University of Louisville Institutional Biosafety Committee Procedures

May 2016

Approved by IBC on 5/4/2016
Approved by EVPRI on 5/10/2016

Institutional Biosafety Committee Procedures

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Regulations and Guidelines for Research Involving Hazardous Biological Materials

Date of Last Revision/Review: 05/2016

Compliance

Research involving recombinant and synthetic nucleic acids (r/s NA) and other hazardous biological materials that may pose safety, health or environmental risk to animals, humans or plants must comply with the federal, state, and local regulation and guidelines such as the National Institute of Health's Guidelines for Research Involving Recombinant or Synthetic Nucleic Acid Molecules (NIH Guidelines), the Occupational Safety & Health Administration's General Duty Clause and Bloodborne Pathogen Standard as published in the Federal Register.

Applicability

NIH Guidelines

The NIH guidelines are applicable to all recombinant and synthetic nucleic acid (r/s NA) research within the United States or its territories, which is conducted at or sponsored by an institution that receives any support for r/s NA research from the NIH.

Any individual receiving support for research involving r/s NA must be associated with or sponsored by an institution that can and does assume the responsibilities assigned in the NIH Guidelines. The safe conduct of experiments involving r/s NA depends on the individual conducting such activities.

Bloodborne Pathogen Standard

The Bloodborne Pathogen Standard (29 CFR 1910.1030) applies to all occupational exposure to blood or other potentially infectious materials found in body fluids and tissue/organ culture

Responsibility

It is the responsibility of University of Louisville (U of L) through its Institutional Biosafety Committee (IBC) and all personnel to adhere to applicable federal, state and local laws, regulations, and guidelines when performing research involving hazardous biological materials as well as to ensure best work practices to furnish an research environment which controls recognized hazards that are causing or are likely to cause death or serious harm to employees and the environment at large.

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Definition: hazardous biological materials	U of L considers the following agents hazardous biological materials: • Risk Group 2 and Risk Group 3 organisms • Synthetic and recombinant nucleic acid as defined by the NIH Guidelines • Select agents and toxins (as defined in 7 CFR Part 331, 9CFR Part 121, and 42 CFR Part 73) • Biological toxins • Prions • Materials of human or primate origin • Established human cell lines • Materials that could be considered Dual Use Research of Concern

Regulations and Guidelines for Research Involving Involving Hazardous Biological Materials

Regulations and guidelines

IBC procedures are based upon the following regulations and guidelines:

Publication	Description
Research Involving Recombinant and synthetic NA Molecules - NIH Guidelines	This document: • Provides guidelines for constructing and handling: – r/s NA molecules – Organisms containing r/s NA molecules • Requires that each institution establish an IBC with the authority to approve proposed r/s NA research using NIH Guidelines as a minimum standard
Biosafety in Microbiological and Biomedical Laboratories (BMBL) – published by the Centers for Disease Control and Prevention (CDC) and NIH	This document: • Contains guidelines for: – Microbiological practices – Safety equipment – Facilities • Constitutes the four established biosafety levels • Generally, is considered the standard for biosafety
Arthropod Containment Guidelines published by American Society of ~~Tropical Med~~icine and Hygiene/American Committee of Medical Entomology	This document: • Contains guidelines for: – Handling practices – Safety equipment – Facilities • Constitutes four Arthropod Containment levels Generally, is considered the standard for work with a variety of uninfected arthropods and those carrying infectious agents, and for work with transgenic vector arthropods in laboratory settings.

A Practical Guide to Containment: Greenhouse Research with Transgenic Plants and Microbes	This document provides guidelines for constructing and handling genetically modified: • Plants • Plant-associated organisms such as viruses, bacteria, fungi, protozoa, nematodes, insects, mites, and others
U of L Biosafety Manual	This document provides practical guidance on biosafety techniques for use in U of L laboratories at all levels. The U of L Biosafety Manual must be readily available to employees and employee representatives through their principal investigator, supervisor or departmental office. This document is available on the Biological Safety website.

Types of Activities that Require IBC Approval

Types

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For purposes of the U of L IBC**,** research involving hazardous biological materials includes the following:

Type	Description
Lab/benchtop	Lab/benchtop use in experiments involving the use of hazardous biological materials such as: • Recombinant or synthetic nucleic acids • Toxins • Prions • Viruses • Bacteria • Fungi • Protozoans • Primary cells, cell lines
Animals	Animals used in experiments such as: • Whole animals in which the animal's genome has been altered by stable introduction of recombinant or synthetic nucleic acid into the germ-line (transgenic animals) or somatic cells and CRISPR/Cas technology. • Viable wild-type or genetically-modified microorganisms tested on whole animals • Viable wild-type or genetically-modified arthropods tested on whole animals • Cells (primary and cultured) tested on whole animals • Toxins tested on whole animals • Prions tested on whole animals

Types of Activities that Require IBC Approval

Plants	Plants used in experiments such as: • Experiments to genetically engineer plants • Use of genetically engineered plants for other experimental purposes (e.g. response to stress) • Propagating such genetically engineered plants • Use of genetically engineered plants together with wild-type or genetically modified microorganisms or animals • Plant pathogens tested on whole plants • Infectious agents tested on whole plants
Humans	Humans participating in clinical trials involving human gene transfer which is defined as: Deliberate in vivo or ex vivo transfer of r/s NA, or r/s NA or RNA derived from r/s NA, or viable r/s NA-modified microorganisms into human research participants.

Types of Activities that Require IBC Approval

Location

U of L personnel are required to seek U of L IBC approval for research involving hazardous biological materials in any U of L or non-U of L location. The following are requirements of U of L personnel when work is conducted at various locations:

Location	Requirements
Affiliate institutions	Contact the U of L IBC office to find out if U of L provides the services of its IBC for research using biological hazardous materials conducted under the direction of U of L investigators at affiliate institutions.
Unaffiliated institutions	Research using biological hazardous materials conducted under the direction of U of L investigators at unaffiliated institutions needs review and approval of the U of L IBC and the IBC of the unaffiliated institution. To comply with the requirements of that institution, contact the unaffiliated institution's research office.

Principal Investigator Responsibilities

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Primary

The Principal Investigator (PI) has the following primary responsibilities:

- To submit the initial registration and any subsequent changes to the use of hazardous biological materials in a research study prior to initiation of research or changes
- To safely use hazardous biological materials in her/his laboratory

Additional

The table below describes additional PI responsibilities:

Type	Responsibilities
Procedures	• Review the applicable guidelines/regulations and become familiar with the safety procedures and requirements • Perform an initial risk assessment of the hazardous biological material(s) to determine the appropriate biosafety containment level and safety practices • Follow institutional policy and procedure in the procurement of hazardous biological materials • Develop laboratory safety procedures to minimize the risk of exposure specific to the laboratories or registration • Require adherence to good laboratory work practices • If animals are used, ensure: – Appropriate Special Animal Safety Protocols (SASPs) are completed and current – Labeling of cages/rooms are current and posted • If involved with Human Gene Transfer (HGT), ensure that no participants are enrolled in an HGT registration until the Recombinant DNA Advisory Committee (RAC), IBC and IRB review processes have been completed and all applicable regulatory authorizations obtained

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Principal Investigator Responsibilities, Continued

Additional

The table below describes additional PI responsibilities (continued):

Type	Responsibilities
Safety	• If needed consult with the Occupational Health Program (OHP) on appropriate medical surveillance for the work to be performed • Consult with the Department of Environmental Health and Safety (DEHS) on the appropriate biosafety level for the work to be performed • Request consultation with the IBC, if needed, to assist with planning of project safety and occupational health • Limit personnel, student, employee to the lowest possible exposure level and determine who may be at increased risk • Ensure the availability of medical surveillance services to all laboratory personnel that may have had an overt exposure required by OHP • Maintain accurate recordkeeping of all hazardous biological agents used in the laboratory • Provide for safe transportation of hazardous biological agents using guidelines developed by the DEHS • Ensure that waste is properly prepared for disposal
Reporting	• Immediately report significant problems and safety issues according to IBC procedures. See Significant Problems, Spills, Accidents and Safety Reporting. • Incident reports should include sufficient information to allow for an understanding of the nature and consequences of the incident, as well as its cause. See IBC Incident Reporting Template and Adverse Event Template.

Principal Investigator Responsibilities, Continued

Additional

The table below describes additional responsibilities (continued):

Type	Responsibilities
Training	• Be adequately trained in good microbiological practices and laboratory techniques as described in the BMBL • Personally train or arrange for the training of all employees and students who are directly or indirectly involved in experiments using hazardous biological materials before the personnel begin experiments using these agents. At a minimum, these instructions include training in aseptic techniques and in the biology of the organisms used in the experiments so that the potential biohazards can be understood and appreciated. • If animals are used - personally train or arrange for the training of research personnel, veterinary staff and animal husbandry staff working with these animals regarding specific safety techniques and work practices to be used so that the potential biohazards can be understood and appreciated • Inform laboratory staff of the reasons and provisions for any precautionary medical practices advised or requested • Make available to all laboratory staff, which may include veterinary and animal husbandry staff, the registrations that describe the potential biohazards and precautions to be taken such as: – Hazards and risks – Immunizations – Personal protective equipment required – Decontamination – Storage and disposal – Spill procedures – Dealing with accidents • Provide adequate personal protective equipment and instruction on its proper use

Research Staff Responsibilities

Date of Last Revision/Review: 05/2016

Laboratory personnel

Laboratory personnel have the following responsibilities:

- Ensure that:
  - Individual exposure to biological and infectious material is at the lowest possible level to minimize risk
  - Labeling, materials and equipment in the laboratory is current and accurate
  - Individual knowledge of decontamination and emergency procedures
- All required training is completed. Dispose of waste material per guidelines of the DEHS and maintain accuracy in disposal recordkeeping if required
- Immediately report significant problems and safety issues according to IBC procedures. See Significant Problems, Spills, Accidents and Safety Reporting.
- Incident reports should include sufficient information to allow for an understanding of the nature and consequences of the incident, as well as its cause. See IBC Incident Reporting Template and Adverse Event Template.

Institutional Biosafety Committee Roles and Responsibilities

Date of Last Revision/Review: 05/2016

Authority granted to the IBC

The U of L Institutional Biosafety Committee (IBC) is responsible for oversight of research and teaching activities at the University that involves hazardous biological materials to ensure these materials are received, used, stored, transferred and disposed of in accordance with applicable laws and regulations to provide appropriate safeguards for human health and the environment.

The IBC reviews and approves all activity involving hazardous biological materials unless otherwise exempted under federal regulations.

This authority applies to activities and/or research involving hazardous biological materials that are any of the following:

- Sponsored by U of L
- Conducted by U of L faculty members
- Conducted using U of L property or facilities
- Stored at any U of L facilities

The IBC procedures apply to all faculty, staff, students, visitors, and agents and their employees engaged in activities and/or research involving hazardous biological materials.

Institutional official

The Institutional Official is appointed by the President of U of L and has responsibility for establishing and maintaining the IBC bylaws and policies that provide for the safe conduct of hazardous biological materials research and that ensure compliance with the NIH Guidelines. The Institutional Official may delegate the day-to-day responsibility for the review and oversight activities as s/he deems appropriate.

To this end, the Institutional Official ensures that sufficient resources, including meeting space and staff, are provided to support the IBC's review and responsibilities.

Institutional Biosafety Committee Roles and Responsibilities, Continued

Chair

The IBC Chair is appointed according to the IBC bylaws. The Chair shall be an experienced scientific investigator with respect to research involving hazardous biological materials.

The Chair conducts each meeting in an orderly manner as follows:

- Chairs the IBC meetings
- Conducts business so that each proposal is fairly and completely reviewed
- Sees that the IBC reaches a decision on the disposition of each proposal
- Ensures that these decisions are communicated to the individuals who submitted the proposal
- Acts as liaison between the academic community and the IBC
- Designates an IBC member to serve as interim Chair in the Chair's absence

The IBC Chair has these duties:

- Ensures that members are adequately trained to fulfill their responsibilities
- Reviews IBC policies and procedures at least annually to confirm current compliance with the federal, state, and local laws and regulations
- Works in collaboration with the BSO to establish and implement IBC procedures and practices

The Institutional Official may relieve an individual as IBC Chair for failure to fulfill the duties listed above or:

- For failure to perform the duties of an IBC member, including failure to attend at least 80% of the IBC meetings held within any 12-month period
- For misconduct, conflict of interest, or argumentative behavior such that review of research by the IBC is made difficult or impossible

Institutional Biosafety Committee Roles and Responsibilities, Continued

Biosafety officer

The NIH Guidelines require a Biological Safety Officer (BSO) when the institution:

- Conducts recombinant DNA research at Biosafety Level (BL) 3 or BL 4
- Engages in large-scale research

The BSO has the following authority and responsibilities:

- Serves as a reviewing member of the IBC
- Conducts initial and periodic inspections of laboratories and of facilities where research is done using hazardous biological materials
- Reports results of these inspections to the IBC
- Provides:
  - Advice on laboratory security
  - Technical advice to Principal Investigators and the IBC on research safety procedures
- Develops template emergency plans for handling accidental spills and personnel contamination for review and approval of the IBC for each r/s NA registration invoking such plans
- Reports to the IBC and the institution any of the following that have not already been reported by the Principal Investigator:
  - Significant problems
  - Violations of the NIH Guidelines
  - Significant research-related accidents or illnesses
  - Note: Reports according to the IBC procedures: Significant Problems, Spills, Accidents and Safety Reporting, and Handling Significant or Continuing Non-Compliance as applicable

Institutional Biosafety Committee Roles and Responsibilities, Continued

Membership

The Institutional Biosafety Committee (IBC) is appointed by the Executive Vice President for Research and Innovation (EVPRI) in consultation with or at the request of the IBC chair and BSO to ensure membership composition requirements are met. The committee shall be made up of at least eight members with a collective experience and expertise in:

- Synthetic and recombinant nucleic acid technology
- Assessment of the safety of research using r/s NA and other biological hazardous agents
- Identification of any potential risk to public health or the environment

Individuals on the committee include:

- Faculty and staff (at least five of which must be faculty)
- BSO
- Two members from the local community not otherwise affiliated with U of L
- Any others invited to serve when their expertise is required
- Ex officio members shall include representatives from the following offices:
  - Chair or designate of the University of Louisville IACUC and IRB
  - DEHS director or designate
  - Director of the Research Resources Facilities or designate

The term of membership on the committee is a 3-year renewable period.

Institutional Biosafety Committee Roles and Responsibilities, Continued

Committee responsibilities

The IBC is charged with the following responsibilities which are further delineated in the relevant sections of this manual:

Type	Description

Institutional Biosafety Committee Roles and Responsibilities
Continued

Registrations	• Review research using hazardous biological agents conducted at or sponsored by U of L for compliance with the NIH Guidelines and other applicable laws and regulations as well as best practices. This review includes at a minimum: – Independent assessment and assignment of the containment levels for the proposed research – Assessment of the facilities, procedures, practices, and training and expertise of personnel involved in research to assure appropriate safety – For human gene transfer, verification: > That all aspects of Appendix M have been appropriately addressed by the Principal Investigator; > That no research participant is enrolled in a human gene transfer experiment until the RAC review process has been completed, Institutional Biosafety Committee approval (from the clinical trial site) has been obtained, Institutional Review Board approval has been obtained, and all applicable regulatory authorizations have been obtained; > That for human gene transfer registrations selected for public RAC review and discussion, consideration of the issues raised and recommendations made as a result of this review and consideration of the Principal Investigator's response to the RAC recommendations have been addressed; > That final IBC approval is granted only after the RAC review process has been completed; and > That all surveillance, data reporting, and adverse event reporting requirements are compliant with NIH Guidelines • The regular IBC member may provide his/her review without being present at the fully convened IBC meeting • Reduce proposed containment levels as indicated for

	• Set containment levels and modify containment levels for ongoing experiments • Periodically review ongoing research using hazardous biological materials conducted at the institution to ensure compliance with the NIH Guidelines and other applicable laws and regulation • Notify the principal investigator of IBC review and approval

Institutional Biosafety Committee Roles and Responsibilities, Continued

Committee responsibilities (continued)

The IBC is charged with the following responsibilities which are further delineated in the relevant sections of this manual (continued):

Type	Description
Inspections	• Periodic inspections of laboratories where research using hazardous biological materials is performed to ensure that the laboratory standards as described in the NIH Guidelines and the BMBL are rigorously followed • Individual(s) performing inspections must have at least the following expertise: – Biological safety techniques and practices – Containment practices – Familiarity with BMBL and Appendices G, K, P, and Q of the NIH Guidelines
Reports	• Reports according to the IBC procedures, see Significant Problems, Spills, Accidents and Safety Reporting: – Substantial problems – Violations of the NIH Guidelines – Significant research-related accidents or illnesses • Reviews all accident reports for: – Instances of deviations from safety rules and security regulations – Violations of NIH requirements – Determination of the course of corrective action(s) to be taken • Receives and reviews periodic reports on: – Monitoring contamination – Personnel monitoring – Inspections – Waste disposal programs – Medical surveillance – Other biosafety matters

Institutional Biosafety Committee Roles and Responsibilities, Continued

Committee responsibilities (continued)

The IBC is charged with the following responsibilities which are further delineated in the relevant sections of this manual (continued):

Type	Description
Plans	• Implements contingency plans for handling: – Accidental spills – Personal contamination resulting from research using hazardous biological agents • Oversees the development and maintenance of written biological safety/infectious disease control plans: – Makes the plans available to the institutional community – Recommends updates to the plan as needed • Oversees the development of educational programs related to safety when working with hazardous biological materials
Seeks consultation	• May consult with the University Counsel to address issues pertaining to institutional policies, applicable laws, and standards of conduct and practice • Invites consultants knowledgeable in community attitudes and the environment to its meetings as necessary to assist in any review, but such consultants shall not vote
Meetings	• Conducts IBC meetings on a regular basis

List of members

Go to the IBC Committee link for names and contact information.

Support Staff Organizational Structure

Date of Last Revision/Review: 05/2016

Introduction

This topic describes the organizational structure of the IBC support staff.

Reporting lines and supervision

The reporting lines and supervision for the IBC organization follow:

- The IBC Administrator reports to the Biosafety Officer
- The IBC Administrator takes direction from the IBC Chair regarding hazardous biological materials research issues

Staff training and development

This table lists the initial requirements for the training and professional development of the IBC staff:

Position	Requirement
IBC administrator	• Must complete the Biosafety Office on-the-job training • Are expected to attend: – National or regional IBC conferences on a periodic basis – Continuing education opportunities at the U of L or neighboring institutions Expenses: Resources to accomplish requirements will be provided.

Responsibilities of the IBC Administrator and Staff

Date of Last Revision/Review: 05/2016

Introduction This topic discusses the responsibilities of those persons who support the IBC members.

Requirement The IBC Administrator is responsible for ensuring that IBC functions are accomplished in a professional fashion that complies with all relevant regulatory requirements.

Responsibilities This table lists the responsibilities by area of responsibility:

Area	Responsibilities
Initial review	Conducting a limited pre-review of incoming applications to ensure completeness and as otherwise directed by the IBC
Before meetings	• Assisting new IBC members in completing orientation procedures and meeting required education standards • Scheduling IBC meetings • Distributing pre-meeting materials with sufficient time to allow IBC members an opportunity to review them in preparation for the meeting • Tracking the progress of each research registration submitted to the IBC
Communication	• Serving as a resource for investigators on general regulatory information and providing guidance about forms, submission procedures, and general research related issues • Facilitating communication between investigators and the IBC • Drafting reports and correspondence to research investigators on behalf of the IBC or IBC Chairperson regarding: – The status of the research – Including conditions for initial or continuing approval of research and responses to reports of adverse events or unanticipated problems – Significant research related accidents or illnesses • Assisting in evaluation, audit, and monitoring of hazardous biological material research as directed by the Biosafety Officer, IBC and/or the Institutional Official

Responsibilities of the IBC Administrator and Staff, Continued

Responsibilities (continued)

This table lists the responsibilities by area of responsibility (continued):

Area	Responsibilities
Records	• Maintaining the official roster of IBC members • Compiling the minutes of IBC meetings in compliance with regulatory requirements • Securely and properly archiving all IBC records • Maintaining all IBC documentation and records in accordance with regulatory requirements

Record Requirements

Date of Last Revision/Review: 05/2016

Introduction

This topic discusses the requirements for records to maintain the IBC reviews.

Document flow procedures

The IBC Administrator is responsible for developing and implementing procedures for efficient document flow.

Findings and determinations

IBC records include documentation of all IBC findings and determinations.

IBC records defined

At a minimum, IBC records must include all information:

- Required under the NIH Guidelines
- Recommended by official (written) National Institutes of Health Office of Biotechnology Activities (OBA) guidance

File organization

IBC files are organized such that the following information may be readily accessed:

File	Contents
General	• Written IBC operating procedures • Research (registration) tracking system • IBC membership roster • IBC research application (registration) files
Review results	Documentation of: • Exemptions from NIH Guidelines • Biosafety Office reviews • IBC findings and review

Record Requirements, Continued

File organization (continued)

IBC files are organized such that the following information may be readily accessed (continued):

File	Contents
After review documentation	• Documentation of convened IBC meetings – minutes • All correspondence to and from the IBC • Adverse event reports • Significant problems with or violations of the NIH Guidelines • Any significant research-related accidents or illnesses

IBC membership rosters

All IBC membership rosters include at least the following information:

- Names of IBC members
- Earned degrees and specialties of each member, if applicable
- The representative capacity of each member or ad hoc member as:
    - Scientist or non-scientist
    - Affiliated or non-affiliated
- Indications of experience of members sufficient to describe each member's chief anticipated contributions to the IBC deliberations
- Any employment or other relationship with the College or its components

Changes

Any changes in IBC membership are reported as required by applicable OBA guidance.

Voting and Non-Voting Members

Voting members include: Chairperson, Vice-Chairperson(s), and Members.

Non-voting members include: Ex officio members (i.e. consultants such as compliance personnel) and ad hoc members.

File Requirements

Date of Last Revision/Review: 05/2016

Introduction

This topic discusses the files required to support the IBC reviews.

IBC research application (registration) files

The IBC maintains a separate file for each research application (registration) that it receives for review.

Retention

Such files are kept for a period not less than three years after closure.

File contents

Each IBC research application (registration) file contains at least the following materials:

Classification	Materials
IBC approval review	• The IBC Research Application (Registration) • Documentation of type of IBC review • For human gene transfer applications: – A copy of the HHS-approved sample informed consent document and the complete HHS-approved protocol, if they exist – Investigator brochure or full protocol, if sponsored trial – A copy of section M – Copies of correspondence with the Recombinant DNA Advisory Committee (RAC) and/or OBA
Changes	• Applications for registration amendments or modifications • Continuing review progress reports and related information
Special challenges	• Reports of significant events and injuries • Reports of injuries to subjects and adverse events occurring within the College or its components (or involving its employees or agents) and reported to any regulatory agency • Reports of external adverse events and safety reports received from sponsors or cooperative groups
Continuing review and monitoring	• All IBC correspondence to and from research investigators, government agencies, or sponsors • All other IBC correspondence related to the research • Documentation of all IBC review and approval actions, including initial and continuing convened (full) or Biosafety Office review of research • Documentation of type of IBC review
Upon completion	• Documentation of Project Closeout • For human gene transfer: Documentation of statements of significant new findings provided to subjects

Materials for Submission and Review

Date of Last Revision/Review: 05/2016

Forms

All forms for use in this procedure may be accessed on-line on the IBC website.

Submission deadlines can be obtained from the IBC website on registration deadlines.

The table below indicates the application types:

Type	Procedure
Initial Review	• Principal Investigators must complete and submit the appropriate form in iRIS to request authorization for experimentation involving hazardous biological agents to the IBC • Important: Human Gene Transfer requires additional document submissions of: – NIH Appendix M – RAC correspondence – Investigator brochure or full protocol – Informed consent
Amendment	The U of L defines an amendment to be any change to an approved registration regardless of how minor. • Investigators must seek the approval of IBC before changing the conduct of the study, since these may change the risk to human health or the environment

Materials for Submission and Review, Continued

Forms (continued) The table below indicates the application types (continued):

Type	Procedure
Continuing Review	After one, three, or five years, the entire application must be resubmitted and reviewed by the committee.
Problem/Safety Report	Spills, accidents, non-compliance and other problems must be reported according to IBC Incident Reporting Template.
HGT Serious Adverse Event Reporting	Serious adverse events, illnesses and safety reports that may be associated with the use of the gene transfer product in human gene transfer must be reported using the NIH/OBA Adverse Event Template.
Closure Report	Principal Investigators must notify the IBC and DEHS of intentions to close an IBC-approved research activity when: • A principal investigator commits to departure from U of L • A project is completed • The project is no longer active • Proper disposal of the hazardous biological material has occurred • When the Principal Investigator is no longer in possession of the material

Materials for Submission and Review, Continued

Proprietary information

The Principal Investigator must notify the IBC and the Office of Technology Transfer of any proprietary information within the registration as soon as possible, including:

- New and/or novel ideas
- Information specified as proprietary in any written contract or agreement
- New commercial uses of a process, device, or chemical
- Potentially patentable items

Questions related to proprietary information should be directed to the Office of Technology Transfer.

Risk Assessment

Date of Last Revision/Review: 05/2016

How is risk determined?

Determining the risk group (RG) classification and assessing risk factors are both components in assigning an appropriate biosafety level (BSL) to a research project.

PI responsibilities

It is the Principal Investigator's responsibility to:

- Use NIH Guidelines, Appendix B (Classification of Human Etiologic Agents on the Basis of Hazard), BMBL or other available sources to assess risk level
- Prior to initiating research involving hazardous biological materials, conduct a risk assessment to determine the appropriate level of:
  – Perceived risk
  – Biological and physical containment level
- Contact the DEHS for more information on classifications of:
  – Risk group
  – Biosafety level

Risk group classification

The Principal Investigator determines the risk group (RG) classification of an agent to prevent or reduce the risk of laboratory-associated infections.

The table below lists the risk group number and the likelihood that an agent will harm, injure, or cause disease in humans:

Risk Group #	Agents are...
RG-1	Not associated with disease in healthy adult humans
RG-2	• Associated with human disease which is rarely serious • Preventive or therapeutic interventions are often available
RG-3	• Associated with serious or lethal human disease • Preventive or therapeutic interventions may be available
RG-4	• Likely to cause serious or lethal human disease • Preventive or therapeutic interventions are not usually available

Risk Assessment, Continued

Risk factors

The Principal Investigator considers the following biohazard risk factors when assessing risk to determine the level of containment needed:

Biohazard Factors	Description
Pathogenicity	Consideration should include: • Disease incidence • Severity
Route of transmission	Examples: parenteral, airborne, by ingestion Strongly consider the potential for aerosol transmission when planning to work with: • A relatively uncharacterized agent • Uncertain mode of transmission
Agent stability	Consider factors such as: • Desiccation • Exposure to: – Sunlight – Ultraviolet light – Chemical disinfectants
Infectious dose and communicability	Consideration should include the range from the healthiest immunized worker to the worker with lesser resistance
Concentration	Include consideration of the: • Milieu containing the organism • Activity planned Examples: • Solid Tissue • Viscous blood or sputum • Liquid medium

Continued on next page

Risk Assessment, Continued

Risk factors (continued)

The Principal Investigator considers the following biohazard risk factors when assessing risk to determine the level of containment needed (continued):

Biohazard Factors	Description
Origin	Consider factors such as: • Geographic location • Host • Nature of the source
Availability of animal studies	This information may be useful in the absence of human data
Availability of immunization, vaccine, or treatment	The unavailability of immunization, vaccine or treatment may impact the risk involved in the use of biohazardous materials
Gene product effects	Consider the following: • Toxicity • Physiological activity • Allergenicity
Special consideration should be used in the evaluation of containment levels and conditions of experiments that: • Involve transgenic animals • Are likely to enhance pathogenicity • Extend the host range or viral vectors under conditions that permit a productive infection Note: Upon review, the IBC may require an increased containment/safety level.	

Continued on next page

Risk Assessment, Continued

Biosafety levels

The determination of the risk group and risk factors are used to set the appropriate biosafety level (BSL).

The biosafety level describes the degree of physical containment required to:

- Confine biohazardous materials
- Reduce the potential for exposure to:
  – Laboratory workers
  – Persons outside the lab
  – The environment

The table below describes the biosafety containment levels:

Biosafety Level	Description of Biohazard
BSL-1	Minimal potential hazard to laboratory personnel and the environment
BSL-2	• Moderate potential hazard to personnel and the environment • Associated with: – Human disease which is rarely serious – Preventive or therapeutic interventions are often reliable
BSL-3	Associated with: • Human disease which may have serious or lethal consequences • Has a potential for aerosol transmission
BSL-4	Dangerous and exotic agents that pose a high individual risk of: • Aerosol-transmitted laboratory infections • Life-threatening disease <u>Important</u> U of L: • Does not have any laboratories certified for BSL-4 • Does not allow possession or use of biohazardous materials requiring this level

Risk Assessment, Continued

Final BSL determination	The biosafety level may be: • Equivalent to the risk group (RG) classification of the agent • Raised or lowered based on the evaluation of risk factors The IBC: • Makes the final determination of the appropriate biosafety level • Answers any questions regarding the risk assessment or appropriate containment level
Animal biosafety levels	The animal facility director establishes policies and procedures for emergency situations. Animal protocols describing the research involving hazardous biological agents are subject to approval by the IACUC and IBC and any special practices must be approved by them. Below is a summary of animal biosafety levels (ABSL) for protocols using vertebrate animals: More detailed information is available in the BMBL.

Risk Assessment, Continued

ABSL summary

Animal Biosafety Level	Agents are...	Practices	Safety Equipment (Primary Barriers)	Facilities (Secondary Barriers)
ABSL-1	Not known to cause disease in healthy human adults	Standard animal care and management practices, including appropriate medical surveillance programs	As required for normal care of each species	Standard animal facility: • Non-recirculation of exhaust air • Directional air flow recommended
ABSL-2	Associated with human disease Hazard: • Percutaneous exposure • Ingestion • Mucous membrane exposure	ABSL-1 practices plus: • Limited access • Biohazard warning signs • Sharps precautions • Biosafety manual • Decontamination of all infectious wastes and of animal cages prior to washing	ABSL-1 equipment plus: • Primary barriers • Containment equipment appropriate for animal species PPEs: • Laboratory coats • Gloves • Face and respiratory protection as needed	ABSL-1 facility plus: • Autoclave available • Handwashing sink available in the animal room
ABSL-3	• Indigenous or exotic agents with potential for aerosol transmission • Disease may have serious health effects	ABSL-2 practices plus: • Controlled access • Decontamination of clothing before laundering • Cages decontaminated before bedding removed • Disinfectant foot bath as needed	ABSL-2 equipment plus: • Containment equipment for housing animals and cage dumping activities • Class I or II BSCs available for manipulative procedures (inoculation, necropsy) that may create infectious aerosols PPEs: Appropriate respiratory protection	ABSL-2 facility plus: • Physical separation from access corridors • Self-closing, double door access • Sealed penetrations • Sealed windows • Autoclave available in facility

ABSL-4	• Dangerous or exotic agents which pose high risk of life-threatening disease or aerosol transmission • Related agents with unknown risk of transmission	ABSL-3 practices plus: • Entrance through change room where personal clothing is removed and laboratory clothing is put on • Shower on exiting • All wastes are decontaminated before removal from the facility	ABSL-3 equipment plus: Maximum containment equipment (i.e., Class III BSC or partial containment equipment in combination with full body air-supplied positive-pressure personnel suit) used for all procedures and activities	ABSL-3 facility plus: • Separate building or isolated zone • Dedicated supply/exhaust, vacuum and decontamination systems • Other requirements outlined in the Laboratory Biosafety Manual produced by the WHO/NIH/CDC

More information

Visit the IBC website or the DEHS website for additional information on handling and disposal recommendations involving:

- Infectious biological agents
- r/s NA
- Toxins

U of L related standards

U of L Biosafety Manual

Date of Last Revision/Review: 05/2016

Introduction	This topic discusses the process used to determine that an activity is exempt from IBC review.
PI's submission	The Principal Investigator may request on the IBC registration form in iRIS that a research activity be considered exempt from IBC review indicating that the activity meets the following criteria for exemption.

Exempt review categories of research

Below lists the experiments under which an exemption may be determined as set forth by Section III-F of the NIH Guidelines.

The following r/s NA molecules are exempt from the NIH Guidelines (Section III F) but registration with the Institutional Biosafety Committee is required:

- Those synthetic nucleic acids that: (1) can neither replicate nor generate nucleic acids that can replicate in any living cell (e.g., oligonucleotides or other synthetic nucleic acids that do not contain an origin of replication or contain elements known to interact with either DNA or RNA polymerase), and (2) are not designed to integrate into DNA, and (3) do not produce a toxin that is lethal for vertebrates at an LD50 of less than 100 Nano grams per kilogram body weight. If a synthetic nucleic acid is deliberately transferred into one or more human research participants and meets the criteria of Section III-C, it is not exempt under this Section.
- Those that are not in organisms, cells, or viruses and that have not been modified or manipulated (e.g., encapsulated into synthetic or natural vehicles) to render them capable of penetrating cellular membranes.
- Those that consist solely of the exact recombinant or synthetic NA sequence from a single source that exists contemporaneously in nature.
- Those that consist entirely of NA from a prokaryotic host, including its indigenous plasmids or viruses when propagated only in that host (or a closely related strain of the same species), or when transferred to another host by well-established physiological means.
- Those that consist entirely of nucleic acids from a eukaryotic host including its chloroplasts, mitochondria, or plasmids (but excluding viruses) when propagated only in that host (or a closely related strain of the same species).
- Those that consist entirely of DNA segments from different species that exchange DNA by known physiological processes, though one or more of the segments may be a synthetic equivalent. A list of such exchangers will be prepared and periodically revised by the NIH Director with advice of the RAC after appropriate notice and opportunity for public comment (see Section IV-C-1-b-(1)-(c), Major Actions). See Appendices A-I through A-VI, Exemptions under Section III-F-6--Sublists of Natural Exchangers, for a list of natural exchangers that are exempt from the NIH Guidelines.
- Those genomic DNA molecules that have acquired a transposable element, provided the transposable element does not contain any recombinant and/or synthetic DNA.
- Those that do not present a significant risk to health or the environment as determined by the NIH Director, with the advice of the RAC, and following appropriate notice and opportunity for public comment. See NIH Guidelines Appendix C, Exemptions under Section III-F-6 for other classes of experiments which are exempt from the NIH Guidelines.

Initial Review for Exemptions, Continued

Who verifies	All exemptions requested for proposed activities using hazardous biological material conducted at the U of L or by its employees or agents must be reviewed to determine if they meet the regulatory criteria for exempt research. Exemption of these research activities must be verified by one of the following: • The IBC Chairperson • The BSO • An experienced current member of the IBC, in consultation with the BSO or IBC Chairperson The determination of whether hazardous biological research activities are exempt from IBC review requires a sophisticated level of expertise and is made by the institution, not by the individual investigators proposing the
Documentation for exemptions	Documentation of the verified exemptions consists of the reviewer's written concurrence in the IBC Research Review File that the activity described in the Investigator's Application for Exempt Research satisfies the conditions of the cited exemption category. The investigator proposing the activities will receive a notification stating the determination.

Designated Review of Research, Continued

Date of Last Revision/Review: 05/2016

Introduction

This topic discusses the Biosafety Office path for a review of the research.

IBC review

Under the Biosafety Office review procedure, the Biosafety Officer or other members of the Biosafety Office designated by the Biosafety Officer may:

- Review and approve the research on behalf of the IBC
- Review and approve the research on behalf of the IBC requiring modifications (to secure approval)
- Request additional information
- Forward the application to the fully convened IBC when, in the opinion of the Biosafety Office reviewer(s), the research does not meet the Biosafety Office review criteria described above in the applicable section

Criteria

Certain categories of research may be reviewed by the IBC using the Biosafety Office review procedure:

- Use of RG-1 organisms
- Use of human or primate materials
- Minor changes to previously approved research

Definition of minor changes

U of L defines a minor change to be one that makes no substantial alteration in any of the following:

- The source(s) or DNA
- The nature of the inserted DNA sequences
- The host(s) and vector(s) to be used
- If an attempt will be made to obtain expression of a foreign gene, and if so, indicate the protein that will be produced
- The containment level
- The assessment of the facilities, procedures, practices, and training and expertise of personnel involved in hazardous biological agent research
- The Appendix M
- The compliance with all surveillance, data reporting, and adverse event reporting requirements
- Any factor that might warrant full committee review

Designated Review of Research, Continued

Documentation	Documentation for Biosafety Office reviews is maintained in IBC records and includes the circumstances that justify using Biosafety Office review procedures.
Reporting	The IBC staff keeps all IBC members advised of research that has been approved under Biosafety Office procedures by providing a list of the research approved by Biosafety Office review procedures to the IBC members at the next convened meeting of the IBC following such approval.

Criteria for Full Board Review of Research

Date of Last Revision/Review: 05/2016

Criteria for full board review

The following hazardous biological material research requires review and approval at a convened meeting of the majority of the IBC members:

- The deliberate transfer of a drug resistance trait to microorganisms that are not known to acquire the trait naturally
- The deliberate formation of r/s NA containing genes for the biosynthesis of toxin molecules lethal for vertebrates at an LD_{50} of less than 100 Nano grams per kilogram body weight (e.g., microbial toxins such as the botulinum toxins, tetanus toxin, diphtheria toxin, and *Shigella dysenteriae* neurotoxin)
- The deliberate transfer of r/s NA, or DNA or RNA derived from r/s NA, into human research participants)
- Experiments using Risk Group 2, Risk Group 3, Risk Group 4, or Restricted Agents as host-vector system or experiments in which DNA from Risk Group 2, Risk Group 3, Risk Group 4, or Restricted Agents is cloned into nonpathogenic prokaryotic or lower eukaryotic host-vector systems
- Experiments involving the use of infectious DNA or RNA viruses or defective DNA or RNA viruses in the presence of helper virus in tissue culture systems
- Experiments involving whole animals or plants and r/s NA, or DNA or RNA derived from r/s NA
- Experiments involving more than 10 Liters of culture of r/s NA, or DNA or RNA derived from r/s NA
- Experiments involving the formation of r/s NA molecules containing more than two-thirds of the genome of any eukaryotic virus
- Experiments involving Risk Group 2 or Risk Group 3 organisms
- Experiments involving Select Agents or Toxins
- Experiments involving biological toxins

IBC Meeting Rules of Conduct

Date of Last Revision/Review: 05/2016

Meeting Frequency

Meetings are held regularly with a minimum of 4 per year, see Meeting Dates.

Ad hoc

The IBC Chair may call an ad hoc meeting of the IBC as necessary to address the following issues involving hazardous biological materials research at U of L:

- Non-compliance
- Serious and/or unexpected events

Materials

Prior to the regular meeting, each member shall receive a copy of materials to be reviewed at the meeting.

Meeting

The IBC conducts initial and continuing reviews of all non-exempt research that do not meet Biosafety Office review criteria at a fully convened IBC meeting.

- At least 8 members must be present to have a quorum for a convened IBC meeting.
- IBC members may participate in convened IBC meetings via telephonic and video conferencing
- The IBC Administrator or designee is responsible for making the determination of whether an IBC meeting is appropriately convened with a quorum and when the convened IBC meeting loses quorum
- All IBC members are afforded full opportunity to discuss each research proposal during the convened meeting
- For research to be approved, it must receive the approval of a majority of those members present

Attendance

The IBC may open its meetings to the public when possible and consistent with the protection of privacy and proprietary interest.

Anyone interested in participating must contact the IBC to coordinate their attendance.

Contact: IBC Administrator
Department of Environmental Health and Safety
1800 Arthur Street
Louisville, KY 40208
E-mail: biosafe@louisville.edu
Phone: 502-852-6670

Primary and Team Reviewer System

Date of Last Revision/Review: 05/2016

Introduction

The IBC utilizes the Primary and Team Reviewer System to assist in the initial and continuing review of research by the convened IBC.

Primary/team reviewers

The Primary, Secondary and Team Reviewer(s) are considered to be the lead reviewers for research proposals assigned to them. All IBC members are expected to review the materials provided to them in order to make an informed decision regarding the research at the convened meeting.

Note*:* Continuing reviews and amendments may be reviewed by a single primary reviewer.

Assignment

The IBC Administrator in consultation with the IBC Chair assigns registrations upon receipt of a complete set of IBC application materials:

- To one primary and a secondary reviewer based on their scientific and scholarly expertise
- To an additional and/or consultant member identified by the chair in consultation with the BSO if members request additional expertise
- Approximately 5 days before the meeting date when that registration is to be discussed and voted upon

Continued on next page

Primary and Team Reviewer System, Continued

Reviewer responsibilities

The Primary and Secondary Reviewers

- Review for all elements required for approval. See Approval Criteria.
- Ask the IBC staff to seek clarification from the investigator as needed before the convened meeting or contact individual investigators for clarification
- Prepare a brief summary of the registration to the Board as follows:
  - The summary must include the discussion basis for the approval of the research, requiring changes in (approved with modifications or tabled) the research registration; or disapproving the research registration
  - The summary may include a pre-meeting motion based on the review of the registration.
- Lead the discussion of the proposed research at the convened meeting of the IBC giving a brief summary of the registration and facilitating any discussion prompted by the summary and the comments available at the meeting with the assistance of the Chairperson

Note: The primary reviewer typically makes the motion to approve, request modifications in, table, or disapprove the research registration.

Team Reviewer(s)

- Review for all elements required for approval
- Contact individual investigators for clarification as needed before the convened meeting or ask the IBC staff to seek this clarification from the investigator
- Assist in leading the discussion of the proposed research at the convened meeting of the IBC and facilitating any discussion prompted by the summary and the comments available at the meeting with the assistance of the Chairperson

Note: In the absence of the primary reviewer at the meeting, the secondary reviewer of the registration will be asked to present the findings.

Use of subcommittees

The IBC may utilize subcommittees to support IBC review activities. The IBC Chairperson may appoint subcommittees:

- To perform Biosafety Office reviews
- To fulfill the duties of Primary and Team reviewers
- On an ad hoc basis to perform additional functions as needed

Required Research Materials

Date of Last Revision/Review: 05/2016

Access to research files

Except for unusual circumstances, at least 5 days before the convened meeting, the complete IBC file for all research to be discussed during the meeting is provided to all IBC members for their review, and the entire IBC file is present in the meeting room during the meeting.

Reason: To provide sufficient time for all IBC members to review each proposed project before the meeting so they can discuss each project adequately and determine the appropriate action during the convened review.

All IBC members are expected to review the materials provided to them in order to make an informed decision regarding the research at the convened meeting.

Materials IBC members review

The following table lists the materials IBC members review depending on their role and the type of submission they are reviewing:

Type of submission	Members review…
Initial submissions	• The complete registration • Application form • For human gene transfer clinical trials: – A copy of the proposed informed consent document – Investigator brochure and full protocol – A copy of section M – Copies of correspondence with Recombinant DNA Advisory Committee (RAC) and/or OBA
Continuing review submissions	• The complete registration • Application form • For human gene transfer clinical trials: – A copy of the proposed informed consent document – Investigator brochure and full protocol – A copy of section M – Copies of correspondence with Recombinant DNA Advisory Committee (RAC) and/or OBA

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Required Research Materials, Continued

Materials IBC members review (continued)

The following table lists the materials IBC members review depending on their role and the type of submission they are reviewing (continued):

Type of submission	Members review…
Amendments	• A summary of the proposed amendment(s) • The complete registration with proposed revisions • Modifications previously approved by the IBC • Application form • For human gene transfer clinical trials: – A copy of the informed consent document with proposed revisions – Investigator brochure and full protocol with proposed revisions – A copy of section M – Copies of correspondence regarding proposed revisions with RAC and/or OBA

Meeting documentation

The minutes of IBC meetings will document separate deliberations, actions, and votes for each registration undergoing initial and continuing review by the convened IBC.

Approval Criteria

Date of Last Revision/Review: 05/2016

Introduction

The IBC reviews use of hazardous biological materials and determines that requirements in all of the following areas are satisfied before approving proposed research:

- Containment levels
- Facility design and construction
- Training and expertise
- Human gene transfer experiments

Containment levels

Containment levels are sufficient to:

- Avoid unintentional:
  - Transmission or release of hazardous biological materials
  - Spread of a serious pathogen from a greenhouse to a local agricultural crop
  - Introduction and establishment of an organism in a new ecosystem
- Minimize the possibility of unanticipated deleterious effects on organisms and ecosystems outside of the experimental facility

Facility design and construction

Facility design and construction is appropriate:

- To:
  - Contribute to the laboratory workers' protection
  - Provide a barrier to protect persons outside the laboratory
  - Protect persons, animals or plants in the community from transmission of or release of hazardous biological materials from the laboratory
- For institutional procedures and practices based on assigned biosafety levels

Training and expertise

Training and expertise of personnel are as follows:

- Assurances are in place that laboratory personnel have specific training in the procedures conducted in the laboratory and are supervised by a scientist with training in microbiology or a related science
- Before entering the facility, all staff working with and around hazardous biological materials should be fully informed about the containment measures applicable to a given research project

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Approval Criteria, Continued

Human gene transfer experiments

For human gene transfer experiments, the IBC is also responsible for ensuring that:

- All aspects of Appendix M-II through M-V of the NIH Guidelines have been addressed by the principal investigator such as:
  – Objectives and rationale of the proposed research
  – Research design, anticipated risks and benefits
  – Selection of the human subjects
  – Informed consent document
  – Privacy of subjects and their families and confidentiality of research data
- RAC review has been completed or waived by the NIH OBA, before the research commences
- Principal Investigator's response to the RAC recommendations are completed to the satisfaction of the IBC before research commences
- All surveillance, data reporting, and adverse event reporting requirements are compliant with Appendix M-I-C of the NIH Guidelines

Conflicts of Interest in IBC Review

Date of Last Revision/Review: 05/2016

Introduction

This topic discusses conflict of interest (COI) for members of the IBC and consultants to the IBC.

Member requirements

Conflict by participation

IBC members are prohibited from participating in the review of, deliberative discussion on, or vote relative to any research in which they (or their immediate family members) participate in any way, including but not limited to the following:

- Study planning and design
- Conduct of the study
- Data analysis
- Subject recruitment
- Subject consent
- Authorship

Conflict by financial interest

For further information see U of L COI policy.

Continued on next page

Conflicts of Interest in IBC Review, Continued

Member responsibility

IBC members are expected to use their best judgment to ensure that all IBC deliberations take place without any appearance or possibility of Conflict of Interest.

Issues for IBC members

The following issues govern the management of Conflicts of Interest in the review of research by the IBC:

Issue	Description
Member or consultant recusal and absence	IBC staff and the IBC Chair assist members or consultants by making them aware of the conflict of interest requirements and assist in determining whether recusal would be necessary. • If an IBC member has a conflicting interest that might affect or appear to have an impact on IBC deliberations, the member must declare the presence of the conflict to the IBC and recuse/absent himself or herself from any review (Biosafety Office or full board), deliberative IBC discussion, or vote on the research • Members with any (financial or non-financial) interest in the research under consideration are recused from participation in, or voting on the initial or continuing review of research • The member may be present to answer questions posed by the IBC, but any other IBC activity, including the final discussion in which a determination is made as to how the IBC will vote on the registration, must be conducted without the presence or participation of the conflicted IBC member Important: There are no exceptions from this requirement.
Documentation of recusals	All recusals and absences of IBC members for Conflict of Interest must be noted as such in the official IBC minutes. See Minutes of an IBC Meeting.

Actions Taken at the IBC Meeting

Date of Last Revision/Review: 05/2016

Introduction

This topic provides guidance regarding the actions taken at the IBC meeting, including the following:

IBC minutes include all actions taken by the convened IBC and the votes underlying those actions.

Required IBC findings and determinations

The IBC must make the following specific findings and determinations based on registration-specific information:

Item	Description
Containment level	Assessment of the containment levels
Research practice and expertise	Assessment of the facilities, procedures, practices, and training and expertise of the personnel involved in research using hazardous biological materials
Agent characteristics	Identification of host(s), vector(s), toxins to be used (e.g. virulence, pathogenicity, environmental stability)
Inserted DNA sequences (e.g. species)	Characterization of sources of the inserted DNA sequences (e.g. species) and nature of the inserted DNA sequences (e.g. structural gene, oncogene)
Expression of foreign genes	Whether an attempt will be made to obtain expression of a foreign gene, and if so, the protein that will be produced
Section of the NIH Guidelines	Applicable section of the NIH Guidelines (e.g. Section III-D-1, Section III-E-1, etc.)
Human gene transfer	• All aspects of Appendix M have been appropriately addressed by the Principal Investigator • For human gene transfer registrations selected for public RAC review and discussion, consideration of the issues raised and recommendations made as a result of this review and consideration of the Principal Investigator's response to the RAC recommendations • Surveillance, data reporting, and adverse event reporting complies with reporting requirements set forth in Section M-I-C of the NIH Guidelines

Continued on next page

Actions Taken at the IBC Meeting, Continued

Required IBC findings and determinations (continued)

The IBC must make the following specific findings and determinations based on registration-specific information (continued):

Item	Description
Approval period	The approval period for the research, including identification of research that warrants review more often than every one, three or five years
Other items	Any IBC discussions or determinations regarding any other items on which the IBC takes formal action including: • Unanticipated problems involving risks to subjects or others • Serious adverse events

IBC actions

This table describes the actions the IBC may take:

When the research is …	Then …
Approved (no changes/additional changes required)	The research may proceed.
Required modifications to obtain approval	• Such minor changes must be clearly delineated by the IBC so the investigator may simply concur with the IBC's stipulations • Such minor changes require the review and approval of BSO or designated voting IBC member • The research may proceed after the required changes are verified and the registration approved by the Biosafety Office or designated IBC member
Tabled	The research may proceed only after the same fully convened IBC has reviewed and approved: • They require substantive changes to the research • Additional substantive information that was lacking in the application

Continued on next page

Actions Taken at the IBC Meeting, Continued

IBC actions (continued)

This table describes the actions the IBC may take (continued):

When the research is …	Then …
Disapproved	The IBC has determined that the research cannot be conducted at U of L or by its employees or agents. Reasons for the decision are included.

IBC registration approval dates

Follow these steps to determine approval and expiration dates for each type of registration review:

Types of Review	Dates
Full board	For all full board reviews: • Approved: Date of approval • Expires: 1, 3, or 5 year(s) from date of approval
Biosafety Office	For Biosafety Office reviews: • Approved: Date of approval • Expires: 5 year(s) from date of approval

Minutes of an IBC Meeting

Date of Last Revision/Review: 05/2016

Introduction

This topic provides an overview of the documentation requirements for the minutes of an IBC meeting.

Content overview

The meeting minutes are a record of the following specific information:

- Attendance
- Member and consultant recusals and absences due to conflicts of interest
- Quorum
- Activities conducted by the IBC on the initial or continuing review of research:
  Examples
  – Review of registration modifications or amendments
  – Unanticipated problems involving risks to subjects or others
  – Adverse event reports
  – Reports from sponsors, cooperative groups, or DSMBs
  – Reports of continuing non-compliance with regulations or IBC determinations
  – Suspensions or terminations of research
- Registration-specific votes for any action taken by the IBC after the review of research registrations
- Separate votes for other IBC actions
- The basis for requiring changes in or disapproving research
- Summary of major points of discussion and the rationale for decisions
- Required IBC findings and determinations. See IBC Approval Criteria and Actions Taken at the IBC Meeting.
- Once the IBC approves the minutes, they may not be altered

IBC Records

Date of Last Revision/Review: 05/2016

Retention

The IBC retains the following registration records for 3 years after completion of the research or project:

- Initial submissions and any attachments
- Continuing review submissions
- Amendments to the initial and continuing review submission

The IBC retains the following records for 3 years:

- Meeting minutes
- IBC roster

Until such time as the IBC is no longer registered with the NIH/OBA, the IBC must retain its:

- Initial NIH/OBA registration
- Annual reports to OBA

Public access to records

U of L and the IBC may provide public access to records as outlined in the NIH Guidelines upon written authorization from the:

- The Institutional Official
- University Counsel or designee

Certain information, though part of the IBC meeting summary, is not to be made available to the public. Redaction of information is applied consistently in consultation with the Associate University Counsel.

Types of redacted information include:

- Trade secrets or other confidential commercial information
- Proprietary information
- Personal information such as home phone numbers, addresses, e-mails, etc. of IBC members, staff or other representatives
- Information that would compromise institutional or national security
- Protected Health Information (PHI) as defined under HIPAA
- Personally Identifiable Information (PII) as defined in federal and state laws

There may be a cost for photocopying of documents.

Reviews After Approval

Date of Last Revision/Review: 05/2016

Re-evaluation

During the approval period, any member of the IBC may request a re-evaluation of a registration based on new information pertaining to a specific agent that has been released to the research community.

The Principal Investigator may request a re-evaluation of a disapproved registration provided that new information is presented that was not available at the time of review.

Changes in previously approved research - amendments

Revisions, modifications, or amendments to a research registration must be incorporated into the written registration for review by the IBC.

The IBC reviews and determines that the changes to the previously approved research satisfy all of the approval criteria, as explained for designated and convened IBC review. See Biosafety Office review of Research and Criteria for Full Board Review of Research before approving the proposed changes.

The table below defines the following terms:

Term	Definition
Amendment	U of L defines an amendment to be any change to an approved registration regardless of how minor it is. Investigators must report to the IBC planned changes in the conduct of the study, since these may change the risk to human health or the environment.

Continued on next page

Reviews After Approval, Continued

Changes in previously approved research - amendments (continued)

The IBC reviews and determines that the changes to the previously approved research satisfy all of the approval criteria, as explained for Biosafety Office and convened IBC review. See Biosafety Office review of Research and Criteria for Full Board Review of Research before approving the proposed changes.

The table below defines the following terms (continued):

Term	Definition
Minor Change	The College defines a minor change to be one that makes no substantial alteration in any of the following: • The source(s) of DNA • The nature of the inserted DNA sequences • The host(s) and vector(s) to be used • If an attempt will be made to obtain expression of a foreign gene, and if so, indicate the protein that will be produced • The containment level • The assessment of the facilities, procedures, practices, and training and expertise of personnel involved in r/s NA research • The Appendix M • The compliance with all surveillance, data reporting, and adverse event reporting requirements • Any factor that might warrant full committee review

Biosafety Office review of changes in previously approved research

The IBC may utilize Biosafety Office review procedures to review a proposed change to previously approved research if it represents changes to research as outlined by Section III-E of the NIH Guidelines or represents a minor change to research as set forth by Sections III-A through III-D to be implemented during the previously authorized approval period.

Note: When a proposed change in a research study is not minor, then the IBC must review and approve changes at a convened meeting before changes may be implemented.

Review of changes by the fully convened IBC

The IBC utilizes the Primary and Team Reviewer System to assist in the review of changes to previously approved research by the convened IBC.

Reviews After Approval, Continued

Continuing review

To ensure compliance with its guidelines, the NIH requires that the IBC periodically review ongoing research using biological materials that is conducted at U of L.

U of L procedures require that the IBC conduct substantive and meaningful continuing review of research every one, three or five year(s). Investigators submit the Required Research Materials to the IBC. The IBC utilizes the Primary and Team Reviewer System to assist in continuing and determines that research still meets Approval Criteria.

Suspension or termination of IBC approval

The IBC may vote to suspend or terminate approval of research that is not being conducted in accordance with IBC or regulatory requirements or that has been associated with serious unexpected problems or serious harm to personnel and surrounding community.

- Where the IBC Chairperson determines that such action is necessary to protect subjects, personnel, or the surrounding community, the Chairperson in consultation with the DEHS director and BSO may require an immediate, temporary suspension of research, pending review of the situation by the convened IBC
- The IBC notifies the principal investigator orally and in writing of such suspensions or terminations and includes a statement of the reasons for the IBC's actions.
  Result: The investigator is provided with an opportunity to respond in person or in writing.
- See Handling Significant or Continuing Non-compliance for details of the notification process
- See Reporting for timelines for reporting suspensions or terminations

Closure

Date of Last Revision/Review: 05/2016

Closure notice

Principal Investigators must notify the IBC and DEHS of intentions to close an IBC-approved research activity when:

- A principal investigator is to depart from U of L
- A project is completed
- The project is no longer active
- Proper disposal of the r/s NA material has occurred
- When the Principal Investigator is no longer in possession of the material

Should a Principal Investigator fail to notify the appropriate committees prior to departure, the Department Chair shall be contacted. Following direction of the Department Chair, a registration may be transferred to another investigator or administratively closed.

Handling Significant or Continuing Non-compliance

Date of Last Revision/Review: 05/2016

Introduction

The U of L IBC has the responsibility and authority to oversee the use of r/s NA and other biohazardous agent(s) in research that is under its jurisdiction. As part of the IBC's oversight responsibilities, procedures exist for the reporting of any significant or continuing non-compliance with federal regulations, institutional policies, and suspension or termination of IBC approval.

Scope

This procedure applies to all research activities of faculty, staff, students, or others who are involved in research using r/s NA and other biohazardous agent(s) that fall under the jurisdiction of the U of L IBC.

Definitions

The following table defines terms used in this procedure:

Terms	Definitions
Non-compliance	Conducting research involving r/s NA and other biohazardous agent(s) in a manner that violates federal regulations or institutional policies governing such research. Note: This includes the failure to comply with IBC determinations and the failure of the IBC to follow regulations.
Significant non-compliance	Violations that pose a significant risk to research subjects, research personnel and the surrounding community
Continuing non-compliance	A pattern of non-compliance that has the potential to compromise safeguards protecting research subjects, research personnel and the surrounding community.

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Handling Significant or Continuing Non-compliance, Continued

Suspected non-compliance reporting process

Below is a description of the reporting process for suspected non-compliance on the part of an investigator or research staff as described in U of L's Procedure for Investigating and Reporting Potential Violation(s) of the NIH Guidelines:

Questions	Answers
Who may report?	Reports can come from a number of different sources, including: • Investigators • Research personnel • Oversight committees/staff members • Subjects/family of subjects • Institutional personnel • The media • The public • Anonymous sources
Where do reports go?	Verbal or written reports may be made to either of the following: • IBC administrator • Anonymous through the "Compliance Hotline Reporting
How is suspected non-compliance reported?	• Since these types of reports may arrive in various formats (phone call, letter, e-mail) there is not a requirement regarding specific information that must be reported • In most cases, the complainant is asked to submit the concern(s) in writing
What happens next?	The IBC Chair, DEHS director and BSO determine whether the allegation, if true, is a possible IBC non-compliance issue, and may refer the issue to other Committees (i.e. Scientific Integrity, Conflict of Interest) as appropriate. If the allegation is considered possible IBC non-compliance, IBC Chair, DEHS director and BSO will select one or more additional IBC members within 2 business days to constitute a subcommittee to investigate and, where concerns are substantiated, take the appropriate steps to address, correct, and/or resolve the reported concern.

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Handling Significant or Continuing Non-compliance, Continued

Investigating allegations

The process for IBC review of allegations of suspected non-compliance for an investigator or research staff as described in U of L's Procedure for Investigating and Reporting Potential Violation(s) of the NIH Guideline is as follows:

Step	Action
1	The IBC Subcommittee on Compliance: • Notifies, in writing, the individual that is the subject of the concern • Conducts a preliminary review of the IBC files • Determines whether an assessment is warranted • If warranted, defines the scope of the assessment
2	Note: If concerns pose a significant risk to personnel and/or the surrounding community, the IBC Chair may temporarily suspend conduct of a study pending full IBC review. See Suspension or termination of IBC approval for more information regarding suspensions and required reporting of suspensions by the IBC Chair and the Institution.
3	The IBC Subcommittee on Compliance: • Requests information related to the incident from the PI and, if necessary, a meeting with the PI will be scheduled. • Upon completion of the investigation, communicates the preliminary findings to the Principal Investigator of the research in question • Offers the Principal Investigator an opportunity to correct any errors of fact and respond to the subcommittee within a two business days Note: If the PI does not respond or cooperate with the investigation within 2 business days of initial notification, the incident will escalate up the chain of command (i.e. Department Chair, School Dean, EVPRI, etc.) until the investigation can be completed.

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Handling Significant or Continuing Non-compliance, Continued

Investigating allegations (continued)

The process for IBC review of allegations of suspected non-compliance for an investigator or research staff is as follows (continued):

<table>
<tr><th>Step</th><th>Action</th></tr>
<tr><td>4</td><td>• Reviews the findings and investigator's response above and makes a formal recommendation.
• Prepares a report using the NIH/OBA "Incident Reporting Template" as guidance.</td></tr>
<tr><td></td><td><table>
<tr><th>If...</th><th>Then the IBC Subcommittee ...</th></tr>
<tr><td>Substantiated</td><td>Decides:
• Whether it is…
– Significant
– Continuing
– Or both of the above
• What corrective actions are required to bring the study into compliance</td></tr>
<tr><td>Not substantiated</td><td>• Dismisses the allegation
• Notifies the Principal Investigator that the assessment is closed
• This communication may include comments or recommendations from the IBC</td></tr>
</table></td></tr>
<tr><td>5</td><td>• The IBC chair will ensure that notification and the incident report signed by the IBC chair will be sent to the NIH/OBA
• The incident report will be openly discussed at the first available meeting convened of the IBC.
o The IBC chair will notify the PI of the date of said meeting and request that they advise the IBC chair if they plan to appear at that meeting.
o After open discussion of the incident report, the IBC will determine if refinement of University procedures are necessary to prevent future incidents.</td></tr>
</table>

Handling Significant or Continuing Non-compliance, Continued

Investigating allegations (continued)

The process for IBC review of allegations of suspected non-compliance for an investigator or research staff is as follows (continued):

Step	Action
6	To whom is an allegation referred if it cannot be investigated adequately? • If an allegation is within the purview of the IBC and is handled inadequately by IBC subcommittee, then the complainant may report this concern to the: – Compliance Hotline Reporting – EVPR, or – President of the University • If the allegation is not within the purview of the IBC (e.g. scientific misconduct or conflict of interest), the concern is forwarded to appropriate oversight officials

Actions the IBC Subcommittee on Compliance may take

After the IBC Subcommittee has made a final determination, it may take any reasonable corrective action it deems appropriate. Below are examples of possible actions, but should not be construed as an all-encompassing list:

- Approval of the investigator's proposal for correction – no further action
- Notification and involvement from other individuals from U of L (e.g.: Dean, Department Chair)
- Restricting the use of research data for publication
- Requiring:
  – Modification to the research registration
  – Additional registrations be submitted to the IBC
  – Remediation, mentoring, or educational measures such as; increased reporting by the investigator, or increased monitoring of the research
- Modifying the continuing review cycle
- Restricting the investigator's research activities, including suspension
- Suspension of approval or the termination of one or more of the investigator's research activities
- Refer the issue to other committees responsible for possible further review and action
- Requesting assistance from University Counsel
- Any other action the IBC deems appropriate to ensure compliance with federal regulations and U of L policies

Significant Problems, Spills, Accidents and Safety Reporting

Date of Last Revision/Review: 05/2016

Introduction

This topic provides the reporting process for significant problems, accidents/illnesses in the laboratory as well as safety reporting in human gene transfer research.

See Materials for Submission and Review for further information on forms to use for such reporting.

Definitions

The table below defines the following terms:

Term	Definition
Overt exposure	Any accident or spill involving organisms containing recombinant DNA molecules may be considered an **overt exposure** if the release of the material results in ingestion, inhalation, or assimilation into any person, either directly from the environment or indirectly by ingestion through food chains Reference: Derived in part from OSHA Regulations: 29 CFR 1910.120(a)(3), definition of "hazardous substance".
Potential exposure	Any accident or spill that has the **potential** for ingestion, inhalation, or assimilation into any person, either directly from the environment or indirectly by ingestion through food chains Reference: Derived in part from OSHA Regulations: 29 CFR 1910.120(a)(3), definition of "hazardous substance".
Violations of the NIH Guidelines	• A substantial deviation from or lack of adherence to the NIH Guidelines for Research Involving Recombinant DNA Molecules; or • A pattern of non-adherence (including repeated minor violations) to the NIH guidelines
Significant problem	A problem related to the research which, is or has the potential to be a threat to the health or safety of animal or human subjects, research personnel, and/or the environment
Significant research-related accidents or illnesses	• Any serious, unexpected adverse events related to the use of a gene therapy product • Any accident falling into the overt exposure category

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Significant Problems, Spills, Accidents and Safety Reporting

Reporting The table below indicates who reports, the description of the report, and the timeframe for reporting:

Who reports	Description	Must report to	Timeframe
Investigator	**Spills or accidents** resulting in overt or potential exposures to BSL-3 organisms containing recombinant DNA molecules	IBC, DEHS Director or BSO	Immediately
	Spills or accidents resulting in overt exposures to BSL-2 organisms containing recombinant DNA molecules	IBC, DEHS Director or BSO	
	• Release of a Risk Group 2 or 3 agent/genetic material from a primary containment device (e.g. biological safety cabinet, centrifuge, or primary container into the laboratory)	IBC, DEHS Director or BSO	Within 1 business day

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Significant Problems, Spills, Accidents and Safety Reporting, Continued

Reporting (continued)

The table below indicates who reports, the description of the report, and the timeframe for reporting (continued):

Who reports	Description	Must report to	Timeframe
Investigator	Spills or accidents that lead to personal injury or illness or breach of containment (e.g. aerosols released outside of containment)	IBC, DEHS Director or BSO	Within 1 business day
	Failure to adhere to the containment and biosafety practices described in the NIH Guidelines	IBC, DEHS Director or BSO	Within 1 business day
	Serious adverse event in human gene transfer that is: • fatal or life-threatening, • unexpected, and associated with the use of the gene transfer product	IBC and OBA	Within 7 calendar days after the sponsor's initial receipt of the information
	Serious adverse event in human gene transfer (not fatal or life-threatening) that is: • unexpected and associated with the use of the gene transfer product	IBC and OB	Within 15 calendar days after the sponsor's initial receipt of the information
	Concerns regarding possible violations of the NIH Guidelines	IBC, DEHS Director or BSO	Within 5 business days

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Significant Problems, Spills, Accidents and Safety Reporting

Reporting (continued)

The table below indicates who reports, the description of the report, and the timeframe for reporting (continued):

Who reports	Description	Must report to	Timeframe
DEHS Director and BSO	**Spills or accidents** resulting in overt or potential exposures to BSL-3 organisms containing recombinant DNA molecules	OBA	Immediately
	Spills or accidents resulting in overt exposure to BSL-2 organisms containing recombinant DNA molecules		Immediately
	Release of a Risk Group 2 or 3 agent/genetic material from a primary containment device (e.g. biological safety cabinet, centrifuge, or primary container into the laboratory)		As soon as possible
	Spills or accidents that lead to personal injury or illness or breach of containment (e.g. aerosols released outside of containment)		As soon as possible
	Failure to adhere to the containment and biosafety practices described in the NIH Guidelines.		As soon as possible
IBC Chair	**IBC- substantiated**: • Significant problems • Violations of NIH Guidelines • Significant research-related accidents or illnesses	• OBA • Principal Investigator • Department Chair • DEHS Director • BSO • IBC • University Counsel	Within 30 days from notification of the IBC, DEHS Director, or BSO