Policy and Procedures for Research Involving Recombinant or Synthetic Nucleic Acid Molecules, Infectious or Bio-Hazardous Agents & Human Gene Transfer Research

I. Policy

All research conducted at or sponsored by Upstate Medical University, or conducted by employees of Upstate Medical University, which involves recombinant or synthetic nucleic acid molecules, human gene transfer, infectious agents, and/or fresh human tissue, , blood or body fluids must be reviewed by an Institutional Biosafety Committee ('IBC'). Work with recombinant or synthetic nucleic acid molecules must be conducted in accordance with NIH Guidelines.

The IBC is authorized to inspect research facilities, approve research practices and procedures, and to take actions, such as enforcement or cessation of research activities, in the event of an unsafe workplace situation.

If an Upstate investigator is conducting recombinant or synthetic nucleic acid molecule research at another institution, notification to the Upstate IBC is required, if the research is supported by funds administered by the Research Foundation of SUNY or other campus-related organizations. An application may be required for submission to the Upstate IBC. In any case, approval of the IBC at the host institution must be obtained prior to initiation of the activity.

The compliance office retains records for IBC approved projects for a minimum of three years following completion of a study.

IBC Composition:

The IBC is composed of a minimum of seven members. At least two members shall be unaffiliated with Upstate (apart from their membership on the IBC) to represent the interest of the surrounding community, with respect to health and protection of the environment; at least one member shall be a scientist with expertise in animal containment principles; at least two members shall be scientists with expertise in recombinant or synthetic nucleic acid molecule technology and physical containment; one member shall represent the laboratory technical staff; and the Institutional Biological Safety Officer, with expertise in biological safety, will also be a member of the committee.

Members are appointed to the Committee by the Vice President for research in consultation with the IBC Chair and Chief Compliance Officer for Research.

No member of the IBC may be involved (except to provide information requested by the Committee) in the review or approval of a project in which he/she has been or expects to be engaged or has a direct financial interest.

II. Definitions

A. Recombinant and Synthetic Nucleic Acid Molecules

In the context of the *NIH Guidelines*, recombinant and synthetic nucleic acids are defined as:

(i) molecules that a) are constructed by joining nucleic acid molecules and b) that can replicate in a living cell, i.e., recombinant nucleic acids;

(ii) nucleic acid molecules that are chemically or by other means synthesized or amplified, including those that are chemically or otherwise modified but can base pair with naturally occurring nucleic acid molecules, i.e., synthetic nucleic acids, or

(iii) molecules that result from the replication of those described in (i) or (ii) above.

B. Human gene transfer (HGT) research:

Human gene transfer is the deliberate transfer into human research participants of either:

1. Recombinant nucleic acid molecules, or DNA or RNA derived from recombinant nucleic acid molecules, or
2. Synthetic nucleic acid molecules, or DNA or RNA derived from synthetic nucleic acid molecules, that meet any one of the following criteria:
    a. Contain more than 100 nucleotides; or
    b. Possess biological properties that enable integration into the genome (e.g., *cis* elements involved in integration); or
    c. Have the potential to replicate in a cell; or
    d. Can be translated or transcribed.

Research cannot be initiated until Institutional Biosafety Committee and all other applicable institutional and regulatory authorization(s) and approvals have been obtained.

The deliberate transfer of recombinant or synthetic nucleic acids into one human research participant, conducted under a Food and Drug Administration (FDA) regulated individual patient expanded access Investigational New Drug (IND) or protocol, including for emergency use, is not research subject to the NIH Guidelines and thus does not need to be submitted to an IBC for review and approval.

C. Biohazardous Materials:

Pathogens at or above CDC defined Biosafety Level 2 or recombinant and Synthetic Nucleic Acid Molecules as defined by the NIH Guidelines.

III. Procedures for Reviewing Recombinant and Synthetic Nucleic Acid Molecule Research

Review by the IBC shall include: (i) independent assessment of the containment levels required by the *NIH Guidelines* for the proposed research; (ii) assessment of the facilities (a site visit may be required), procedures, practices, and training and expertise of personnel involved in recombinant DNA research.

The various types of recombinant and synthetic nucleic acid molecule experiments, as well as the relevant approval/notification requirements, are outlined in the NIH guidelines (posted in IRBNet and on the IBC website).

Submission of an Upstate IBC Application Form, BioSafety Manual, Personnel Form, and applicable Grant(s) is required for all experiments involving recombinant and synthetic nucleic acid molecules, *including those falling into the 'exempt' experiment category.*

If the application indicates that the proposed experiments are exempt or require only notification (not approval) to the IBC, the IBC Chair or his/her designee will review the materials for confirmation of investigator assessment, assessment of the facilities (a site visit may be required), procedures, practices, and training of personnel involved in the research. The investigator will be notified in writing (mail or email) if further information or changes are required. The IBC chair has the discretion to refer any project for review at a convened meeting of the IBC.

If the application indicates that approval (local, or local and federal) is required, review will be conducted at a convened meeting of the IBC, in which a quorum is confirmed. Action will be determined by a simple majority of votes. The investigator will be notified in writing (mail or email) of the results of the Institutional Biosafety Committee's review.

Once the project is approved, an approval letter with an expiration date will be issued, so that tracking for annual renewal can be initiated. Approval will be granted for a maximum of one year.

IV. Procedures for Reviewing HGT (human gene transfer) Research

For HGT (human gene transfer) Research, the focus of the IBC review is equivalent to the review of the biosafety aspects of other covered research, e.g.:

- required containment levels
- potential for shedding
- safety and training of laboratory/technical personnel involved in the clinical protocol
- details of the facilities
- adequacy and maintenance of safety equipment that may be used in support of the clinical protocol
- safety procedures and practices when working with the product and during administration to a protocol participant
- reporting of biosafety accidents and incidents occurring during conduct of the protocol
- approving emergency response plans for accidental spills and personnel contamination

Other aspects of HGT research, such as review of informed consent documents, are under the purview of the Food and Drug Administration and Institutional Review Boards.

Submission of an Upstate IBC Application Form, BioSafety Manual, Personnel Form, Protocol, Investigator Brochure(s) and any other product and/or sponsor information is required for all HGT Research.

The IBC will notify the Principal Investigator of the results of the Institutional Biosafety Committee's review, by mail or e-mail. Once the project is approved, an approval letter with an expiration date will be issued, so that tracking for annual renewal can be initiated. Approval will be granted for a maximum of one year.

IBC oversight may conclude after the last participant is administered the final dose of product. However, the IBC may choose to establish other end points for oversight, based on the biosafety assessment of the proposed research.

Required reporting for HGT research: The *NIH Guidelines* require that "…any significant problems, violations of the *NIH Guidelines*, or any significant research-related accidents and illnesses" be reported to NIH. Relevant incidents would include spills and accidents that result in overt exposures to organisms containing recombinant or synthetic nucleic acid molecules in the laboratory, rather than serious adverse events that may occur in the conduct of HGT research. **All such incidents are to be reported to the IBC Chair or Biological Safety Officer as soon as possible.**

IV. Procedures for Reviewing Research Involving Infectious or Biohazardous Agents

Review of the project shall include: (i) assessment of the containment levels required; and (ii) assessment of the facilities (a site visit may be required), procedures, practices, and training of personnel involved in the research.

Submission of an Upstate IBC Application Form, BioSafety Manual, Personnel Form and applicable Grant(s) is required for all experiments involving infectious or biohazardous agents.

The IBC Chair or his/her designee will review the materials for confirmation of investigator assessment, assessment of the facilities (a site visit may be required), procedures, practices, and training of personnel involved in the research. The IBC chair has the discretion to refer any project for review at a convened meeting of the IBC. The investigator will be notified in writing if further information is required.

Once the project is approved, an approval letter with an expiration date will be issued, so that tracking for annual renewal can be initiated. Approval will be granted for a maximum of one year.

V. Continuing Review of IBC Approved Projects

Annual Review of all IBC approved projects is required. An Annual Protocol Review Form and any other required materials (e.g., Safety Engineered Medical Device Survey) will be made available to the Investigator prior to the expiration date . The completed Report Forms should be submitted for review at least one week prior to the project's expiration date, to ensure a timely review.

The investigator will be required to submit a new application for review by the IBC Chair or Committee every five years to ensure compliance with the NIH and Institutional Guidelines.

Once the annual or 5-year renewal is approved, an approval letter with a new expiration date will be issued, so that tracking for annual renewal can be initiated. Approval will be granted for a maximum of one year.

VI. Amendments to Approved Projects

Prior to implementing any changes to an approved project, the Investigator will submit a memo outlining the proposed changes and applicable revised materials (e.g., IBC Application Form, BioSafety Manual, Personnel Form with all changes highlighter or tracked).

Amendments will be reviewed by the IBC Chair or an IBC member designated by the Chair and may be referred to the full committee for review if there is a change in risk to the public or employees or if required by the NIH guidelines. Once the amendment is approved, an approval letter will be issued.

VII. Principal Investigator Responsibilities

The IBC requires compliance with Principal Investigator's Responsibilities, as outlined in the NIH Guidelines, section IV.B.7, of the NIH

VIII. Training Requirements:

All employees must complete:

- Blackboard Training *(Required Annually)*
  - Laboratory Safety Course (#UH333)
  - Blood Borne Pathogens Course (#UH8794) (Required for BSL2 Labs)
- CITI Training *(Required every 4 years)*
  - Responsible Conduct of Research Course
- Training by their laboratory supervisor.

Questions concerning this policy or the IBC approval process may be directed to:

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