NIH Institutional Biosafety Committee Minutes
Location: National Cancer Institute at Frederick
July 10, 2025
12:00 PM – 2:00 PM
Virtual Meeting via WebEx

Members Present:

Voting (Quorum = 8)		Non-Voting (*Ex officio*)
☒ Sharon Altmann (Community member)	☒ Stephen Hughes	☒ Walter Hubert
☒ Theresa Bell	☒ Serguei Kozlov	☐ Samuel Denny
☒ Stella Spears (Alternate for J. Gulani)	☒ Dan McVicar (Chair)	☐ Krisztina Janosko
☒ Eric Freed	☐ Bradley St. Croix	☐ Michael Kujawa
☒ Jatinder Gulani	☒ Jason Yovandich	Other/Guests
☒ Effie Nomicos (Community member)	☒ Valentina Perepnikhatka	☒ Wendy Kitta (IBC coordinator)
☐ Sarah Hooper	☒ Brandon Keele	

Announcements & Call to Order

I. Meeting called to order by IBC Chair at 12:02 pm.

Review of Past IBC Meeting Minutes

I. May 1, 2025, Minutes (The June meeting was cancelled)
   a. Comments on minutes: None.
   b. The minutes were unanimously approved as written.

New Committee Business

I. BSO or IBC lead reviewer preliminary registration approvals since the previous meeting:

   a. Pathogen only Registration Numbers: Not applicable.

   b. rDNA Registration Numbers:
      - Dr. Mark Lewandoski- IBC 2025-38: Role of Cell Signaling During Mouse Embryogenesis (Renewal, Breeding-Only)
        Reviewers: Gulani, Perepnikhatka
      - Dr. Jian Peng- IBC 2025-40: Create the Fibp Conditional Knockout Mice to Study the Systematic Effect of Fibp in Regulating Antitumor Immune Response. (Renewal, Breeding-Only)
        Reviewers: Gulani, Kozlov
      - Dr. Lalage Wakefield- IBC 2025-42: Breeding of Genetically Engineered Mice (Renewal, Breeding-Only)
        Reviewers: Perepnikhatka, Gulani

c. Registration amendments (non-administrative) approved in July:
   - ❖ Dr. Kylie Walters: 2024-57-A1. *Description:* Add cholera toxin for cell culture application.
   - ❖ Dr. Chengkai Dai: 2023-33-A4. *Description:* Add human cell lines.
   - ❖ Dr. Scott Durum: 2024-32-A2. *Description:* Add human cell lines.
   - ❖ Dr. Robin Dewar: 2024-23-A1: *Description:* Add new assay.
   - ❖ Dr. Daniel McVicar: 2025-18-A1: *Description:* Add human cell lines.
   - ❖ Dr. Lisa Ridnour: 2023-42-A1: *Description:* Add human cell lines and cholera toxin.

d. Additional Committee Discussion: N/A

II. Registrations for Committee review

Ref# 200142 (Renewal), Dr. Jeffrey Carrell:

i. *Reviewers:* Freed, Kozlov

ii. *Summary:* As a shared technology resource, the Core receives samples from the breadth of cancer research conducted by investigators at the Frederick National Lab for Cancer Research, including basic cell biology, genetic regulation, immune function, translational research, and therapeutic intervention. Cell lines and/or primary cell samples of human or animal origin may be brought to the core for cytometry analysis or for cell sorting. Analysis experiments may be performed by CCR branch/ investigator staff or by Core personnel. Cell sorting is exclusively performed by Core personnel.

iii. *Committee Discussion:*
Section 4.2.1.1 and throughout the registration:
1. The text in the registration, the text in the intake form and the text in the matrix document refer to the use of formaldehyde and ethanol for fixation purposes. Please comment on whether these fixatives are appropriate for use in the core facility equipment (at the indicated time, temperature and concentrations). Are the biological materials properly fixed after treatment?

2. Are the references about the use of ethanol and formaldehyde phased out language that no longer applies to activities in the core facility? If yes, please update the language in the registration, the intake form and the matrix document.

iv. *Animal studies proposed:* No

v. *Committee discussion about the dual-use and ePPP potential of these experiments:* N/A

vi. *Work is approved at:* BSL2, BSL2*

vii. *Relevant sections of the NIH Guidelines:* N/A- This registration describes core facility services.

viii. The committee unanimously voted to approve pending minor clarification. Dr. McVicar recused.

Ref# 200145 (Renewal), Dr. Jordan Meier:

i. *Reviewers:* St. Croix, Bell

ii. *Summary:* The laboratory conducts research on enzyme complexes which can be found in nuclear extracts of HeLa cells. Using cell lysates prepared under BSL2 containment conditions, researchers analyze these enzyme complexes through Western blotting and proteome profiling. The research aims and objectives include developing and applying chemoproteomic technologies for structural characterization of chromatin modifiers. These technologies should also be applicable in the identification of novel pockets, capable of being targeted with small molecule inhibitors. While HeLa cells are formally a model of cervical cancer, this work addresses fundamental mechanisms of

epigenetic dysregulation in cancer and may contribute to future therapeutic development across a wide range of malignancies characterized by aberrant transcriptional control.

iii. *Committee Discussion:* This registration presents well-established safety procedures.
iv. *Animal studies proposed:* No
v. *Committee discussion about the dual-use and ePPP potential of these experiments:* N/A
vi. *Work is proposed at:* BSL2
vii. *Relevant sections of the NIH Guidelines:* N/A- No recombinant material is described.
viii. The committee unanimously voted to approve as written.

Ref# 200146 (Renewal), Dr. Erin Davies:

i. *Reviewers:* Gulani, St. Croix
ii. *Summary:* The laboratory aims to determine mechanisms underlying the establishment and regulation of adult stem cell-driven regenerative abilities in various flatworm species. Flatworm regeneration research offers opportunities to discover evolutionary innovations that have allowed planarians to thwart cancer development in areas not limited to potency regulation, growth control, tumor suppression, DNA damage repair, and regulation of cell turnover. Basic research to elucidate necessary factors and critical regulators of regeneration, within and across regenerative animal model systems, is an essential first step toward developing informed strategies to reverse-engineer regenerative responses in therapeutic settings.
iii. *Committee Discussion:* This is a well written registration involving invertebrate species, which do not require ACUC oversight.
iv. *Animal studies proposed:* Yes; however, ACUC requirements do not apply.
v. *Committee discussion about the dual-use and ePPP potential of these experiments:* N/A
vi. *Work is approved at:* BSL1
vii. *Relevant sections of the NIH Guidelines:* Section III F-1, Section III F-8
viii. The committee unanimously voted to approve as written.

Ref# 200160 (Renewal), Dr. Ying Zhang:

i. *Reviewers:* Kozlov, Freed
ii. *Summary:* The laboratory's goal is to determine the role of various tumor suppressor genes on tumorigenesis and metastasis. The laboratory has previously identified the genes of interest. It is hypothesized that the loss of such tumor suppressor genes has a prominent role in tumor growth and metastasis.
iii. *Committee Discussion:* The discussion centered on the viral vector systems and genes encoded within the viral vectors, which are used for cell line transduction. The committee requested a minor editorial modification to the language used to highlight the hazards associated with viral vectors and tumor suppressor genes.

iv. *Animal studies proposed:* Yes, mice.
v. *Committee discussion about the dual-use and ePPP potential of these experiments:* N/A
vi. *Work is approved at:* BSL2, ABSL2
vii. *Relevant sections of the NIH Guidelines:* Section III-D-4-a
viii. The committee unanimously voted to approve pending minor editorial modification.

Ref# 200161 (Renewal), Dr. Sergio Alcoser:

i. *Reviewers:* Altmann, Yovandich
ii. *Summary:* This is a multi-pronged project with the following basic goals: Generate patient derived models including patient derived xenograft (PDX) tumors and tumor derived cell lines (tumor and

fibroblast) as well as organoid cultures from human tumor samples. Generate preclinical efficacy data using human (PDX and standard xenograft) and mouse derived tumor models. Generate preclinical pharmacokinetic and pharmacodynamic data using human (PDX and standard xenograft) and mouse derived tumor models. Replenish cell and tumor stocks for the DCTD Tumor Repository, Mouse Derived Models Repository [a component of the DCTD Repository], and Patient Derived Models Repository. Maintain a mouse breeding colony for the mice required to accomplish the aforementioned goals.

iii. *Committee Discussion:* The registration describes well characterized models and includes comprehensive biological safety protocols for the conduct of research.

iv. *Animal studies proposed:* Yes, mice.

v. *Committee discussion about the dual-use and ePPP potential of these experiments:* N/A

vi. *Work is approved at:* BSL2, ABSL2

vii. *Relevant sections of the NIH Guidelines:* Section III-E-3-a.

viii. The committee unanimously voted to approve as written.

Ref# 200196 (Renewal), Dr. Yurong Song:

i. *Reviewers:* Gulani, Kozlov

ii. *Summary:* The aims include characterizing tumor cell lines and organoids via various techniques in vitro (cultured cells will be harvested for IHC, Western blot, PCR, flow cytometry analysis, and /or sequencing). Additionally, in vivo tumor cell titration studies will be conducted. Different components of vaccines (e.g., LNPs and adjuvants) and formulations will be characterized in vitro and in vivo. The adjuvants will be optimized, and test candidate vaccines/adjuvants will be tested in vivo for immunogenicity. Chemoprevention agents or immune checkpoint blockade agents will be tested alone or in combination. Tumor growth in vivo will then be measured for efficacy analysis. Finally, splicing modulators and natural product derivatives will be tested in vitro and in vivo.

iii. *Committee Discussion:*

Section 7.5: Regarding bullet point #4, "Human plasma, buffy coat, PBMCs,"-Please expand the text to provide additional information as to what procedures will be performed with these materials. For example, will nucleic acid extraction be conducted prior to sequencing? Are the samples handled in the BSC (while following BSL2 practices) up until the point that they are treated with reagents to extract the nucleic acids?

i. *Animal studies proposed:* Yes, mice.

ii. *Committee discussion about the dual-use and ePPP potential of these experiments:* N/A

iii. *Work is approved at:* BSL2, ABSL1, ABSL2

iv. *Relevant sections of the NIH Guidelines:* Section III-D-2-a.

v. The committee unanimously voted to conditionally approve pending clarification.

Ref# 200383, Dr. Hiroshi Matsuo:

i. *Reviewers:* Hughes, Altmann

ii. Summary: The laboratory studies human genes associated with HIV inactivation mechanisms. These experiments will allow researchers to evaluate therapeutics that can rescue human genes from virally induced degradation. Furthermore, the human cell lines described in the document will be used to study cancer progression in relation to the same human genes involved in HIV inactivation mechanisms. These experiments will contribute to the evaluation of potential inhibitors as potential anti-cancer and anti-viral therapeutics.

iii. *Committee Discussion:*

Section 4.2:

1. The text currently describes how the proposed experiments involve a gene of interest and its role in HIV inactivation. Additionally, the text states "…Therefore, the major objectives of this research are to obtain a structural understanding of the DNA cytosine deaminase activity of the genes of interest". However, the text does not describe the various gene iterations and interactions being studied. To address this point, please provide a declarative statement indicating whether all the experiments and the mechanisms being studied are fully accounted for in the text within this section. Note: If any mechanisms were accidentally omitted, they may be added during the modification period.

2. Will a comprehensive gene of interest screen be conducted? If yes, what are the targets in the screen? Please attach an Excel spreadsheet containing this information (as applicable).

3. Please clarify whether samples will be transferred to the flow cytometry core facility for processing. Will the cells be fixed prior to transfer to the flow cytometry facility? If yes, please state the method of fixation.

4. In the last paragraph of the "Non-technical project objective" section: Please clarify the text to indicate that the transfer of samples to the flow cytometry facility will adhere to the guidelines already described in the text (for example, labeling the primary and secondary containers to identify biohazards, placing the primary container into a secondary container that has sufficient absorbent material to capture any spills during transport, etc.).

iv. *Animal studies proposed:* No

v. *Committee discussion about the dual-use and ePPP potential of these experiments:* N/A

vi. *Work is approved at:* BSL1 (E. coli work), BSL2

vii. *Relevant sections of the NIH Guidelines:* Section III-E-1.

viii. The committee unanimously voted to conditionally approve pending clarification. Dr. McVicar recused.

Ref# 200406 (Renewal), Dr. Yun Xing Wang:

i. Reviewers: Keele, Hughes

ii. Summary: The gene that the laboratory is interested in studying is a key immune checkpoint receptor that helps regulate the immune response. High expression of the gene of interest in T cells can lead to a state of functional exhaustion, hindering their ability to effectively fight off threats like cancer cells. The laboratory's research is expected to provide a better understanding of important immune regulatory mechanisms within or outside of the gene of interest's network, which can be controlled by RNA centric devices to provide a platform to develop therapeutic strategies to unleash the antitumor immune response.

iii. Committee Discussion:

Section 4.2:

1. Please modify the text to remove aspects pertaining to the animal cells from this section, which captures details about human cell lines.

2. Please describe how gene expression is analyzed. Is the analysis performed by using flow cytometry? If yes, will the flow cytometry core facility be used? In addition to clarifying these questions, please state whether the transduced cells that have been modified with viral vectors encoding PD1 will remain in culture for at least 10 days (or more) prior to performing any assays and flow cytometry with the cells. Furthermore, the text should specify whether the cells are fixed prior to undergoing flow cytometry (if

they are fixed, please state the fixation method). Note: The committee's concern is the potential creation of aerosols that might involve cells transduced with vectors encoding the gene of interest (an immune checkpoint gene).
iv. Animal studies proposed: No
v. *Committee discussion about the dual-use and ePPP potential of these experiments*: N/A
vi. Work is approved at: BSL2, BSL2*
vii. Relevant sections of the NIH Guidelines: Section III-D-1-a.
viii. The committee unanimously voted to conditionally approve pending clarification.

Ref# 200467 (Renewal), Dr. Mikhail Kashlev:
i. Reviewers: Altmann, Keele
ii. Summary: The laboratory focuses on understanding the transcriptional regulation mechanisms in breast cancer cells, as well as genome-wide pausing and backtracking of enzymatic activity in cancer cells. In this study, the laboratory has uncovered a critical role for certain transcription factors, in regulating promoter-proximal pausing and backtracking of enzyme activity across both protein-coding and non-coding genes. The knowledge gained from this research has strong potential to contribute to human health by the development of novel diagnostic markers and targeted therapies. Therapeutics that modulate enzymatic function or enzymatic interactions may serve as precision strategies to disrupt aberrant transcription in breast cancer, paving the way for transcription-based cancer interventions.
iii. Committee Discussion:
Sections 3.2.1.1 and 4.12: Please attach an Excel spreadsheet, which describes the following items in separate columns:

1. Please state what vectors will deliver the shRNA and the CRISPR Cas9 system.
2. Please clarify what the targets of the shRNA are. Please also provide exclusion statements about what will not be encoded in the shRNA.
iv. Animal studies proposed: No
v. *Committee discussion about the dual-use and ePPP potential of these experiments*: N/A
vi. Work is approved at: BSL2
vii. Relevant sections of the NIH Guidelines: Section III-D-2-a.
viii. The committee unanimously voted to conditionally approve pending clarification.

Ref# 200482 (New), Dr. Jordan Meier:
i. Reviewers: Hughes, Perepnikhatka
ii. Summary:
iii. Committee Discussion:
Section 4.2:
1. After the first sentence in the text:
Please provide follow up information to expand on how developing a sensitive reporter assay to study RNA modifications is relevant to cancer. What is the scientific rationale for undertaking the studies described in the registration? What specific molecular mechanisms/relationships is the laboratory interested in studying? The text in the introduction needs to cohesively describe the ideas in the first paragraph and how they relate to the ideas in subsequent paragraphs.

2. As currently described, one may infer that the protein and system of interest will be used to track quantities of protein/peptide in cells, which may, in some cases, be used as a measure of the underlying RNA. The part of the work that is currently not clear to the committee involves a system, in which the protein of interest is split into two pieces (large and small units).

Currently, the text provides a narrative pertaining to cell lines that have been transduced with a lentiviral vector that expresses the large protein component. The application also briefly describes expressing the small protein component with a lentiviral vector, but the nature/logic of the experiments involving the small component in the lentiviral vector are not sufficiently described. Please clarify this point in the text and please make sure to address the following items in the response:

A. Is the small protein component ever expressed as a part of a larger protein? If yes, please state what the larger proteins are.

B. Will work with the small protein component be conducted via transduction with a lentiviral vector or will it be used for transfection only?

C. Please provide a declarative statement indicating whether the small protein component or a fusion thereof is being introduced into a cell line that expresses the larger protein component.

D. Please provide a declarative statement that indicates how long the lentiviral vector modified cell lines have been in culture prior to being used in procedures. Do the lentiviral vector modified cells remain in culture for 10 days or more before they are used for any in vitro assays?

iv. Animal studies proposed: No
v. *Committee discussion about the dual-use and ePPP potential of these experiment*s: N/A
vi. Work is approved at: BSL2
vii. Relevant sections of the NIH Guidelines: Section III-D-2-a.
viii. The committee unanimously voted to conditionally approve pending clarification.

III. Registration amendments for full committee review:
i. Registration Number, PI: N/A
ii. Reviewers: N/A
iii. Review Summary: N/A
iv. Committee Discussion: N/A
v. Animal studies proposed: N/A
vi. Committee discussion of the dual-use and ePPP potential of these experiments: N/A
vii. Work is approved at Biosafety Level(s): N/A
viii. Relevant sections of the NIH Guidelines: N/A
ix. Committee vote/recommendations: N/A

IV. Committee Review of Inactivation Procedures (if not reviewed under a registration)
a. None

V. Standard Operating Procedures/Plans
a. None

VI. Serious Adverse Events in Clinical Trials reviewed by the Committee
a. Not applicable

Reports

I. Biosafety Officer Report –
    a. None
II. Other reports
    a. The IBC Chair informed the membership about the outcomes of the recent NIH/DURC inquiry about research initiatives taking place at NCI at Frederick. The results of the inquiry confirmed that dangerous gain of function research (as defined in the May 5, 2025, Executive Order) is not conducted at NCI at Frederick facilities.
    b. The IBC Chair informed the committee that NIH-approved modifications to the standard IBC meeting minutes template will be implemented later this year, once released.
    c. IBC members were reminded about approved institutional resources that may be used to forward requests for information from outside entities and the general public.

Around the Room/Committee Discussion

I. The committee unanimously voted to approve minor editorial modifications to the NCI at Frederick's Biosafety Level (BSL) Matrix. The newly approved iteration of the matrix will be published on the IBC website.
II. Dr. Gulani discussed general details about decontamination practices for quarantine facilities. A formal presentation on this topic will be provided to the committee at the August IBC meeting.

Adjournment

I. Meeting adjourned by IBC Chair at 2:01 pm.

Next Meeting

I. August 7, 2025- Executive Board Room, Building 549 (WebEx access available)