	2024 Institutional Biosafety Committee Meeting *June 13th, 2025, 12-1 PM*
MEETING MINUTES	

Minutes
The meeting began at 12.00 p.m.

IBC Introduction

- P. A Raj presented the agenda for the meeting and reviewed voting members, listed above. She also introduced the Badri Krishnan, Lehmann Lab and Punam Bisht, Jaenisch Lab who attended as non-voting guests of the Committee.

- P. A Raj informed the group on the definitions of recombinant and synthetic DNA. She discussed the requirements for complying with rDNA permit requirements, including the need for community reps, training, pest control, and waste procedures. She explained that the IBC is required to meet at least annually, or when protocols or technologies relevant to the Biosafety Program change.

Biosafety Program

- P. A Raj introduced Whitehead Institute's biosafety program, including several of its core tenants, such as new employee and annual safety training (Emergency Preparedness, Chemical Safety, Biosafety and Bloodborne Pathogens), as well as Whitehead Institute's contract with MITs Occupational Health, Whitehead Institute's active Safety Committee, and ongoing Risk Assessment process for new hazards and procedures.

- P. A Raj defined Risk Groups (RGs). She also defined Biosafety Containment Levels (BSLs) and shared that Whitehead Institute has BSL-1, BSL-2, and BSL-2+ lab spaces.

Management of Biomedical Waste

- P. A Raj shared that the IBC approves the biohazardous waste management procedures, and shared the planned procedures for Whitehead's BSL-2 solid waste management:
    - Solid lab waste will be collected in biohazardous waste bins to either be autoclaved or incinerated depending on the agent.
    - Biohazardous sharps waste, including razor blades, needles, and glass pipettes will be collected in sharps containers.

      Small biohazardous waste bags will be available in Biosafety Cabinets (BSCs) and on lab benches as working/transfer containers, which may then be deposited into floor unit sharps containers at the end of work day/experiment.

- P. A Raj shared the BSL-2+ waste management process:
  - Red biohazard bags will be staged in BSCs as intermediate waste storage for pipette tips and other solid waste, such that these bags may be sealed and disinfected before removal from BSC.
  - Sharps, such as needles, scalpels, and razor blades are not allowed. *Plastic Pipette tips are still allowed. This waste is disposed as solid waste.*
  - Serological pipettes used in BSCs will be rinsed with 10% bleach, collected, and sealed in Whitney™ boxes. The outside of the box will be sprayed down with 70% ethanol before removal from the BSC. Then, the entire box will be disposed of in a sharp's container.

- Liquid waste for both BSL2 and BSL2+, such as used media, will be decontaminated with 10% freshly prepared bleach and held for at least 20 minutes, and then disposed of down the sink.

- Pathological waste, such as murine material parts and apheresis waste will be double bagged, sometimes frozen, and then packed and transported as pathological waste marked for incineration.

- All solid and sharps waste bins will be sent for treatment/destruction offsite by Stericycle.

- P. A Raj asked for questions: *None*
  Vote: **<u>All members passed the waste management plan.</u>**

<u>PROJECT REGISTRATIONS:</u>

<u>AMENDMENTS AND APPROVAL</u>

P. A Raj began the project registration amendment portion of the meeting. Then moved onto Project registration renewal.

RJ005 - 2D and 3D Models to Investigate Neurotropic Virus Tropism and Cell Toxicity - *Amendment*

- P. A Raj described the technical goals and methods for this project registration, which include:

  The development of generalizable human 2D and 3D tissue models to study infectious diseases of the central nervous system is a highly significant goal. Organoids represent near physiological model tissues, permitting detailed and precisely controlled experimentation to understand viral infections, host-viral interactions, key regulatory genes, and drug sensitivities. The project addresses the biology and cell tropism of Zika virus (ZIKV) which causes a world health crisis, wherein human tissue models are required to elucidate virus biology and mechanisms of pathogenesis, and also to provide platforms for testing candidate drugs and therapeutic approaches. We will test multiple cell types using multiple viruses that are central nervous system pathogens. Comparisons of flavivirus infections, including Zika virus, Dengue Virus, and West Nile and Yellow Fever virus will help understand how closely related viruses cause such fundamentally different diseases.

- Amendment
  - The Maruyama lab at UTMB infect the cells (Humans or bats separately) with viruses, including Filoviruses (Ebola or Marburg) and Henipaviruses (Hendra or Nipah). This is done in BSL4 containment at UTMB.
  - The Jaenisch Lab has requested inactivated cell lysates from the Maruyama lab. The lab proposed to extract the RNA/DNA for downstream assays, such as qRT-PCR, RNA sequencing, and western blot for protein analysis.
  - The study aims to look for host proteins/factors associated with the antiviral immune response of human vs. bat cells. The lab is not conducting any infection.
  - The lab is approved to work with flavivirus/SARS CoV-2 virus, where they extract the nucleic acid RNA/DNA from the lysate, which is an inactivated sample in SDS or trizol for downstream assays at present.
  - This work will be done by Punam Bisht, Postdoctoral Associate, Jaenisch Lab; Bloodborne Pathogen completed on Aug 12, 2024
    BL2+ training completed on Sep 16, 2021 (current as retraining is required for change in procedures)
  - UTMB sent the data is related to the approval of inactivation methods under the Federal Select Agent Program and internal (UTMB) IBC. The Select Agent regulations do not require every batch to be tested. Therefore, UTMB does not require this for every sample removed from containment.

- P. A Raj shared initial review comments made by IBC members before IBC:
    - On the Jaenisch lab side, the SOP the lab plans to use for processing the Trizol lysate to further purify the RNA should be submitted for approval. This should include how the lab plans to deal with the waste generated from this process (since Trizol is not compatible with bleach), and how the lab plans to use the purified RNA for further analysis (e.g., sequencing, RT-Qpcr). SOP for Laboratory Work with inactivat
    - The inactivation test results seem to be for RNA only (not lysate), requested UTMB for clarification on this.
    - The tests seem to be from 2013 (not current tests on the samples we would receive). Presumably WIBR would only receive the actual samples if they are accompanied by the matched inactivation validation.
    - UTMB confirms that the same protocols will be followed to inactivate the samples that are being sent to the Whitehead Institute. These inactivation methods are dated 2013 as that is when they were submitted to the Federal Select Agent Program and UTMB IBC. They are not needed to resubmit the procedures unless modified.
    - The Select Agent regulations do not require every batch to be tested.

P.A Raj asked if anyone had questions. None were put forth.
Vote: **All members passed Project Registration RJ005**

RL001 - Germ Cell Development and Migration using Drosophila melanogaster - *Amendment*

- P. A Raj shared amendment #1
  The Lehmann Lab studies evolution of development overall. The intent in the amendment is to work with Monomorium pharaonic as the main species. In addition, the lab is considering housing some other species, such as Camponotus floridanus, Odonto. An USDA recommended lab space was created and inspected for permit approval. Details are in the document attached.
  Whitehead Institute Lehmann L
- Parimala asked if anyone had questions. None were put forth.
- Vote: **All members passed Project Registration RL001**

RY003 - Transcriptional Regulatory Networks in Living Cells - *Amendment*

- P. A Raj described the technical goals and methods for this project registration, which include:
    - In this study we will characterize the transcriptional regulatory networks and mechanisms of gene control in mammalian cells with the ultimate goal of discovering factors contributing to disease. These can be mapped by identifying the sites bound by regulators throughout the genome of living cells, measuring gene expression and protein levels, observing phenotypic changes when normal cell growth is perturbed and characterizing protein condensate behavior. No antibiotic resistant biological agent will be generated.
    - The lab has shown that protein mobility is compromised in dysregulated or stressed cells.

This will be studied using FRAP (Fluorescence recovery after photobleaching) and single particle tracking (M. Ovesny, Bioinformatics 30, 2389-2390, 2014) using endogenously tagged cells under a variety of stimulus such as chronic insulin stimulation or oxidative stress with hydrogen peroxide treatments.

  - In collaboration with the SUR Lab at MIT the lab will do live cell imaging and single particle tracking (to study mobility in neuronal cells and organoids reprogrammed from iPSC lines derived from primary fibroblasts from patient tissue samples.
  - The Young Lab will obtain the resulting cells for microscopy in the Keck facility. All differentiation of patient iPS and mouse work will be completed in the Sur Lab with the Young Lab doing the majority of the microscopy studies in the Whitehead Keck facility.

- P. A Raj shared amendment #1
  The proposed amendment aims to identify whether proteolethargy, (decrease in protein mobility) is a common pathogenic mechanism across Mendelian diseases. Proteolethargy might offer novel therapeutic approaches for these diseases most of which lack effective treatments.
- P. A Raj asked if anyone had questions. None were put forth.
- Vote. **All members passed Project Registration RY003**

YY001 - Germ Cell Development and Migration using Drosophila melanogaster - *Amendment*

- P. A Raj shared amendment
  Bradysia (Sciara) has a unique biological system which has led to its establishment as a valuable model organism to aid in our understanding of genetics, and cell and developmental biology. The lab aims to use Bradysia (Sciara) to study chromosome mechanics, including the phenomenon of chromosome elimination in early embryogenesis and germline-limited (L) chromosomes.

  The majority of this exploration is done by using microscopy and sequencing methods, as Bradysia (Sciara) lacks many essential genetic tools that other model organisms have.
  Maintenance and Disposal: Bradysia (Sciara) are grown and maintained similarly to Drosophila. They are kept and grown in polypropylene vials at room temperature (room 349), 18C (room 358A), and 4C (room 390). Bradysia (Sciara) exist as adults for 2-3 days. If disposed of as adults, they are placed/dumped into a bottle with vegetable oil. If disposed of as eggs or larvae, they are kept in their original vial and frozen for 24 hours at -20C (in an upright freezer). The entirety of the disposal process happens in room 349.
- P. A Raj asked if anyone had questions. None were put forth.
- Vote. **All members passed Project Registration YY001**

RENEWALS AND APPROVAL

The following protocols were submitted for two-year renewal.

Jain	AJ001 - *Investigating regulators of polyamine metabolism*	BSL1/BSL2/ BSL2+
Page	DP001 - DNA Probes of the Sex Chromosomes of Human, Non-Human Primates, Mouse, Rat, Bull, Opossum, Wallaby & Chicken	BSL1/BSL2
Gehring	MG001 - Understanding epigenetic reprogramming during reproduction and development in *Arabidopsis thaliana*	BSL1
Corradin	OC001 - Impact of disease associated variants in neural cell types	BSL1/BSL2
Corradin	OC002 - Delineation of genetic risk to addiction via analysis of 3D chromatin architecture	BSL2
Young	RY002 - Identification of transcription factors required for cellular proliferation	BSL2/BSL2+
Backman	LB001 - Structural and Biochemical Investigation of Protection Strategies Employed by Anaerobic Bacteria	BSL1/BSL2

P. A Raj asked if anyone had questions.
Questions that were discussed are :-

1. LB001 – in Section 11 Occ Health as not applicable, it marked as not applicable.
   Comment: Given that it states "Occupational Health assessment is available to all MIT employees/investigators regardless of the biosafety level of the research and will determine the appropriate counseling and guidance" this section is not a choice.

   This section has been changed to a mandatory requirement.

2. RY002 uses lentiviral vectors but there is no discussion of post-exposure prophylaxis for an exposure. It was requested to add some default language about the availability of a week of post-exposure prophylaxis for lenti and retro viral vectors to Section 11 Occ Health in the protocol template?

   The following was added to this protocol.
   First aid varies by exposure to the type of Lentivirus:

   - *Needlestick/sharps: Wash thoroughly with soap and water.*
   - *Skin: Wash with soap and water for 10-15 minutes.*
   - *Mucous membranes (eyes, nose, mouth): Flush with water for 15 minutes.*
   - *Ingestion: Rinse mouth twice and spit.*
   - *Inhalation: Move to fresh air.*

Immediately report the exposure to your safety rep and PI and seek medical treatment at MIT Occupational Health.
Provide the medical provider with detailed information about the lentiviral vector.

- Vote. **All members passed Project Registration Renewals**

The meeting adjourned at 1:35 PM.