for assistance.

Amendments
538 Skyberg "Investigating the pathogenesis of Brucella Infection"
Overview: Adding a mutant strain of B. melitensis that lacks a glucose transporter for in vitro and in vivo studies. Also adding human peripheral blood mononuclear cells (PBMCs) from a commercial source for in vitro studies. **Risk mitigation includes:** This mutant is no more virulent than wild-type B. melitensis. PBMCs have been tested and confirmed negative for HIV-1, HIV-2, hepatitis B and hepatitis C.

Biohazardous Agents: Brucella melitensis
Strains: gluP deletion strain
Biosafety Level: 3

Motion to return for modification and DMR upon submission
Approved 10, Nays 0, Abstained 1
Approved items to be addressed include:

Amendment Information:

- please update "attenuated" to "no more virulent than wild type"

Protocol Objections:

- For these lines: will be decontaminated in a 10 % bleach solution for 10 minutes before being placed in the biohazard waste at MBB or will be decontaminated with 5% microchem for 10 minutes at the JRL. Unused blood fractions will be decontaminated in a 10 % bleach solution for 10 minutes
- Please remove the time for bleach, since that information is captured in Section 11.7, and for microchem, just state per JRL SOPs. This will keep the objectives flexible with details found elsewhere.

Protocol Associates:

- Select a co-I

Disinfection Procedures:

- Disinfection Procedures If decontaminating cultures, blood or cells with bleach, MSU policy is a 30 minute contact time

N95 Usage Qualifications

- Update details here

Respiratory Protection

- Update details here

BSC Details

- BSO updated BSC information for JRL hoods.

Vaccination

- Check "yes" and select "Hep B"

Interim Reviews
None

B. Unfinished Business
    1. **22** James "Evaluation of Treatment on Medical Biofilms" – BSO working with them so the protocol does not have to be separate protocols
    2. **596** Linck "To use genomic data to understand connectivity and future vulnerability of American Pikas at their southern range limit" – working with Occupational Health regarding N95 requirements

C. Biosafety Officer Updates
    1. Inspections – ongoing, expected completion by the end of April
    2. Large scale biosafety of biological materials – working on this document, not sure if it will be a policy or guide.
    3. Update on JRL (MD)
        - Have 2 PIs with total of 5 staff currently working in the JRL with 3 more PhD students expected to join one lab soon
        - New air conditioner unit has been installed and up and running. It is a bigger unit and offers redundancy now.
        - Annual SA autoclave verification for HPAI has been completed
        - Annual JRL exercises and drills have been conducted. FSAP required exercise that test the SA biocontainment/biosafety, incident and security plans by developing scenarios that could potentially occur, ex: power outage
        - April 29th is the annual IACUC inspection
        - Scheduled for May is the annual staff FSAP and agent specific training.
        - Scheduled for May are the JRL Biosafety/Biocontainment, Incident, Security plans and JRL SOPs reviews. JRL Self Laboratory inspection and the annual FSAP laboratory self-inspection
        - Annual JRL certification is scheduled in May, this will involve testing the backup generator and a full system power loss ensuring that containment does not go positive
        - Annual University Police training will occur in June

The meeting was adjourned at 1:08 p.m.