The University of Missouri – Kansas City
Institutional Biosafety Committee (IBC)

Policy & Procedure Manual
containing **IBC SOP's**

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A. Charge of the Committee (IBC)

The University of Missouri – Kansas City (UMKC) IBC is charged with the responsibility for review, approval and surveillance of all research and teaching involving the use of biohazards at UMKC and at those affiliated institutions with which UMKC has a current Memorandum of Understanding that the UMKC IBC is the IBC of record. Biohazards are defined as recombinant DNA, agents infectious to humans, animals or plants, other genetically altered organisms and agents, and biological toxins. Regardless of its source of financial support, all research with biohazards must be approved by the IBC and conform to IBC policies and procedures. The IBC has regularly scheduled quarterly meetings.

UMKC lacks the facilities requiring BSL-4 or ABSL-4 containment. Therefore, research requiring such containment cannot be performed at the UMKC. UMKC currently lacks its own BSL-3 facilities. Investigators wishing to perform research at these levels need to consult with the UMKC Biosafety Officer prior to grant preparation or IBC protocol submission.

Teaching activities involving biohazardous agents, as defined above, will require an IBC protocol or IBC approval for those instances where BSL-2 conditions and precautions are indicated for research projects. Teaching activities involving procedures or organisms which only require BSL-1 precautions do not require an IBC protocol or IBC approval.

B. Membership

1. Composition:

The Chancellor, in consultation with the Institutional Official and IBC Chair, has the authority to appoint members to the IBC. The term of membership is three years and is renewable upon mutual agreement. The committee must be comprised of no fewer than five members so selected that they collectively have experience and expertise in recombinant DNA technology and the capability to assess the safety of recombinant DNA research and to identify any potential risk to public health or the environment. At least two members shall not be affiliated with the institution. The committee shall also include at least one individual with expertise in plant, plant pathogen, or plant pest containment principles, at least one scientist with expertise in animal containment principles, and a Biological Safety Officer. Membership reflects basic federal requirements for expertise and advocacy; additional members are added as necessary or appropriate. Membership may include non-voting members. The Vice-Chair of the IBC is called upon to serve in the Chair's absence.

2. Training:

The training of members is an on-going process and begins for new members with an orientation session conducted with the staff of the IBC office and either the Chair, Vice-Chair or Biological Safety Officer. This session includes an explanation of the NIH Guidelines and the institutional policies and procedures of the IBC. The training of new members continues when they attend the regularly scheduled meetings of the IBC where they observe how members review and present the submissions that they were responsible for reviewing. The training of members continues through the discussion, which takes place over substantive issues during the review of submissions and special topic presentations during convened IBC meetings. In addition, scientific IBC members are required to complete the CITI training modules identified for IBC members.

3. Meeting Attendance:

Members are expected to attend the regularly scheduled quarterly meetings unless they have notified the IBC staff that they are unable to do so.

C. Committee Meeting Process

Convened meetings of the IBC occur on a quarterly basis, typically on the 2nd Tuesday of August, November, February, and May. Meetings must contain a quorum of members in order for the meeting to be held. A quorum is 50% of the voting membership plus one and one non-affiliated member must be present. In order for protocol submissions to be placed on the agenda for a convened meeting, the PI must have satisfactorily addressed any issues raised during preliminary review by an IBC member or members at least one week prior to the meeting. IBC members responsible for preliminary review are expected to provide an overview of the submission at the convened meeting and provide any additional comments that they might have. Reviewers that are unable to attend a meeting should provide a written summary of their review and any additional concerns to the IBC Administrators for presentation at the meeting by another committee member. For information on limitations on what members may be present during review of submissions, please consult the IBC Policy on Conflict of Interest (COI) found later in this document.

Meeting minutes will be taken in accordance with the "IBC Minutes" template policy. Once the IBC meeting minutes have been approved, a copy of the meeting minutes will be printed and placed in an official binder marked "UMKC IBC Minutes", with the intent to provide public access to approved IBC Minutes upon request, made to the UMKC Office of Research Services. Upon request, IBC Minutes will be made available through email, specified by OBA as one of the appropriate methods to mitigate the need to visit UMKC in order to gain access.

D. Responsibilities

1. The IBC is responsible for:

- Reviewing research and teaching conducted at the University of Missouri – Kansas City and affiliated institutions involving biohazardous agents or recombinant DNA for compliance with the NIH Guidelines and the policies of the University of Missouri – Kansas City IBC;
- Notifying the Principal Investigator of the results of the IBC's review and approval;
- Lowering containment levels for certain experiments as specified in Section III-D-2-a "Experiments in which DNA from Risk Group 2, Risk Group 3, or Restricted Agents is Cloned into Nonpathogenic Prokaryotic or Lower Eukaryotic Host-Vector Systems";
- Setting containment levels as specified in Sections III-D-4-b, "Experiments Involving Whole Animals, and III-D-5, Experiments Involving Whole Plants";
- Periodically reviewing recombinant DNA research conducted at the institution to ensure compliance with the NIH Guidelines;
- Reporting any significant problems with or violation of the NIH Guidelines and any significant research-related accidents or illnesses to the appropriate institutional official and NIH/OBA within 30 days, unless the IBC determines that a report has already been filed by the PI; and
- The IBC may not authorize initiation of experiments, which are not covered by the NIH Guidelines until NIH establishes the containment requirement.
- Screen applications to ensure the experiments and/or specific pathogens used do or do not fall under the Dual Use Research of Concern (DURC) category.

    (a) Educate the Principal Investigator regarding the specific pathogens and categories of experiments that are involved in DURC.

- Ensure that each Principal Investigator has complete the CITI Dual Use Research of Concern module and can make an educated determination for their application.

2. IBC Chair:

The IBC Chair approves the agenda for the convened meetings of the IBC, approves attendees other than IBC members or staff, and directs the meeting deliberations of the committee. The Chair calls the meeting to order, requests motions and seconds, and closes the meeting once it has concluded its business. The Chair assigns subcommittees (i.e., a subset of IBC members) as needed to review an issue prior to official committee review at a convened IBC meeting. The Chair also signs all IBC letters documenting official committee decisions made at a convened meeting and reviews the responses of the Principal Investigators to Pending-Conditions or Deferrals. The Chair may request other committee members for assistance in reviewing the responses of Principal Investigators. The Chair is authorized to bring back any submission to a convened meeting of the IBC if he/she is not satisfied with the Principal Investigators response to Conditions approved by the IBC.

3. Principal Investigator:

On behalf of the institution, the Principal Investigator or the faculty member responsible for teaching activities that involve biohazards is responsible for full compliance with the NIH Guidelines in the conduct of recombinant DNA research and for adherence to the policies and procedures of The University of Missouri – Kansas City IBC. While having said that, the PI should take particular note of the following responsibilities:

- The PI should make the initial determination of the required levels of physical and biological containment in accordance with the NIH Guidelines and the most recent edition of the BMBL (Biosafety in Microbiological and Biomedical Laboratories).
- The PI should select the appropriate microbiological practices and laboratory techniques to be used for the research.
- The PI needs to ensure that all staff listed have thoroughly read the approved protocol before submitting, and that they have access to the currently approved version.
- The PI should ensure that the staff listed on the protocol have sufficient knowledge and are sufficiently trained to safely perform the responsibilities for which they have been assigned.
- The PI ensures that the protocol participants fully understand the steps necessary following any spills or potential exposures with the agents described in the protocol.
- The PI should report any significant research-related accidents and illnesses to the IBC within 30 days.

For human gene transfer research, the following unique responsibilities of the Principal Investigator should be noted:

- The PI responsible for this research must ensure that all aspects of Appendix M of the NIH Guidelines have been appropriately addressed.
- For a clinical trial site that is added after the NIH Recombinant DNA Advisory Committee (RAC) review process, the PI must ensure that no research participant is enrolled until the following documentation has been sent to the NIH OBA:
    - IBC approval
    - IRB approval
    - IRB-informed consent document
    - Curriculum vitae of the PI
    - NIH grant number(s) if applicable

- The PI must prepare a written report of any serious adverse event that is both unexpected and associated with the use of the gene transfer product (i.e., there is a reasonable possibility that the event may have been caused by the use of the product) and any finding from tests in laboratory animals that suggests a significant risk for human research participants including reports of mutagenicity, teratogenicity, or carcinogenicity. The report must be clearly labeled as a "Safety Report" and must be submitted to the NIH Office of Biotechnology Activities and to The University of Chicago IBC that approved the protocol within the timeframes set forth in Appendix M-I-C-4-b of the NIH Guidelines.

4. Biological Safety Officer:

The responsibilities of the BSO include, but are not limited to:

- Serving as a voting Member of Institutional Biosafety Committee;
- Conducting periodic laboratory inspections to ensure that appropriate laboratory standards as determined by the IBC are rigorously followed;
- Reporting to the IBC and the institution any significant problems, violations of the NIH Guidelines, and any significant research-related accidents or illnesses of which the BSO becomes aware unless the BSO determines that a report has already been filed by the PI;
- Developing emergency plans for handling accidental spills and personnel contamination and investigating laboratory accidents involving recombinant DNA or biohazardous agent research;
- Providing advice on laboratory security, providing technical advice to PI's and the IBC on research safety procedures;
- Developing, deploying & overseeing a comprehensive Biosafety program for the institution;
- Together with the IBC, oversees review of IBC-approved and reported BSL-1, BSL-2 and BSL-3 research projects on campus and at the member institutions, and conduct all relevant inspections for these facilities;
- Conduct biosafety risk assessments and training to ensure the institution is in compliance with all applicable federal biosafety laws and regulations;
- Collaborate with investigators and staff in all matters related to biosafety;
- Provide expertise for the design and management of containment facilities; and
- Serve the University as a resource and leader in all aspects of education and training in biosafety.

E. Protocol/Amendment/Continuation Submission

The IBC Protocol Review/Approval Application Forms used to register and renew research protocols, along with the Biosafety Level and Risk Group listings, are available at: http://www.umkc.edu/ors/ibc/

1. Initial Registration

- The IBC Protocol Review/Approval Application Forms must be submitted to the IBC and approval granted prior to experimentation beginning for any BSL-2, BSL-3 and recombinant research covered by the NIH Guidelines, Sections III-A through III-D. The approval is valid for 3 years, with an annual review during this time.
- As defined by the NIH Guidelines, BSL-1 recombinant research under Section III-E requires submission of IBC Protocol Application Forms at the time research is initiated.
- BSL-1 exempt recombinant research under Section III-F of the NIH Guidelines, must be reported to the IBC using IBC Protocol Application Forms at the time research is initiated.

- The IBC Protocol Review/Approval Application Form includes a Biosafety Level evaluation and checklist. It solicits information about the PI's facilities, engineering controls, containment equipment, and safety procedures. This information must be completed in full when submitting application.
    - The Biological Safety Officer will arrange for an inspection of the lab to assess whether engineering controls and containment facilities are appropriate for the designated Biosafety Level.
- Any new application must be signed by the PI and the applicable department chair (or the chair's supervisor in case the PI is the department chair).

2. Annual Review and Amendments

- To maintain a valid IBC protocol throughout the 3-year approval period, an annual review is required.
- Approximately 90, 60, and 30 days before the end of the annual approval period, the IBC Administrator will remind the PI to submit a renewal response. Application Forms marked 'continuation' or 'amendment' should be submitted if the protocol continues without or with changes, respectively.
- Irrespective of the annual review deadline, a PI shall file amended Application Forms at any time that significant changes are made in the approved protocol. Significant changes includes changes in personnel involved in the protocol research; changes in the rooms and facilities available for and used by the protocol research; changes in biological sources and uses; changes in species, tissues, cell lines, cell types or genes; changes in recombinant procedures and/or the components, methods and products used or produced in recombinant procedures.
- Applications for minor amendments and annual renewal continuation submissions require at least a PI signature. Amendments which are judged to involve changes in departmental requirements or commitments must be signed by the PI and the applicable department chair (or the chair's supervisor in case the PI is the department chair).
- In case amendments are approved by the full IBC, or minor updates are approved by the IBC chair and BSO, the date for the next annual renewal is redefined as being 12 months from the approval date, except that no annual renewal date can be later than the 3-year protocol re-registration date.
- The use of updated Application Forms and appendices may be requested from Principal Investigators at the time of annual renewal or when an amended protocol is submitted in case significant form changes which address regulatory compliance issues have been approved by the IBC.

3. **Re-Registration**

- After 3 years, the PI must submit a new Application using all currently approved forms.
- Approximately 90, 60, and 30 days before the end of the approval period, the IBC Administrator will remind the PI to submit a new protocol Application Form including all applicable appendices.
- The 3-year re-registration application must be signed by the PI and the applicable department chair (or the chair's supervisor in case the PI is the department chair).

F. IBC CITI Training

1. CITI Training Requirements

- UMKC has contracted with CITI, the Collaborative Institutional Training Initiative, at http://www.citiprogram.org to provide training courses in Biosafety and Recombinant Research in order to comply with federal training requirements.
- Principal Investigators (PI), co-PIs and all researchers on IBC protocols as well as IBC members, BSOs and other University staff involved in or acting in support of research involving biosafety issues are required to complete selected courses and course modules, as appropriate for the type of research covered by this IBC protocol. The IBC application form specifies modules required for each type of protocol.

- All Principal Investigators are required to complete or have completed the Dual Use Research of Concern module for any new or renewal application submitted after July 2014
- New IBC protocols and 3-year renewal submissions will be approved by the IBC only after all listed persons have completed required CITI courses.
- In the case of changes in listed research personnel, required courses must be completed by new researchers before they begin research covered by this protocol.
- Annual renewals within the 3 year authorization period of a protocol require completion of the 'Biosafety Refresher Course' (and possibly 'OSHA Bloodborne Pathogens') by all listed personnel. Each initial submission of a new or 3-year re-registration application to the IBC administrator in the ORS Research Compliance Office is identified by a new protocol number, e.g. '10-12' if the year of submission is 2010 ('10' for 2010) and in 2010 already 11 new or re-registration applications have been received.

2. CITI Training Requirements

a. **Non-exempt NGL III-C, III-D and above** requires full authorization to do any of the research at any BSL containment level. Non-compliance of PI or of any listed researcher shall prevent authorization of a new or 3-year renewal protocol; failure to update researcher information and/or of new researchers to complete the required CITI training before participation in a protocol shall result in suspension of the protocol authorization until all requirements have been met and a new authorization has been issued at a regular IBC committee meeting. The auditing BSO is authorized to issue a suspension notice to the PI if non-compliance is identified. The supervisor of the PI, the ORS Research Compliance Officer, the ORS IBC manager, and all members of the IBC will be copied on this notice. Re-authorization by the IBC will result in an official notice, copied to the same people.

b. **BSL-2 and BSL-3 research.** Non-compliance of PI or any listed researcher shall prevent authorization of a new or 3 year renewal protocol; the IBC can decide that authorization will be provided after the ORS IBC manager has confirmed that all CITI training requirements have been met; failure to update researcher information and/or of new researchers to complete the required CITI training before participation in a protocol shall result in suspension of the protocol authorization until all training requirements have been met. The auditing BSO is authorized to issue a suspension notice to the PI if non-compliance is identified. The supervisor of the PI, the ORS Research Compliance Officer, the ORS IBC manager, and all members of the IBC will be copied on this notice. The ORS IBC manager is responsible for the verification that all CITI training has been completed. Once all training requirements have been met, the IBC manager will inform the PI, the supervisor of the PI, the ORS Compliance Officer, the BSO and the IBC chair of re-authorization of the protocol. The IBC will be informed of these actions at the next scheduled IBC meeting.

c. **Non-exempt NGL III-E (at BSL-1)**, where recombinant research can be initiated provided that a protocol application is submitted. Non-compliance of PI or any listed researcher shall prevent authorization of a new or 3 year renewal protocol; the IBC can decide that authorization will be provided after the ORS IBC manager has confirmed that all CITI training requirements have been met; failure to update researcher information and/or of new researchers to complete the required CITI training before participation in a protocol may result in suspension of the protocol authorization by the auditing BSO until all training requirements have been met. The auditing BSO will provide the PI, the ORS Compliance Officer, the ORS IBC manager and the IBC chair with the necessary information and the basis for the suspension or any delay in suspending the protocol. The ORS IBC manager is responsible for the verification when all CITI training has been completed and will inform the BSO, who may lift the suspension. The BSO will report on any actions taken at the next scheduled IBC meeting.

d. **Exempt NGL III-F (at BSL-1)** protocols are acknowledged by the IBC but cannot be suspended by the IBC. Non-compliance of the PI or of listed researchers will result in action by the BSO which hopefully will result in completion of the expected CITI training when it is made clear that this training is not punitive but intended to educate and to protect researchers and the community of valid risks.

IBC Review

3. Administrative and Pre-review Processes

- Each initial submission of a new or 3-year re-registration application to the IBC administrator in the ORS Research Compliance Office is identified by a new protocol number, e.g. '10-12' if the year of submission is 2010 ('10' for 2010) and in 2010 already 11 new or re-registration applications have been received.
- The receipt date is noted on any application received at the Research Compliance Office to allow distinction between versions of the same protocol produced for resubmissions, amendments and continuations.
- Upon receipt, each application is immediately forwarded by the IBC Administrator by way of email to the IBC Chair and the applicable BSO for pre-review, together with a review sheet with protocol number, title, name of the PI and a list of review items that are required for any recombinant protocol.
- The PI is invited to provide new Application Forms or appendices in case Chair and BSO review identifies the absence of required information or forms or the use of other than the latest IBC-approved application forms. This request is routinely made by the IBC Administrator who will copy Chair and BSO on all email exchanges.
- Based on the type of submission and assessment by the IBC Chair and BSO, the decision is made whether a full IBC review is required or whether a Chair-and-BSO review might be allowed. The latter option only exists for amendments limited to personnel changes or involving minor changes in approved protocols. All other protocols must be reviewed and approved by the full IBC. Administrative or expedited approval processes for new or 3 year re-registration applications are not allowed.
- In case review of an application requires expertise missing in IBC Chair and BSO, a member of the IBC with appropriate expertise will be requested to participate in the pre-review process. Pre-review of protocols involving human gene transfer must also be pre-reviewed by a physician. In case the necessary expertise is not present among IBC members, the IBC Chair will invite external experts to participate in the pre-review. Such experts will be invited as guest experts to participate in the full IBC review.
- The BSO will arrange for an inspection of the laboratory space(s) used for the protocol research to assess whether engineering controls and containment facilities are appropriate for the applicable Biosafety Level classification.
- The IBC Administrator reviews whether protocol researchers have fully complied with required training. If training deficiencies are identified, the IBC Administrator informs the applicable researcher(s) of this fact and provides information how to fulfill all training requirements. The PI, IBC Chair and BSO are copied on these emails.
- The IBC Administrator reviews whether the research involves the use of animals, covered by IACUC regulations. The IBC Administrator confirms if there is an associated Institutional Animal Care and Use (IACUC) protocol submission that matches what is described in the IBC submission. If not, the PI is informed that IACUC approval is also required. The IBC Chair is copied on that communication. **IBC approval is required before IACUC approval is granted.**
- The IBC Administrator reviews whether the research involves the administration of biohazardous or recombinant agents to humans or the acquisition of tissues directly from humans. The IBC Administrator will confirm with the Institutional Review Board (IRB) if there is an associated IRB protocol submission. If not, the PI is informed that IRB approval is also required. The IBC Chair is copied on that communication. **IBC approval is required before IRB approval is granted.**
- The IBC Administrator reviews whether the research involves the use of radioactive materials or radiation producing devices. The IBC Administrator will confirm with the Radiation Safety Committee (RSC) if required approvals have been issued. If not, the PI is informed that RSC approval is also required. The IBC Chair is copied on that communication. **RSC approval is required before IBC approval is granted.**
- Questions or concerns raised during preliminary review need to be addressed prior to placing the submission on the agenda of the next convened meeting of the IBC.

4. Limited Review by IBC Chair and BSO

- Expedited or limited review of new or 3-year re-registration applications is not possible. A full IBC review is required, irrespective of anticipated or requested biosafety containment requirements or classification based on NIH Recombinant Guidelines.
    a. Note that exempt recombinant research (Section III-F) and non-exempt recombinant research described by Section III-E of the NIH Guidelines, provided that BSL-1 containment suffices, can be started before IBC review and approval.
    b. Research at higher BSL containment levels or recombinant research described by Section III A-D of the NIH Guidelines cannot be started before IBC approval has been obtained.
- Amendment and annual continuation submissions are reviewed by the IBC Chair and by the BSO responsible for the institution of the PI. In case of any significant changes, a full IBC review is required (see below). If changes are limited to IBC-trained personnel or to variations of genes, vectors, hosts, cells, tissues and species which are essentially equivalent to the IBC approved entities, approval by IBC Chair and BSO can suffice if both agree that no full IBC review is required.
- A duly signed Application Form must have been received by the IBC Administrator before IBC Chair and BSO can approve submissions with personnel or minor protocol amendments or annual renewal continuation submissions without changes.
- The IBC Administrator is informed of the approval by IBC Chair and BSO. The IBC Administrator emails the information of approval, including the deadline for the next protocol renewal or re-registration date, with copies to IBC Chair and BSO.
- All submissions reviewed and approved by the IBC Chair and BSO are listed on the agenda for the upcoming IBC meeting.

5. Convened Full IBC Committee Review

- Application Forms, including all applicable Appendices, must be in the hands of the IBC Administrator, the IBC Chair and the applicable BSO no less than 2 weeks prior to the scheduled quarterly IBC meeting, posted on the IBC website, in order to be listed on the meeting agenda for IBC review.
- A duly signed Application Form must have been received by the IBC Administrator prior to the IBC meeting to allow review by the IBC.
- New applications and 3-year re-registration submissions are always reviewed by the full IBC. Any other submission which is deemed to require full IBC review by pre-reviewing IBC Chair or BSO, will be reviewed by the full IBC.
- All Application Forms and Appendices submitted for full IBC review will be provided to all IBC members at the time that the meeting agenda is distributed, at least 3 working days prior to the meeting.
- IBC submissions on the agenda are presented by the BSO involved in the pre-review or by the IBC member or invited external expert involved in the pre-review. Issues raised by IBC members are addressed. At this time the committee determines if there are remaining issues or concerns that must be satisfactorily addressed by the PI prior to approval.
- At the conclusion of the committee review, the committee has the following decision options:
    - **Approved or Approved with Comment:** The protocol submission satisfactorily addresses all issues and the submission is fully approved with no modification by the PI necessary.
    - **Approved with Stipulations:** The protocol submission is approved, but the approval is limited pending satisfactory resolution to specific issues (e.g., Animal work may not begin until IACUC has approved the corresponding animal protocol).
    - **Pending-Conditions:** Minor issues remain that must be addressed by the Principal Investigator prior to approval. The revised protocol submission is reviewed by the IBC Chair and BSO.

- **Deferred:** Significant issues remain, requiring the full committee to review the PI's response.
- **Rejected:** The protocol submission is not approved and has been withdrawn from further consideration by the committee.

6. Delinquent PI Responses to IBC Review Letters

Failure to respond to submission review letters within 30 days will result in a Final Notice letter from the IBC Administrator on behalf of the IBC Chair. If the PI fails to respond to the Final Notice in 30 days, this will result in withdrawal of the original submission. The PI needs to contact the IBC office if the PI is unable to respond to the review letters on a timely basis.

H. Monitoring Proceedings

1. Annual Survey

- The Annual Survey process, as part of annual laboratory inspections, confirms the staff members who are working on the project, the location of the work, the certification dates of biosafety cabinets, and to remind the PI to review the approved protocol and to request revisions and acquire approval from the IBC prior to initiating any changes.

2. Lab Inspections

- EHS – General:
  - All buildings and laboratories comprising the University of Missouri – Kansas City are inspected on an annual basis to identify and locate infractions of fire, laboratory, radiation or general safety concerns. All laboratories of affiliated institutions are inspected on an annual basis by the respective Biosafety Officer of that institution.

- Biosafety Officer/BSO - Protocol Specific
  - Annually and at the request of the IBC, the Biosafety Officer conducts BSL-2, ABSL-2, BSL-3 and ABSL-3 inspections based upon the standards set forth in most current edition of the *BMBL,* the NIH *Guidelines for Research Involving Recombinant DNA Molecules* and the *Select Agent Regulation.* In addition, BSL-3 and ABSL-3 inspections are conducted semi-annually and prior to the initiation of BSL-3 research.
  - At the IBC meeting, the responsible BSO will present a detailed summary of each inspection that was conducted after the last scheduled meeting/presentation of inspections. These reports will include any inspections conducted for initial purposes or the semi-annual scheduled inspections.
    - After each protocol on the meeting agenda, the BSO will provide a summary of the correlating inspection.
  - Following an inspection, the responsible BSO will prepare an audit report, using the "audit report template", or affiliate institutional equivalent, and send it to the IBC Chair and Administrator via e-mail.
    - The audit report should specify the quarter for the next regular audit, and/or should specify, based on noted deficiencies, at which date an ad-hoc audit will be executed to review whether and how noted deficiencies have been remedied.
    - If an audit reveals major, unacceptable deficiencies in laboratory biosafety conditions or practices, the BSO will immediately contact the IBC Chair to discuss appropriate action which may include an order of cessation of all laboratory work until biosafety conditions are met.
      - Any action of this matter by BSO and IBC Chair will be reported at the next quarterly IBC meeting.
    - In case of major biosafety hazards or violation of NIH Guidelines, an ad-hoc IBC meeting will be called as quickly as feasible, to discuss and act, including confirming or amending any actions taken by BSO and IBC Chair.
    - Upon review of an audit report with few, if any, major issues, the IBC chair will instruct the Administrator by email, with email cc to the BSO, to send the audit report on behalf of the BSO and the IBC Chair to the PI of the laboratory audited.
    - The IBC suggests that inspection results and audit report be made available to the Principal Investigator as soon as possible,

- by the IBC Administrator immediately following receipt of the audit report by the IBC Chair and Administrator, or,
- by the BSO in the form of a draft audit report to the Principal Investigator in order for the BSO to include any PI responses in the final audit report that is submitted to the IBC Chair and Administrator via e-mail.

- Training at UMKC is provided via Environmental Health and Safety by the Biosafety Officer. The BSO at the affiliated institutions has the same responsibility for training within its particular institutional framework. Additional training is provided at initiation and annually to all Select Agent investigators and includes Biosafety, Security, and Incident Response via the IBC training on the blackboard server. Specific training is also provided by the Biosafety Officer as requested.

I. IBC Relationships

3. IACUC

IBC protocol submissions that involve the use of live vertebrate animals (i.e., administration of biohazardous agents or generation and breeding of non-exempt transgenic/knock-out or knock-in animals) require IBC review and approval before they can be approved by the IACUC.

4. IRB

IBC protocol submissions which involve the administration of biohazardous agents or recombinant DNA to humans, or involves the acquisition of tissues directly from humans, requires IRB approval prior to initiation. IBC Administrators confirm approval with the IRB staff for all IBC submissions that indicate IRB approval is required. **Only after IBC approval is confirmed is IRB approval granted for these submissions**.

Protocols involving the transfer of rDNA to human research participants require review and approval by the IBC. The IBC review process is coordinated with the IRB review process of the related protocol so that no IRB approval of a human gene transfer trial is given in the absence of IBC approval.

5. Grant/Contracts

Upon receipt of funding proposals, the Office of Research Services – Post Award Office contacts the IBC office to determine whether an IBC protocol is required, and if so, whether it has been approved.

6. EHS

UMKC Environmental Health and Safety is responsible for the development and coordination of the University's safety and environmental compliance programs including radiation safety. These programs include, but are not limited to, the following:

- Industrial hygiene;
- Fire safety;
- Inspections (All buildings and laboratories comprising the University of Missouri – Kansas City are inspected on an annual basis to identify and locate infractions of fire, laboratory, radiation or general safety concerns.);
- Training;
- Plan review;
- Radiation safety;
- Laser safety;
- Emergency response;
- Environmental issues;
- Ergonomics; and
- Regulatory compliance.

At the affiliated institutions, environmental health and safety compliance is the responsibility of equivalent institutional offices and their personnel.

J. Specific IBC Policies

7. Conflict of Interest

No member of the IBC may be involved in the IBC's deliberation, review and approval of a submission in which he or she, or his/her spouse/significant other, is listed as an investigator, otherwise expects to be engaged, or has a financial interest, except to provide information requested by the IBC (including information requested during a convened IBC meeting). IBC members are obligated to report their conflict of interest to the IBC Chair prior to discussion of the protocol in question, and to leave the meeting room during discussion and voting on that protocol, unless requested by the IBC Chair to remain during the discussion, prior to the vote, to answer questions or provide additional information.

No member of the IBC, including the Chair and any BSO, may sign a protocol or any other official IBC document in which they have a COI as described in the above paragraph. In case of a COI of this kind, the IBC should, as part of the associated decision process that will require a signature, designate an IBC member without a COI to sign the document(s).

8. Transportation of Animals Following Administration of Biohazardous Agents

Transportation of vertebrate animals following the administration of biohazardous agents must be described in the IBC protocol form and approved by the IACUC and the IBC. The description in the IBC protocol should include the route and the method of transport. This transportation information must be consistent to what has been approved by the IACUC.

9. Antibiotic Sensitivity

Research involving organisms with known human biosafety concerns (BSL-2 and above) which may be partially or fully resistant to treatment by such agents as antibiotics, antivirals and antifungals, must be described in detail, providing human safety health risks, available treatments, proposed containment measures and, if appropriate, specialized testing procedures.

10. Review of Safety Reports

During the conduction of human gene therapy, Principal Investigators must submit a written report to the NIH Office of Biotechnology Activities (NIH OBA) with the occurrence of any serious adverse event that is both unexpected and associated with the use of the gene transfer product (i.e., there is a reasonable possibility that the event may have been caused by the use of the product). The University of Missouri – Kansas City IBC must be copied on any such serious adverse event that is reported to the NIH OBA for human subjects under study at the University of Missouri – Kansas City or IBC affiliated institutions.

11. Dual Use Research of Concern

The United States Government Policy for Institutional Oversight of Life Sciences Dual Use Research of Concern (Policy for Institutional DURC Oversight) and the *USG Policy for Oversight of Life Sciences Dual Use Research*

of Concern (March 2012 DURC Policy) apply to the oversight of life sciences DURC that is either funded by the U.S. Government (USG) or taking place at institutions receiving funding from the USG for life sciences research.

The National Science Advisory Board for Biosecurity (NSABB) has defined dual use research of concern (DURC) as "research that, based on current understanding, can be reasonably anticipated to provide knowledge, products, or technologies that could be directly misapplied by others to pose a threat to public health and safety, agricultural crops and other plants, animals, the environment, material or national security"

Requirements for Institutional Review Entities (IRE)

The *Policy for Institutional DURC Oversight* describes a range of mechanisms and options for fulfilling the requirement for an IRE:

- Setting up a new committee at the institution for the sole purpose of conducting reviews of research for dual use potential;
- Using an extant committee, such as an institutional biosafety committee (IBC); or
- Using an externally administered committee, such as an IBC or review entity at a neighboring or regional institution, or a commercial entity.

- Regardless of how the requirement for establishing an IRE is fulfilled, the IRE must meet the following criteria:
  - Be composed of at least five members;
  - Be sufficiently empowered by the institution to ensure it can execute the relevant requirements in Section 7.2.B of the *Policy for Institutional DURC Oversight*;
  - Have sufficient breadth of expertise to assess the dual use potential of the range of relevant life sciences research conducted at a given research facility;
  - Include persons with knowledge of relevant United States Government policies and understanding of risk assessment and risk management considerations, including biosafety and biosecurity. The review entity may also include, or have available as consultants, at least one person knowledgeable in the institution's commitments, policies, and standard operating procedures;
  - On a case-by-case basis, recuse any member of an IRE who is involved in the research project in question or has a direct financial interest, except to provide specific information requested by the review entity; and
  - Engage in an ongoing dialogue with the PI of the research in question when conducting a risk assessment and developing a risk mitigation plan.

Requirements for the IRE Review Process

The *Policy for Institutional DURC Oversight* requires the IRE to undertake the following steps in its review of research:

- Verify that the research identified by the PI directly utilizes nonattenuated forms of one or more of the listed agents.
- Review the PI's assessment of whether the research produces, aims to produce, or is reasonably anticipated to produce one or more of the listed experimental effects and the final determination of whether the research meets the scope of the *Policy for Institutional DURC Oversight*.
- For research that the IRE determines meets the scope of the *Policy for Institutional DURC Oversight*, **conduct a risk assessment and determine whether the research meets the definition of DURC.** This assessment should involve the PI, as appropriate.
- **Assess the benefits of the DURC** while also considering the risks identified in the previous step.
- **Develop a *draft* risk mitigation plan** for the identified DURC. This plan should be based on the assessment of the risks and benefits performed in the previous step. More information on drafting risk mitigation plans can be found in **Section D** of the *Companion Guide*.

- **Review, at least annually, *all* active risk mitigation plans at the institution.** If the research in question still constitutes DURC, the IRE should modify the plan as needed. More information on the annual review of active risk mitigation plans can be found in **Section E** of the *Companion Guide*.

Research Involving the Listed Agents

To initiate the institutional review process, PIs are to notify the UMKC IRE if they are conducting research that directly uses nonattenuated forms of one or more of the following agents:

- Avian influenza virus (highly pathogenic)
- *Bacillus anthracis*
- Botulinum neurotoxin (in any quantity)
- *Burkholderia mallei*
- *Burkholderia pseudomallei*
- Ebola virus
- Foot-and-mouth disease virus
- *Francisella tularensis*
- Marburg virus
- Reconstructed 1918 influenza virus
- Rinderpest virus
- Toxin-producing strains of *Clostridium botulinum*
- Variola major virus
- Variola minor virus
- *Yersinia pestis*

The categories of experimental effects are as follows:

- Enhances the harmful consequences of the agent or toxin;
- Disrupts immunity or the effectiveness of an immunization against the agent or toxin without clinical and/ or agricultural justification;
- Confers to the agent or toxin resistance to clinically and/or agriculturally useful prophylactic or therapeutic interventions against that agent or toxin or facilitates their ability to evade detection methodologies;
- Increases the stability, transmissibility, or the ability to disseminate the agent or toxin;
- Alters the host range or tropism of the agent or toxin;
- Enhances the susceptibility of a host population to the agent or toxin; and
- Generates or reconstitutes an eradicated or extinct listed agent or toxin.

Principal Investigators have a professional responsibility to:

- Understand dual use research issues and concerns,
- Be aware of the implications of their work and the various ways in which information and products from their work could be misused, and
- Take steps to minimize misuse of their work.
- Notify the IBC that their research may be categorized as Dual Use Research and needs further evaluation.
- The IBC is responsible for an in-depth evaluation of a potential DURC application and notification to OBA/NIH

The *Policy for Institutional DURC Oversight* requires PIs at institutions subject to the DURC Policy to notify the institutional review entity (IRE) as soon as any of the following three criteria are met:

- **The PI's research directly involves nonattenuated forms of one or more of the listed agents;**
- **The PI's research with nonattenuated forms of one or more of the listed agents also produces, aims to produce, or can be reasonably anticipated to produce one or more of the seven listed experimental effects; or**
- **The PI concludes that his or her research with nonattenuated forms of one or more of the listed agents that also produces, aims to produce, or can be reasonably anticipated to produce one or more of the seven listed experimental effects *may* meet the definition of DURC and should be considered (or reconsidered) by the IRE for its DURC potential.**

12. Accidents Involving Biohazardous Material Spills

Any spill involving a biohazardous material must be reported to the BSO.

Exposures

- All exposures (inhalation, inoculation, ingestion or skin contact) involving biohazardous material must be immediately referred to EHS, Occupational Health, or equivalent offices designated by UMKC or the affiliated institutions.

NIH Reporting Requirements

- Significant problems with or any violations of the NIH Guidelines including all accidents and exposures involving recombinant DNA, must be reported to the IBC Administrator as soon as possible, certainly well within the specified deadlines for OBA/NIH reporting. The IBC Administrator will prepare a report and will notify NIH and appropriate institutional officials.
- Serious Adverse Events (SAEs) involving human gene therapy trials must be reported by the Principal Investigator to the IBC Administrator and Chair, to EHS and directly to OBA/NIH well within the 24-hour reporting deadline. The IBC will remove details from the Meeting Minutes to protect proprietary information and to comply with all applicable HIPAA and privacy regulations and expectations.

13. Non-Compliance with the NIH Guidelines - Procedure for Reporting Concerns:

The IBC investigates all concerns brought to its attention. Concerns can be made to any IBC member and should indicate, times, dates, places and procedures of concern. The Public is invited to submit concerns to the IBC Administrator in the Meeting Minutes posted on the IBC website. The more specific information provided, the more effective will be the IBC evaluations.

Initial Evaluation and Actions:

- The IBC Coordinator reviews the allegations and immediately notifies the IBC Chair, BSO, Director of EHS, and other appropriate Institutional Official.

- The IBC Coordinator submits a report to the IBC Chair or the co-chair if the Chair is not available or if the Chair is involved with the protocol to which the concern is related and to the BSO. If appropriate to the particular concern, or if the Chair and Co-Chair are both not available, other IBC members will be notified and charged with acting on behalf of the Chair in implementing this procedure. The Chair, the Co-Chair or other IBC member acting on behalf of the Chair, will promptly initiate an investigation of the circumstances underlying the concern.

Investigation:

- A subcommittee appointed by the Chair, should conduct the investigation of the circumstances underlying the concern and report findings to the IBC. It is important to avoid actual or perceived conflicts of interest in this process and to protect the identity of the complainant. The IBC should charge the subcommittee to gather information and should impose a deadline for reporting to the IBC. The time allowed will depend on the initial determination whether immediate action may be required.

The nature and sources of the information required will vary depending on the circumstances, but may involve:

- Interviewing complainants (if known), any persons against whom allegations were directed, and pertinent program officials;
- Observing the environment; and
- Reviewing any pertinent records, (e.g. protocol and other documents).

The subcommittee investigator(s) should provide a report to the IBC that summarizes:

- the concern(s) as reported to the IBC,
- the results of interviews,
- the condition of the environment,
- the results of records and other document reviews,
- any supporting documentation such as correspondence, reports, and animal records,
- conclusions regarding the substance of the concerns *vis-à-vis* requirements of the NIH, and institutional policies, procedures, and protocols,
- recommended corrective actions and deadlines, if appropriate.

IBC consideration of the concern and determination of corrective actions:

- The report of the subcommittee investigation should be provided to all IBC members,
- The IBC may vote electronically to accept the recommendations of the investigating subcommittee, offer further suggestions or comments, or request a convened meeting to discuss the concern and/or the report,
- Any member request for a convened meeting to consider a concern must result in a convened meeting.

Based upon the report of the investigation, the IBC will determine required actions, if any.

IBC determinations may include, but are not limited to:

- investigation did not reveal an issue of non-compliance,
- investigation revealed non-compliance,
- related aspects of the program require further review,
- other related institutional programs may require review.

- For any non-compliance with standards accepted by the IBC, the IBC must prescribe corrective actions along with appropriate deadlines and reporting requirements. The IBC must also determine whether the non-compliance meets the criteria “serious or continuing non-compliance” or “serious deviation” so as to require reporting to NIH as discussed below.

Notification in Writing:

- The IBC Chair will communicate, in writing, the results of the IBC evaluation of a reported concern to the person(s) responsible for the situation reported, the Institutional Official, the Director of EHS, and the person reporting the concern if they wish to be notified of the outcome. The communication will contain a summary of the concern, the findings of the investigation, determinations of the IBC, and the recommended corrective actions/sanctions. The letter will also inform the person(s) responsible for the situation reported of his/her option to appeal the decision by writing the IBC Chair, within 10 days of receipt of this letter detailing the basis of the appeal and requesting a meeting with the IBC.

Examples of IBC actions that may be appropriate in response to situations that constitute non-compliance are:

- terminate approval of the respective research study,
- suspend approval of the respective research study, pending completion and acceptance by the IBC of an independent audit of the study and/or the submission, by the principal investigator, of a written plan for the correction and/or prevention of the problem,
- institute an IBC-mandated corrective action plan and independent audit of the study; and
- take such other action as the IBC deems appropriate.

The IBC is obligated to report, through the Institutional Official, any significant problems, violations of the *NIH Guidelines*, or any significant research-related accidents and illnesses to NIH/OBA within thirty days; unless the institution determines that a report has already been filed by the Principal Investigator or the Biosafety Officer.

Appeals

Disputes regarding interpretation of this policy or decisions made by the IBC are referred to the Institutional Official for adjudication.