

**Stony Brook University
Institutional Biosafety Committee (IBC)**

**Policy and Procedures for Research Involving Recombinant or Synthetic Nucleic Acid
Molecules
(Including Human Gene Transfer research)
v.3.28.16**

I. Policy

The National Institutes of Health's Guidelines for Research Involving Recombinant or Synthetic Nucleic Acid Molecules (http://oba.od.nih.gov/oba/rac/Guidelines/NIH_Guidelines.pdf) and IBC application requirements (see procedure below) are applicable to all faculty, staff, students, and users of the facilities of this University who propose and conduct research involving recombinant or synthetic nucleic acid molecules, *regardless of source of funding*.

If a Stony Brook University investigator is conducting recombinant or synthetic nucleic acid molecule research at another institution, an application must be submitted to the IBC only if the research is supported by funds administered by the Research Foundation of SUNY or other campus-related organizations, as defined by University Policy P101. In any case, approval of the IBC at the host institution must be obtained prior to initiation of the activity.

II. Definitions

A. Recombinant and synthetic nucleic acid molecules (rsNAM):

- (1) **recombinant nucleic acid molecules:**
are constructed by joining nucleic acid molecules **and** can replicate in a living cell;
- (2) **synthetic nucleic acid molecules:**
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,

or

- (3) molecules that result from the replication of those described in (1), or (2) above.

B. 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.

III. Procedure

A. SBU uses the IRBNet electronic system for the IBC submission process. Instructions for use are available on the biosafety website here:

http://research.stonybrook.edu/sites/default/files/instructions_1.pdf

B. The various types of recombinant or synthetic nucleic acid molecule experiments, as well as the relevant approval/notification requirements, are outlined in the NIH guidelines, available at http://oba.od.nih.gov/oba/rac/Guidelines/NIH_Guidelines.pdf

C. Submission via IRBNet to the IBC of an IBC application, registration “smart” form, and grant applications (if external funding exists or is being sought) is required for all experiments involving recombinant or synthetic nucleic acid molecules, *including those falling into the 'exempt' experiment category.*

(1) First time submissions, tri-annual continuing review studies, and amendments and annual continuing review studies where significant changes to protocol detail or design are proposed (determined by the Office of Research Compliance –ORC- in consultation with the IBC chair) will be reviewed at a convened meeting of the IBC consisting of a quorum of members. Action will be determined by a simple majority of votes. Board actions, which are uploaded in IRBNet, may include:

- (a) Approved: accepted as submitted
- (b) Modifications Required: IBC conditions consist of requiring additional information or investigator concurrence as to required changes, and providing applicable uploaded revisions.
- (c) Deferral: IBC conditions consist of requiring substantive response from the investigator; response must come back to the committee for review at a convened meeting.
- (d) Disapproval: IBC finds that no revision to the study would permit the possibility of approval.

Once approved, an activity is valid, as written, for a maximum of one year. No changes may be made to the approved activity unless prior approval is first granted by the IBC.

It is the PI’s responsibility to maintain continued approval. Courtesy renewal e-reminders are sent in IRBNet 3 months, and again 2 months, before study expiration. If the study approval expires, the activity must stop until approval is re-issued by the IBC. See section V below for additional information.

(2) Minor, administrative amendments to IBC-approved studies, and studies that are undergoing continuing review for the first or second time with no changes or only personnel changes, are administratively reviewed and issued approval by ORC on behalf of the IBC, pending confirmation from the PI that EHS training requirements will be met.

(3) Minor, non-administrative, amendments to IBC-approved studies are reviewed and approved by the IBC chair.

D. Human Gene Transfer Research

In order for human gene transfer research to be considered, the protocol and consent form approved by the Committee on Research Involving Human Subjects (CORIHS; Stony Brook University's Institutional Review Board) MUST be uploaded into IRBNet in addition to the IBC application materials.

Investigators must review Appendix M of the NIH Guidelines, 'Points to Consider in the Design and Submission of Protocols for the Transfer of Recombinant or Synthetic Nucleic Acid Molecules into One or More Human Research Participants'; (<http://www4.od.nih.gov/oba/>), which includes mandated adverse event/safety reporting requirements, whereby investigators who have received approval from the Food and Drug Administration to initiate a human gene transfer protocol must report any serious adverse event immediately to CORIHS, IBC, Office for Human Research Protections of the DHHS, Office of Biotechnology Activities of NIH, and FDA, followed by the submission of a written report filed with each group.

E. Transgenic (Vertebrate, non-vertebrate) Animals

The Institutional Biosafety Committee's (IBC) Policy for the Approval of the Creation or Use of Transgenic Animals available in the IRBNet Designer Library. Transgenic work with *any* animal requires submission to the Office of Research Compliance of either:

(1) the registration form provided in Appendix A of the link above (for transgenic rodent strain creation requiring BL1 containment; note that IACUC approval also required)

or

(2) a complete IBC application (for all other transgenic animal activity).

IV. IBC-Approved Investigator's Responsibilities

The IBC requires compliance with Principal Investigator's Responsibilities, as outlined in section IV.B.7.d and IV.B.7.e of the NIH guidelines:

http://oba.od.nih.gov/oba/rac/Guidelines/NIH_Guidelines.pdf

Investigators conducting human gene transfer experiments must additionally accept responsibility for the requirements specified in Appendix M of those Guidelines.

V. Lapsed IBC Approval Policy

Upon lapse of approval for an IBC protocol, the PI of the study will receive an automatic notice from IRBNet, with cc to EH&S Biological Safety Officer (BSO) and IBC Chair, that all work covered under said approval MUST stop until notice of continued approval has been received from the IBC (via IRBNet).

In that notice, the PI will be instructed to reply within 48 hours to the BSO and IBC Chair that specifies either:

a) All work covered under the IBC protocol under question has been completed and no further approval is required (in which case the BSO will schedule a close-out inspection by EH&S within 10 working days)

or

b) Confirmation and acknowledgement of the requirement to stop all work covered under the protocol until renewed approval has been issued by the IBC.

If PI response is not received within 48 hours, BSO will post a written notice of the lapse in the approved lab space(s) to notify the PI and all lab staff of the Cease Work Order. (Attachment A)

Further, the PI will be required to:

- Provide a detailed summary on any work that took place after the date of the lapse in approval,
 - Submit a corrective action plan to prevent recurrence of the lapse of the all IBC approvals to the satisfaction of IBC,
 - Undergo inspection of the laboratory by EH&S,
- and
- Cooperate with the IBC and the Institution in providing all necessary information for mandated reporting within 30 days to NIH OBA, if applicable. Such report will include copy to the relevant chair and dean, and other institutional officials as applicable.

The convened IBC will consider all information required as above and render a decision regarding either project termination or renewed approval.

VI. Incident Reporting Policy

1. Any significant problems, violations of the *NIH Guidelines*, or any significant research-related accidents and illnesses relating to recombinant or synthetic nucleic acid molecule (rsNAM) work must be reported immediately (and no longer than 24 hours) to the IBC Administrator (within the ORC), the IBC chairperson, or the Institutional Biosafety Officer (BSO). Examples of problems, accidents or violations include:

- Breaches in biosafety during the conduct of an activity involving rsNAM.
- Release of rsNAM into the environment.
- Work involving rsNAM that is not covered by an approved IBC protocol.
- rsNAM work involving human-infectious viral vectors at BSL2 containment, previously approved by the IBC, that is conducted during a period of lapsed IBC approval.

Report made to any individual other than those referenced above will immediately be forwarded to the IBC Administrator for appropriate action.

2. Upon receipt of the above report, the IBC Chair or BSO will take any or all of the following actions, depending on the incident:

- Initiate steps to mitigate the incident.
- Initiate an investigation to obtain details of the incident.
- Notify and consult with appropriate SBU officials as deemed necessary.
- Where there have been overt exposures to biosafety level 2 or higher and/or potential exposures at biosafety level 3 or higher, the incident will be reported immediately to NIH/OBA.

The IBC Chair will report to the IBC on the matter either by special meeting or at their monthly meeting. The IBC may require additional investigation, explanation and corrective action plan from the investigator(s), suspend and/or terminate applicable IBC approval(s), and other actions deemed necessary given the known details of the incident.

3. With the exception of incidents identified in Section I that require immediate reporting to OBA, IBC will determine if the incident requires report to OBA (via the Incident Reporting template available at http://oba.od.nih.gov/oba/ibc/FAQs/Incident_Reporting_Template.doc). The relevant chair and dean will be copied on this report, which will occur within 30 days of the notification to the individuals referenced in Section I above.

The IBC will consider the OBA guidance on determining if incidents are reportable. This guidance is available at http://www.osp.od.nih.gov/sites/default/files/FAQs_about_Incident_Reporting.pdf

4. Reports to other agencies:

Any incidents that include the use of Biological Select Agents and Toxins (BSAT) will be immediately reported by the BSO to the BSAT Responsible Official (RO) in EH&S. Coordination of reports to CDC and other agencies for BSAT materials is the responsibility of the RO.

VII. Training of IBC Members

New IBC members will review and discuss with the Chair in an in-person orientation session, the following documents:

- NIH Guidelines (http://osp.od.nih.gov/sites/default/files/NIH_Guidelines.html)
- SBU Policy on rsNAM (<http://research.stonybrook.edu/policies/research-involving-recombinant-or-synthetic-nucleic-acid-molecules-rsnam>)
- NIH/OSP PPT: 'IBC self-assessment' (<http://osp.od.nih.gov/office-biotechnology-activities/biosafety-guidance-institutional-biosafety-committees/ibc-self-assessment-2014>)
- NIH/OSP PPT: 'Overview of the NIH Guidelines' (<http://osp.od.nih.gov/office-biotechnology-activities/institutional-biosafety-committees/overview-nih-guidelines>)
- NIH/OSP PPT: 'Requirements for IBCs' (<http://osp.od.nih.gov/office-biotechnology-activities/institutional-biosafety-committees/requirements-ibcs>),
- A Viral Vector Table, modified from University of Illinois at Urbana, that addresses risk group, hazard, BSL, ABSL and disinfection steps for 8 viral vectors.

VIII. Training for Investigators and Laboratory Staff:

Prior to final approval of an IBC activity, all investigators named on IBC applications must:

- Certify that they have reviewed the NIH/OSP documents: 'Overview of the NIH Guidelines' and 'IBC Investigator Responsibilities under the NIH Guidelines'.
- Complete Department of Environmental Health and Safety training. Depending on the type of research, investigators are required to complete training in General Laboratory Safety, Laboratory Safety for Biological Hazards, Hazardous Waste Management, Regulated Medical Waste Management, Laboratory Safety for Biological Hazards, and Bloodborne Pathogens.

IX. Inspection of rsNAM Laboratories

Laboratories in which rsNAM activities are conducted undergo inspection by the University's Biosafety Officer at the time of application submission to the IBC.

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

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