INSTITUTIONAL BIOSAFETY COMMITTEE
12:04 p.m.
President's Conference Room
Meeting Minutes
August 20, 2025

Members Present:
Jovanka Voyich-Kane, Microbiology & Cell Biology, chair
Amy Robison, Biosafety Officer
Alyssa Evans, Microbiology & Cell Biology
Jerod Skyberg, Microbiology & Cell Biology
Kristen Connolly, Center for Biofilm Engineering
Kim Center, Community Member
Jennifer DuBois, Chemistry/Biochemistry
Mike Giroux, Plant Sciences & Plant Pathology
Matt Taylor, Microbiology & Cell Biology, IACUC Chair
Kim Hilmer, Chemistry/Biochemistry

Members Absent:
Blake Wiedenheft, Microbiology & Cell Biology
Josh Charles, Bozeman Fire Department, Community Member

Ex-Officio Members Present:
Tammy Lynn, Safety & Risk Management
Nicole Soll, Research Integrity & Compliance
Kirk Lubick, Research Integrity & Compliance

Ex-Officio Members Absent:
Jaspur Kolar, Bridger Occupational Health & Urgent Care

Guests:
Mark DeWald, Research Integrity & Compliance
Ryan Brickman, Safety & Risk Management

I. Review and approval of IBC Meeting Minutes from July 9, 2025.

The minutes were approved as written. Approved 8, Abstained 2, Nays 0

II. Announcements from the Chair:

Welcome of new members; Kim Hilmer from Chemistry/Biochemistry and Matt Taylor from Microbiology and Cell Biology, who is also the new IACUC Chair. Members who have left the committee, Scott Sanders and Tim Borgogna.

III. Protocols/Amendments/Renewals/Interim Reviews Approved since July Meeting:

Protocol #	Referen...	Versio...	Principal Investigat...	Title	Protocol Type...	Approval Date	Expiration Date
2023-14-IBC	14	12	Merzdorf, Christa	The role of Zic1 and of its direct targets, such as aqp3b, during gastrulation ...	Amendment	8/7/2025	1/31/2026
2023-444-IBC	444	10	Evans, Alyssa	Characterizing the viral and immune factors that mediate orthobunyavirus n...	Amendment	7/22/2025	2/28/2026
2023-99-IBC	99	18	Miles, Mary	Nutrition Research Laboratory Exposure Control Plan for Human Materials	Amendment	8/6/2025	1/31/2026
2024-52-IBC	52	20	Walk, Seth	Ecology of the Mammalian Microbiome	Amendment	7/23/2025	9/30/2027
2025-384-IBC	384	5	Walk, Seth	Probiotic E. coli and bacteriophage cocktails for human subjects research	Amendment	7/11/2025	6/30/2028
2025-555-IBC	555	2	Heveran, Chelsea	Biomineralization studies using microorganisms and bone fragility studies us...	Amendment	7/16/2025	2/28/2028
2023-231-IBC	231	14	Loveday, Emma	Drop Based microfluidics for BSL 3 Pathogens.	Interim Review	7/14/2025	7/31/2026
2023-240-IBC	240	8	Yan, Qing	Investigate the interactions between plant-beneficial bacteria and their plant...	Interim Review	8/1/2025	7/31/2026
2023-472-IBC	472	7	Hatzenpichler, Roland	Human fecal and biopsy samples to study the human gut microbiome.	Interim Review	7/29/2025	7/31/2026
2023-64-IBC	64	25	Bimczok, Diane	Epithelial and immune responses to mucosal infections	Interim Review	7/21/2025	7/31/2026
2023-67-IBC	67	8	Gerlach, Robin	Biofilm Induced Mineral Precipitation and Dissolution	Interim Review	8/12/2025	9/30/2026
2023-86-IBC	86	7	McDermott, Timothy	Environmental Microbial Diversity and Arsenic Oxidation	Interim Review	7/11/2025	9/30/2026
2024-350-IBC	350	5	Lauchnor, Ellen	Analysis of wastewater samples	Interim Review	7/31/2025	9/30/2027
2024-538-IBC	538	7	Skyberg, Jerod	Investigating the pathogenesis of Brucella Infection	Interim Review	8/7/2025	10/31/2027
2024-540 -IBC	540	6	Secor, Patrick	Biosafety in the Bacteriophage Pathobiology Laboratory	Interim Review	7/16/2025	10/31/2027
2024-541-IBC	541	3	Jennings, Laura	Biosafety Protocol for Pseudomonas aeruginosa Pathogenesis Research	Interim Review	7/25/2025	10/31/2027
2024-66-IBC	66	8	Taylor, Matthew	Neuronal infection with FP expressing measles virus	Interim Review	7/11/2025	8/30/2027

Amendments

2023-14: Add two plasmids: xGoosecoid and XP12 Xbra (from Addgene)

2023-444: updated personnel
2023-99: updated personnel
2024-52: Bacteroides thetaiotaomicron and Desulfovibrio piger added as biological materials
2025-384: Removed use of the genetically modified, tagged E. coli strain from the protocol and replaced it with its wild-type counterpart. No genetically manipulated bacteria or bacteriophages will be used in this research project.
2025-555: Language has been added regarding 3D printing including E. coli MJK2.

New Business

A. Review of Protocols

Originals

None

Renewals

106 Dlakic "New technology for Determining the Abundance and Ratios of Biologically Important Metabolites in Live Cells"

Overview: To develop methods of tracking molecules inside living cells, be it macromolecules such as proteins or small metabolite molecules such as glutathione (GSH) or S-adenosyl-methionine (SAM). Tracking proteins is typically done by permanently fusing proteins of interest to one of many fluorescent proteins; this chimeric molecule can be readily detected by microscopy. Small molecules are more difficult to target, because there is no way to genetically encode the fusion of fluorescent proteins and small molecules. This necessitates the development of separate molecules that transiently bind the small metabolites of interest, and in doing so develop a fluorescent color signal detectable by microscopy. This field of molecular biosensors is relatively new, and this proposal would make a major contribution by developing multiple molecular beacons which can be measured simultaneously with the methods described and will be of general use to academic and industry researchers, as well as having many promising medical applications.

Biohazardous Agents: Escherichia coli cloning
Strains: SH5allpha **Biosafety Level:** 1

Recombinant/Synthetic Nucleic Acid Molecules:
Host: E. coli DH5alpha **Vector/Plasmid:** pBlueScript
Inserted Nucleic Acids/Genes of Interest: Short oligonucleotides

Host: E. coli DH5alpha **Vector/Plasmid:** pUC19
Inserted Nucleic Acids/Genes of Interest: Short oligonucleotides

Host: E. coli DH5alpha **Vector/Plasmid:** pUC57
Inserted Nucleic Acids/Genes of Interest: Omega RNA

Host: E. coli DH5alpha **Vector/Plasmid:** pC013
Inserted Nucleic Acids/Genes of Interest: IscB gene

NIH Guideline: Section III-F

Motion to return for modification and BSO approval upon submission.
Approved 9, Abstention 0, Nays 0
Approved items to be addressed include:

Protocol Objectives:

- Remove first two paragraphs
- Remove last paragraph
- Clarify the last sentence of the third paragraph: "Lastly, we will optimize the delivery methods of RNA aptamers into cells, which will pave the way for commercialization of

this method.", because there is no information about when cells are used or what types of cells are used. If cells are not used in this project, please make that clear.

Laboratory Biosafety Manual:

- Update with the newest template

112 Jones "Development and use of standard methods for the growth, treatment, sampling and analysis of biofilm bacteria"

Overview: The general protocol is as follows: generate an inoculum (either in a flask or on an agar plate), inoculate the reactor with culture, grow a biofilm, (optionally) treat the biofilm with a compound of interest, and harvest samples of the biofilm and analyze for viable cells, total cells, protein, total biomass or image under the microscope. The removed biofilm is vortexed and sonicated in a sonicating bath located on the bench top to disaggregate the biofilm, diluted, plated, incubated and enumerated. At the completion of an experiment, all re-usable equipment is autoclaved then cleaned with laboratory dish washing soap. Protocols used are variations of approved ASTM or ISO Standard Test Methods, often using existing reactor systems in novel ways. If protocols deviate significantly from established protocols, an amended biosafety protocol will be submitted prior to commencement of the laboratory work.

Biohazardous Agents: Pseudomonas aeruginosa
Strains: PA01, ATCC 15442, 700888, 7700, 27853, 27313, 9027, 13388, Project sponsor isolates **Biosafety Level:** 2

Biohazardous Agents: Staphylococcus aureus
Strains: ATCC 6538, ATCC 25923, ATCC BAA-1556 **Biosafety Level:** 2

Biohazardous Agents: Legionella pneumonila
Strains: ATCC BAA-74, 35512, 35513 **Biosafety Level:** 2

Biohazardous Agents: Listeria monocytogenes
Strains: ATCC 19111, ATCC 19117 **Biosafety Level:** 2

Biohazardous Agents: Klebsiella pneumoniae
Strains: DMDS Lab No. 92-08-28a, ATCC 4352 **Biosafety Level:** 2

Biohazardous Agents: Staphylococcus epidermidis
Strains: ATCC 14990 **Biosafety Level:** 1

Biohazardous Agents: Enterococcus faecium
Strains: ATCC 6569 **Biosafety Level:** 2

Biohazardous Agents: Escherichia coli cloning
Strains: Strain K12 (ATCC 10798), DH5alpha, XL-10Gold, SM10 **Biosafety Level:** 1

Biohazardous Agents: Micrococcus luteus
Strains: Project sponsor isolate **Biosafety Level:** 1

Biohazardous Agents: Escherichia coli
Strains: ATCC 25922, 53498 UTI189 **Biosafety Level:** 2

Biohazardous Agents: Enterobacter aerogenes
Strains: ATCC 13048 **Biosafety Level:** 1

Biohazardous Agents: Bacillus magaterium
Strains: Project sponsor isolate **Biosafety Level:** 1

Biohazardous Agents: Enterococcus faecalis
Strains: ATCC 29212 **Biosafety Level:** 2

Biohazardous Agents: Salmonella enterica typhimurium
Strains: ATCC 13311, 14028, 43971 **Biosafety Level:** 2

Biohazardous Agents: Acinetobacter baumannii
Strains: ATCC 19606 **Biosafety Level:** 2

Biohazardous Agents: Bacillus subtilis
Strains: ATCC 6633 **Biosafety Level:** 1

Biohazardous Agents: Streptococcus sobrinus
Strains: ATCC 33402 **Biosafety Level:** 2

Biohazardous Agents: Flavobacterium spp.
Strains: CDC-65, ATCC 29979 **Biosafety Level:** 2

Biohazardous Agents: Hartmannella vermiformis
Strains: ATCC 50237 **Biosafety Level:** 1

Biohazardous Agents: Escherichia coli
Strains: ATCC 25922 **Biosafety Level:** 1

Biohazardous Agents: Ralstonia insidiosa
Strains: NASA Isolate- Space Station Water Reprocessor **Biosafety Level:** 1

Biohazardous Agents: Cupriavidus metallidurans
Strains: NASA Isolate- Space Station Water Reprocessor **Biosafety Level:** 2

Biohazardous Agents: Methlyobacterium fujiasawense
Strains: NASA Isolate- Space Station Water Reprocessor **Biosafety Level:** 1

Biohazardous Agents: Burkholderia multivorans
Strains: NASA Isolate- Space Station Water Reprocessor **Biosafety Level:** 2

Biohazardous Agents: Lecythophora mutabilis
Strains: NASA Isolate- Space Station Water Reprocessor **Biosafety Level:** 1

Biohazardous Agents: Mycobacterium abscessus
Strains: ATCC 19977 **Biosafety Level:** 2

Biohazardous Agents: Pseudomonas fluorescens
Strains: ATCC 49838 **Biosafety Level:** 1

Biohazardous Agents: Pseudomonas putida
Strains: ATCC 47054 **Biosafety Level:** 1
Biohazardous Agents: Bacillus licheniformis
Strains: ATCC 14580 **Biosafety Level:** 1

Biohazardous Agents: Gluconacetobacter diazotrophicus
Strains: Project sponsor isolate **Biosafety Level:** 1

Biohazardous Agents: Gluconacetobacter liquifaciens
Strains: Project sponsor isolate **Biosafety Level:** 1

Biohazardous Agents: Sphingomonas parapaucimobilis
Strains: Project sponsor isolate **Biosafety Level:** 2

Biohazardous Agents: Desulfovibrio species SHV
Strains: Project sponsor isolate **Biosafety Level:** 2

Biohazardous Agents: Cellulomonas
Strains: Project sponsor isolate **Biosafety Level:** 2

Biohazardous Agents: Stenotrophomonas
Strains: Project sponsor isolate **Biosafety Level:** 2

Biohazardous Agents: Pseudomonas stutzeri
Strains: ATCC 17588 **Biosafety Level:** 2

Biohazardous Agents: Mycobacterium chimaera
Strains: CIP 107829 **Biosafety Level:** 2

Biohazardous Agents: Burkholderia cepacia complex
Strains: NASA Isolate, ATCC 25416 **Biosafety Level:** 2

Biohazardous Agents: Environmenal Isolates
Strains: Unknown/ various **Biosafety Level:** 2

Biohazardous Agents: Methylobacterium organophilum
Strains: NASA Isolate **Biosafety Level:** 2

Recombinant/Synthetic Nucleic Acid Molecules:

Host: Pseudomonas aeruginosa
Vector/Plasmid: pUC18-miniTn7T2 fused to a variety of fluorescent genes
Inserted Nucleic Acids/Genes of Interest:
GFP/RFP/TFP1/mOrange1/mOrange2/tdTomato/mCherry/mK)1/eYFP/eCFP/E2-Crimson/NirFP/TagCFP

Host: E. coli xL10-Gold
Vector/Plasmid: pUC18-miniTN7T2
Inserted Nucleic Acids/Genes of Interest:
GFP/RFP/TFP1/mOrange1/ mOrange2/tdTomato/mCherry/mK)1/eYFP/eCFP/E2-Crimson/NirFP/TagCFP

Host: E. coli SM10
Vector/Plasmid: pTNS2
Inserted Nucleic Acids/Genes of Interest: Tn7 transposase expression

NIH Guideline: Section III-F and III-D

Motion to return for modification and BSO approval upon submission.
Approved 9, Abstention 0, Nays 0
Approved items to be addressed include:

Protocol Objectives:

- Please clarify what is meant by "All other processes are performed on the bench top." in the second paragraph where these agents are mentioned.
- Remove paragraph 4. This is now captured in Section 11.
- Clarify this sentence: "Rarely, waste containers from reactors will accumulate greater

than 10L in waste material." *If waste contains recombinant material, this will fall under a different NIH Guidelines regulation, please see Appendix K of the NIH Guidelines for more information.*

Microorganisms/Infectious Agents to be Used

- Identify the source of the environmental isolates in the second to the last row of the table
- Please identify the source of NASA isolates and the Project sponsor isolates

Volume of Biohazardous Agent(s):

- Please address in Protocol Objectives and amend this answer if applicable

113 Jones "Methods to assess biofilm prevention on medical devices"
Overview: Medically focus on biofilm growth on urinary catheters and on biofilm growth in heater cooler units. The urinary catheter project goal is to validate a quantitative in vitro method that will enable regulators to efficiently evaluate the efficacy of antimicrobial Foley catheters. The goal of the heater cooler project is to develop a process to evaluate the ability of the disinfection protocol to prevent the appearance of Mycobacterium chimaera and Pseudomonas aeruginosa in the circulation system during simulated clinical use conditions.

Biohazardous Agents: Pseudomonas aeruginosa
Strains: ATCC 15442 **Biosafety Level:** 2

Biohazardous Agents: Escherichia coli
Strains: ATCC 25922 and UTI89 **Biosafety Level:** 2

Biohazardous Agents: Enterococcus faecalis
Strains: ATC 29212 **Biosafety Level:** 2

Biohazardous Agents: Mycobacterium chimaera
Strains: Virginia Tech Isolate NC-W-2-1; NCTC 13781 **Biosafety Level:** 2

Recombinant/Synthetic Nucleic Acid Molecules: None

Motion to return for modification and BSO approval upon submission.
Approved 9, Abstention 0, Nays 0
Approved items to be addressed include:
Protocol Objectives:

- There is no mention of using the BSC for the urinary catheter work. Will plating and scraping of biofilm be done there?
- Please not the concentration used for samples fixed in formaldehyde
- Remove paragraphs 8 and 9 as these details are now captured in section 11

Interim Reviews
None

Amendments
None

B. Unfinished Business
    1. ECP update – Ryan Brickman, Director of Safety and Risk Management, informed the committee that the updated ECP will be going to the ESH committee for review on August 22, 2025.
    2. IBC protocol 384 update – Amy Robison, Biosafety Officer, informed the committee that the PI has removed work on RNA
C. Biosafety Officer Updates

1. Transgenic Plant Manual – one line addition under Principal Investigator section
   Motioned to approve - Approved 9, Abstention 0, Nays 0
2. Working with Sharps – 3 year review, minor updates including department/office names and information
   Motioned to approve - Approved 9, Abstention 0, Nays 0
3. New OSHA BBP training video now published
   Will need to update with additional post-exposure information for unpaid students

The meeting was adjourned at 12:45 p.m.