The University of Chicago
Institutional Biosafety Committee (IBC)
& Howard T. Ricketts Laboratory (HTRL)-IBC

Policy & Procedure Manual

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The University of Chicago (UC) has two Institutional Biosafety Committees (IBCs). The Howard T. Ricketts Laboratory (HTRL) IBC is responsible for the review and approval of all IBC-regulated research conducted at the UC Howard Taylor Ricketts Laboratory. The UC IBC is responsible for IBC-regulated research on the Hyde Park UC campus. Any investigator requesting similar research at both the HTRL and Hyde Park campus locations must have both a UC- IBC and HTRL-IBC protocol approved for the work. Unless otherwise noted, the term "IBC" in this manual refers to the two University of Chicago Institutional Biosafety Committees. Policies or procedures that are unique to one of the two IBCs are clearly indicated.

Charge of the Committee

The IBC is charged with the responsibility for review, approval surveillance of all research at UC involving the use of the following biohazards
Biohazards are defined as:

- Recombinant/synthetic DNA (r/sDNA)
- Agents infectious to humans, animals or plants
- Other genetically altered organisms and agents
- Certain biological toxins described in this Table
- Other research involving biological material as determined by the IBC

Additionally:

- Cells/blood/tissues/organs harvested directly from humans only require IBC approval if they are used in the following manner:
    - As a recipient or source for r/s DNA experiments
    - As a recipient/host for or source of a pathogenic and/or genetically modified microorganism
    - As a recipient of IBC-regulated biological toxins *in vitro*

Regardless of its source of financial support, all research with biohazards must be approved by the IBC and conform to IBC policies and procedures before initiation of the work.

Both IBCs have regularly scheduled monthly meetings. Additional special meetings are called as necessary. These meetings are not open to anyone other than members of the IBC, staff of the IBC Office, and Office of Research Safety (ORS) or individuals who have received permission from the IBC Chair.

The University of Chicago lacks facilities requiring Biosafety Level 4 (BSL4) or Animal Biosafety Level 4 (ABSL4) containment. Therefore, research requiring such containment cannot be performed at the UC. Investigators wishing to perform research requiring BSL3 or ABSL3 containment should consult with the ORS and Animal Resources Center, if applicable, prior to grant preparation or IBC protocol submission.

Exempt from IBC Submission Requirements:

- The use of human cell lines, primary human tumor cells or transformed cells does not require submission of an IBC protocol when the cells have not been modified with methods using recombinant or synthetic DNA.
- Teaching activities involving biohazards, as defined above, do not require an IBC protocol or IBC approval. However, teaching activities involving biohazardous agents require that all students be appropriately trained and thus, such teaching activities should be coordinated through the Office of Research Safety.
- Work with microbial agents that are not known to cause diseases in healthy adults, animals or plants are exempt from IBC review when the microbial agents have not been modified by recombinant or synthetic DNA methods. The IBC Chair and the Biological Safety Officer (BSO) are responsible for confirming this exception.

Responsibilities

IBC

The IBC is responsible for:

- Reviewing research involving biohazards for compliance with the *NIH Guidelines for Research Involving Recombinant or Synthetic Nucleic Acid Molecules (NIH Guidelines)* and the policies of the UC IBC.
- Notifying the Principal Investigator of the results of the IBC's review.
- Lowering containment levels for certain experiments as specified in Section III-D-2-a of the NIH Guidelines (Experiments in which DNA from Risk Group 2, Risk Group 3, Risk Group 4 or Restricted Agents is transferred into nonpathogenic prokaryotes or lower eukaryotes host-vector systems).
- Setting containment levels as specified in Section III-D of the NIH Guidelines, including Sections III-D-4-b (Experiments Involving Whole Animals), and III-D-5, (Experiments Involving Whole Plants).
- Reporting any significant problems with, or violation of, the *NIH Guidelines* and any significant research-related accidents or illnesses to the appropriate institutional official and NIH Office of Science Policy (NIH OSP) within 30 days, as determined by the IBC.
- Reviewing and approving Standard Operating Procedures (SOPs) as deemed required by the IBC.

*The IBC may not authorize initiation of experiments that are not explicitly covered by the *NIH Guidelines* until the NIH establishes the containment requirements.

Principal Investigator

In accordance with University Research Administration policy on Principal Investigator Eligibility, only those individuals who are eligible to serve as principal investigators on proposals for external funding may serve as the Principal Investigator (PI) for an IBC protocol. Individuals wishing to serve as PI who lack the necessary appointment should contact the University Research Administration and/or their departmental administrator.

On behalf of the institution, the PI is responsible for being in full compliance with the *NIH Guidelines,* as well as the policies and procedures of the IBC in the conduct of research with biohazards.

Specific items for PI to consider for compliance:

- The PI should make the initial determination of the required levels of physical and biological containment in accordance with the *NIH Guidelines* and the most recent edition of *Biosafety in Microbiological and Biomedical Laboratories* (BMBL).
- The PI should make the initial determination as to whether their proposed research involves *Dual Use Research of Concern* (DURC). Please contact ORS with questions concerning DURC.
- The PI should select the appropriate microbiological practices and laboratory techniques to be used for the research and provide sufficient details for IBC to conduct proper risk assessment.
- The PI should ensure that the staff listed on the protocol have sufficient knowledge, are sufficiently trained, and have demonstrated the appropriate competence to safely perform the responsibilities for which they have been assigned.
- The PI ensures that the protocol participants fully understand the necessary procedures to deal with decontamination, waste handling, spills, and potential exposures with the agents described in the protocol.
- The PI should ensure reporting of any research-related accidents and illnesses to ORS and the IBC within 30 days.

PI Responsibilities for Human Gene Transfer Research

- For human gene transfer (HGT) research, he PI responsible for this research must ensure that all aspects of Section III-C of the *NIH Guidelines* have been appropriately addressed. Research cannot be initiated until IBC and all other applicable institutional and regulatory authorization(s) and approvals have been obtained.

Biological Safety Officer (BSO)

The responsibilities of the BSO and/or a BSO designee include, but are not limited to:

- Conducting announced and unannounced laboratory inspections to ensure that appropriate laboratory standards as determined by the IBC are rigorously followed.

- Reporting to the IBC and UC any significant problems, violations of the *NIH Guidelines,* and any significant research-related accidents or illnesses of which the BSO becomes aware unless the BSO determines that a report has already been filed by the PI.
- Developing emergency plans for handling accidental spills and personnel contamination and investigating laboratory accidents involving r/s nucleic acids or biohazardous agent research.
- Providing advice on laboratory security and DURC, providing technical advice to PIs and the IBC on research safety procedures.
- Developing, deploying & overseeing a comprehensive Biosafety program for UC
- Together with the IBC, overseeing review of BSL2-enhanced, BSL3, and ABSL3 research projects and conduct all relevant inspections for these facilities.
- Conducting biosafety risk assessments and training to ensure the laboratories are in compliance with all applicable federal biosafety laws and regulations.
- Collaborating with research groups in all matters related to biosafety.
- Providing expertise for the design and management of containment facilities.
- Serving UC as a resource and leader in all aspects of education and training in biosafety.

Protocol/Amendment Submission & Review Process

Submission Process

All IBC protocol submissions, including, seeking new IBC protocol approval, amendments to approved protocols or resubmissions of protocols must be submitted to the IBC Office through an online submission system by the PI. For information on who is eligible for PI status, please refer to the URA Policy on PI Eligibility found in this document. Once IBC protocols are approved by the IBC they are approved and active for a period of three years. Research utilizing biohazards, as defined above, may not be initiated prior to the approval of the IBC and subsequent acknowledgment to adhere to the requirements of the protocol by the PI and listed research team members. Changes to approved protocols other than personnel updates, (e.g., location changes, new procedures, or new biohazards) must be reviewed and approved by the IBC prior to initiation of the new research. Amendments to add new staff members are approved automatically in the submission system upon completion of the Study Staff Acknowledgments by the added personnel. New staff should complete the training courses based on the agents listed in the protocol, and as outlined by the associated risk assessment. Information on the training courses that are offered and when they are required is described at https://voices.uchicago.edu/ibcsaibc/training/.

Resubmission

Once approved, IBC protocols are active for three years and PIs who plan to continue conducting the approved research are required to resubmit the protocol in a timely manner, so that it can be reviewed and approved by the IBC prior to expiration. These resubmissions are reviewed in the same manner as new protocol submissions. PIs are sent

reminders of the need to resubmit at least four months prior to expiration and reminded monthly to do so until the resubmission is received by the IBC office.

Expiration of protocols

All IBC protocols are approved for span of three years. If a PI fails to submit, or for other reasons the resubmission is not approved by the IBC prior to the three year expiration date, the protocol will be automatically expired. Upon expiration, no research described in the protocol may be conducted until the resubmission is approved by the IBC. Expiration of the IBC protocol may require termination of any related IACUC and IRB protocols, and notification of other agencies (OLAW and granting agencies). Expiration dates cannot be extended under any circumstances.

Review Process

Upon receipt by the IBC Office through the online submission system, protocol submissions must then receive one or more levels of review prior to the protocol being approved and the research proceeding. Initially, all protocol submissions are reviewed by an IBC Specialist. Subsequently, submissions are reviewed by a BSO or designee, and then a voting member of the IBC, prior to being presented to the IBC at a convened meeting. The PI may receive requests for clarification and modification of the submitted protocol throughout the review process. These requests must be addressed by the PI for the protocol to progress through the review process.

New, resubmitted and amended protocols must be presented at a convened IBC meeting for review and approval, with minimal exceptions as described in the table below:

Agent or Submission Type	Administrative Review	Expedited Review*	IBC Member Preliminary Review	Full Committee Review
Human cell lines, primary human tumor cells or transformed cells (purchased/obtained with no further manipulation of DNA)	Does not require review and approval by IBC			
Transgenic animal/plant production/transfer/usage	X		X	X
Amendments adding/removing staff or funding	X			
Amendments adding new locations**	X	X		
Amendments describing minor changes with no impact on Risk	X	X		

Group, Biosafety Level, or risk assessment				
Change in PI	X		X	X
All other submissions	X		X	X

* Expedited review, described below, may determine that review by a convened meeting of the IBC is required.

**New locations may be subject to inspection by ORS prior to approval. This is determined on a case-by-case basis.

Administrative Review

Upon receipt, the IBC protocols are reviewed for completion by an IBC Specialist to ensure the submitted protocol contains sufficient detail, and to determine which type of committee review is required (i.e., Expedited Chair/BSO review or Full Committee Review).

IBC submissions involving the use of animals are reviewed during administrative review by an IBC Specialist for congruency with associated Institutional Animal Care and Use (IACUC) protocol(s) to ensure that descriptions of biohazard usage is consistent with what is described in the IBC submission. IBC submissions involving administration of IBC-regulated material to humans, or the acquisition of tissues directly from humans, are reviewed by an IBC Specialist to confirm there is an associated and approved Institutional Review Board (IRB) protocol. Incongruency in, or lack of approved IACUC or IRB protocols will be communicated to the PI during administrative review. Failure to attain required IACUC or IRB approval may delay or prevent IBC approval of the submission.

Amendments requesting the use of new rooms under BL2 conditions must first be approved by the ORS (BSO or designee) prior to final approval.

Expedited Review (BSO Review/Chair Approval)

Amendment submissions describing minor changes that have no impact on risk or biosafety level are reviewed by a BSO (or designee) and the Chair. These reviewers may request additional information or clarification from the PI, approve the submission with no modifications, or send it for full committee review at the next convened IBC meeting if they determine that such review is warranted.

Full Committee Review

Following IBC Administrative review, if Full Committee Review is required, the IBC submission is reviewed by at least one voting member of the IBC. Protocols involving human clinical trials are reviewed by an IBC member, who is preferably a clinician or an individual with relevant clinical experience.

At the conclusion of the committee review, the committee has the following decision options:

- **Approved or Approved with Comment:** The protocol submission satisfactorily addresses all issues and the submission is fully approved with no modification by the PI required.
- **Approved with Stipulations:** The protocol submission is approved, but the approval is of limited scope, pending satisfactory resolution of specific issues (e.g., update the protocol when the animal vivarium has been identified).
- **Pending Conditions:** Minor issues remain that must be addressed by the PI prior to approval. The revised protocol submission addressing the issues is reviewed by the Chair who may request the response to be evaluated by another member of the Committee or may require full IBC Review if the response is not sufficient.
- **Deferred:** Significant issues remain requiring the full committee to review the PI response.
- **Rejected:** The protocol submission is not approved and has been withdrawn from further consideration by the committee.
- **Suspended:** The approval and thus active state of the IBC protocol is suspended. None of the activity that is described in the IBC protocol involving IBC-regulated materials may be performed during the period in which the protocol is suspended. The IBC may suspend a protocol during instances of serious or continuing non-compliance with IBC or institutional policies and guidelines or with the *NIH Guidelines.* The activity of protocol suspension can only be executed in a convened meeting of the IBC. However, in circumstances posing an immediate threat to health, safety, or the environment, the IBC empowers the BSO (or designee), to immediately suspend the hazardous activity.
- **Terminated:** The protocol is no longer approved and will not be reconsidered for approval by the IBC. All activities described in the protocol utilizing IBC-regulated materials must cease upon receipt of the notice of termination. The IBC will not reconsider re-approving the IBC protocol and it may not be re-submitted by the PI for IBC review. The IBC may terminate a protocol during instances of serious or continuing non-compliance with IBC or institutional policies, guidelines, or with *NIH Guidelines*. The activity of protocol termination can only be executed in a convened meeting of the IBC.

Delinquent PI responses to IBC Review Letters

Failure to respond to submission review letters (e.g., administrative, preliminary or full committee) within 30 days will result in a Final Notice letter from the IBC Specialist. If the PI fails to respond to the Final Notice in 30 days, this will result in withdrawal of the original submission. The PI needs to contact the IBC office if the PI is unable to respond to the review letters on a timely basis.

Monitoring Proceedings

Lab Inspections

i) EHS – General: All buildings and laboratories comprising the University of Chicago are inspected on an annual basis to identify and locate infractions of fire or industrial safety concerns.

ii) ORS – Protocol Specific Inspection: Regularly scheduled inspections of all IBC-overseen laboratories are conducted by the ORS. Additional inspections are conducted when deemed necessary by the IBC or HTRL-IBC. Members of ORS conduct inspections to ensure proposed research can be performed safely. These inspections are based upon the standards set forth in the most recent edition of the BMBL, the *NIH Guidelines*, and Select Agent regulations (when applicable).

Relationships

IACUC

IBC protocol submissions that involve the use of live vertebrate animals (i.e., administration of biohazardous agents or generation of transgenic/knock-out or knock-in animals) require IACUC review and approval before they can be approved by the IBC. IBC submissions that involve the use of animals may receive 'Approved with Stipulation' status if there is non-animal bench work described in the IBC submission that can begin without the immediate need for live animal work. Such a stipulation requires IACUC approval prior to work with live animals and is controlled by the Animal Resources Center not allowing the animals on the referenced IACUC protocol to enter the biosafety facility.

IRB

IBC protocol submissions that involve the administration of biohazardous agents or r/s nucleic acids to humans, requires IRB approval prior to initiation. The review process of these protocols is coordinated with the IRB review of the same protocol such that no IRB approval to initiate a human gene transfer trial is granted in the absence of approval by the IBC. The study cannot be initiated until all required regulatory and/or institutional approvals have been obtained by the principal investigator.

Grants

Upon receipt of funding proposals, the Grant & Contract Administrators (University Research Administration) review to determine if an IBC protocol is indicated or seems warranted. If the need for an IBC protocol is confirmed, the Grants Administrator verifies whether a corresponding IBC has been approved.

Plant Research

The IBC is responsible for reviewing protocols involving r/sDNA-containing plants and plant-associated microorganisms.

Cores

The IBC is responsible for reviewing protocols involving biohazardous material and/or r/sDNA-containing organisms, tissues or microorganisms. ORS works with these Core Laboratories to establish appropriate standard operating procedures to insure that all steps to minimize potential exposures of Core Laboratory staff to biohazardous materials are taken.

Specific IBC Policies

IBC Training Policy

It is the policy of the IBC that all investigators, technicians, and students involved with research activities described on a given IBC protocol be appropriately trained to mitigate research-associated risks as well as to ensure compliance with applicable local, State and Federal regulations and guidelines. This training will include IBC-mandated training elements, developed and provided by the ORS as well as lab-specific training, provided by the PI for each of their IBC research protocols.

As part of the IBC risk management process, it is the responsibility of the PI to assess research-associated risks; this risk assessment process is facilitated and documented through completion of the online submission system. The PI must also ensure that all lab personnel named as a staff member on the IBC protocol are sufficiently trained to safely work with the biohazardous materials described and that each staff member is aware of the principles and practices of waste management, decontamination, and what to do in the event of spills, exposures, or other off-normal events occurring with IBC-regulated material.
Accordingly, the PI is responsible for the following:

- Ensure that each staff member is aware of the specific risks associated with the work to be conducted, as described in each IBC protocol.
- Ensure that each staff member has been trained and has demonstrated that they can safely perform the procedures as described in that protocol.
- Ensuring that each staff member listed on the PI's IBC protocols have completed the training required by the IBC as outlined in this Policy.
- Ensuring that each staff member has completed any additional training identified by the IBC during its risk assessment of the research project.

ORS staff is available to assist the PIs in the training of their staff.

Rationale for the Training Policy:
Laboratory safety begins with a comprehensive assessment of risks posed by research reagents and associated lab activities as well as an assessment of compliance issues

associated with research conducted within that lab. An important component of this risk assessment process is the identification of laboratory safety issues that can only be mitigated through appropriate training. The responsibility to perform this assessment is a shared responsibility, beginning with the principal investigator and augmented by the risk assessment performed by the IBC during the protocol review process. This process is concluded with implementation within the lab of the risk mitigation requirements (including required training) and recommendations articulated by the IBC as part of the IBC Protocol approval process.

Educating UC student, investigator scientists, and research staff about the risks associated with their research activities, as well as how to mitigate these risks, is a responsibility and an ethical obligation shared by all. Nonetheless, training activities are also required by Federal and State laws and Guidelines including but not limited to: OSHA Laboratory Standard (29CFR1910.1450), OSHA Bloodborne Pathogens Standard (29CFR1910.1030), CDC Select Agent Regulation (42CFR73.10(c)), CDC *Biosafety in Microbiological and Biomedical Laboratories*-5th edition, *NIH Guidelines* (IV-B-1-h), and DOT Shipping Infectious Substances (49CFR172.704(a), 49CFR173.134, 49CFR173.199(e). **Failure to comply with these training requirements places the Institution at risk for the imposition of monetary fines, the potential loss of research funding and even criminal penalty**.

A comprehensive laboratory safety training program involves specialized training elements (biosafety courses offered by ORS) as well as lab or project-specific training elements provided by each PI. The final determination of which of the available biosafety courses are required for staff associated with a given protocol is made by the IBC during their review of the IBC protocol. The training programs currently offered by the ORS are described below:

COURSES AVAILABLE from ORS:

- **Biological Toxins**: This course covers the definition of and regulation of biological toxins as well as the safety, security, decontamination methods and occupational health in relation to working with biological toxins. Training for this course must be renewed every **3** years.
- **Biological Safety- Recombinant DNA at BSL1 (rDNA/BSL1)**: This course covers the difference between risk groups and biosafety levels, NIH and UChicago policies on recombinant DNA, and work commonly conducted at Biosafety level 1. Training for this course must be renewed every **3** years**.**
- **Biological Safety- Recombinant DNA at BSL2 (rDNA/BSL2)**: This course covers the difference between risk groups and biosafety levels, NIH and UChicago policies on recombinant DNA, work commonly conducted at Biosafety level 2, biosafety cabinets, occupational first aid, and biohazard spill response. Training for this course must be renewed every **3** years.

- **Biosafety Level 3 Operations**: This course is only available on an as-needed basis to individuals that will work with select agents required to be handled in a biosafety level 3 facility. After clearance is granted, individuals needing this training should contact the Biological Safety Team for availability and planning.
- **Bloodborne Pathogen for Biomedical Researchers (BBP)**: Material covered in this course includes OSHA standards for handling bloodborne pathogens (BBP), enforcement of those standards by the UChicago EH&S, the epidemiology and symptoms of BBP diseases, transmission, and UChicago's exposure control program covering housekeeping, spill response, personal protective equipment (PPE) and disposal of waste. Training for this course must be renewed **annually**.
- **Viral Vector Training**: Material covered in this course includes an overview of common viral vectors used in research laboratories, their mechanisms of entry into a host cell, and whether or not they can integrate into the host genome. Training for this course must be renewed every **3** years unless a significant change in legal or institutional policy or safety guidelines dictates a shorter time interval.
- **Select Agent Training:** Includes both Annual Biosafety, Biosecurity, Incident Response Training (Select Agent) and Annual Insider Threat Training (Select Agent) per the Select Agent SOP. This training is only applicable to those working at the HTRL and/or those working with select agents.

Providing Meeting Minutes to the Public

Background:

Section IV-B-2-a-(7) of the *NIH Guidelines* states: "*Upon request, the institution shall make available to the public all Institutional Biosafety Committee meeting minutes and any documents submitted to or received from funding agencies which the latter are required to make available to the public."*

Policy

Upon written request, the Institution will provide copies of minutes from meetings of its IBCs following their approval at a convened meeting of the IBC. Any production of IBC minutes for dissemination to the public will be redacted. Information to be redacted includes locations (laboratories, animal facilities, and offices), proprietary or commercial information, and specific information whose disclosure would directly compromise personal, institutional or national security.

PI Eligibility

The IBC follows URA Policy on PI Eligibility, which defines who is eligible to serve as Principal Investigator on an IBC protocol. Essentially, full time, salaried academics with the titles of Professor, Associate Professor, Assistant Professor, Instructor, Senior Scientist, Senior Research Associate, Research Scientist, or Research Associate with

parenthetical rank of Assistant Professor, Associate Professor, or Professor are eligible to serve as PI. For further details on eligibility or for information on procedures requesting PI status for an IBC protocol for those individuals lacking any of the above titles, please refer to URA Policy on PI Eligibility.

Viral Replication Competency Testing

The IBC requires certain replication-defective viral vectors to be tested on a regular basis to confirm the absence of replication competent viruses (RCVs). Requirements for RCV testing can be found here.

Transportation of Animals Following Administration of Biohazardous Agent

Transportation of animals following the administration of biohazardous agents must be described in the IBC protocol form and approved by the IACUC and the IBC. The description in the IBC protocol should include the route and the method of transport. This transportation information must be consistent to what has been approved by the IACUC. If patient care areas are involved in this transport, the review and approval of UC Medicine Infection Control is also required.

Antibiotic Sensitivity

For pathogenic microorganisms, drug susceptibility/resistance may be required. This determination will be made by the IBC.