Institutional Biosafety Committee (IBC) Policy Manual for the Use of Recombinant DNA and other Biohazardous Agents

I. References
B. Biosafety in Microbiological and Biomedical Laboratories (BMBL) published by the CDC, accessible at: http://www.cdc.gov/biosafety/publications/bmbl5/
C. Tulane University Biosafety Plan, accessible at: http://tulane.edu/asvpr/biosafety/biomanuals.cfm

II. Purpose
The purpose of this policy manual is to provide guidance to Tulane University investigators using recombinant DNA-modified organisms, Select Agents (as defined by the CDC Select Agent Program (http://www.selectagents.gov/)) or organisms that require BSL3 containment. This policy manual contains regulatory requirements set out by the NIH and by Institutional policy which promulgate the ethical and safe conduct of research.

III. Definitions and Abbreviations
A. BSO: Biological Safety Officer
B. Co-Investigator: Faculty or non-faculty researchers who are not Principal Investigators.
C. IBC: The “Institutional Biosafety Committee” is a committee that (i) meets the requirements for membership specified in Section IV-B-2 of the NIH Guidelines, and (ii) reviews, approves, and oversees projects in accordance with the responsibilities defined in Section IV-B-2.
D. Institution: Tulane University.
E. NIH: The National Institutes of Health
F. OBA: “Office of Biotechnology Activities” is the office within the NIH that is responsible for: (i) reviewing and coordinating all activities relating to the NIH Guidelines, and (ii) performing other duties as defined in Section IV-C-3, Office of Biotechnology Activities (OBA).
G. Principal Investigator: The investigator who is primarily responsible for the conduct of the research. Only Tulane University faculty members may be Principal Investigators. All non-faculty researchers are properly characterized as Co-Investigators.
H. RAC: “Recombinant DNA Advisory Committee” is the public advisory committee that advises the Department of Health and Human Services (DHHS) Secretary, the DHHS Assistant Secretary for Health, and the NIH Director concerning recombinant DNA research.
I. RCO: Research Compliance Officer
J. rDNA: recombinant deoxyribonucleic acid – (i) molecules that are constructed outside living cells by joining natural or synthetic DNA segments to DNA molecules that can replicate in a living cell, or (ii) molecules that
result from the replication of those described in (i) above.

IV. Policy

Research involving recombinant DNA, Select Agents or organism that require BSL3 containment, conducted at or sponsored by the Institution, or research conducted by Institution faculty members or students, must be conducted in a manner that does not pose a significant risk to (1) the health or safety of laboratory workers, others in the Institution community, or the public, or (2) the environment. Federal law on use of recombinant DNA mandates the establishment of the IBC, which reviews, approves and oversees projects involving recombinant DNA.

A. All NIH-funded projects involving recombinant DNA techniques must comply with the NIH Guidelines, irrespective of the source of funding. Non-compliance may result in (i) suspension, limitation, or termination of financial assistance for the noncompliant NIH-funded research project and of NIH funds for recombinant DNA research at the Institution, or (ii) a requirement for prior NIH approval of any or all recombinant DNA projects at the Institution.

B. All non-NIH funded projects involving recombinant DNA techniques conducted at or sponsored by the Institution must comply with the NIH Guidelines. Noncompliance may result in (i) suspension, limitation, or termination of NIH funds for recombinant DNA research at the Institution, or (ii) a requirement for prior NIH approval of any or all recombinant DNA projects at the Institution.

C. All research involving rDNA experiments covered under the NIH Guidelines, Select Agents or experiments requiring BSL3 or BL3-N containment must be registered with the IBC.

V. Organizational Responsibilities

A. The Institution

The Institution’s responsibilities include, but are not limited to:

1. Establish and implement policies that provide for the safe conduct of recombinant DNA research and that ensure compliance with the NIH Guidelines
2. Establish and implement policies that provide for the safe conduct of research with Select Agents or requiring BSL3 containment.
3. Establish an Institutional Biosafety Committee (IBC) that meets the requirements as specified in Section IV-B-2-b of the NIH Guidelines.
4. Grant the IBC the authority to fully investigate violations or non-compliance with the NIH Guidelines.
5. Ensure compliance with applicable regulations concerning recombinant DNA used in research. The IBC shall serve as the immediate point of contact with investigators to receive and review research projects proposing use of recombinant DNA. The IBC shall report to the Vice President for Research.
6. The Vice President for Research appoints a BSO (who is also a member of the IBC) if the Institution: (i) conducts recombinant DNA research at Biosafety Level (BL) 3 or (BL) 4, or (ii) engages in large scale (greater than 10 liters) research. The BSO carries out the duties specified in Section IV-B-3 of the NIH Guidelines.
7. Appoint members of the IBC to renewable terms of three years or less
8. Appoint at least one individual with expertise in plant, plant pathogen, or plant pest containment principles (who is a member of the IBC) if the Institution conducts recombinant DNA research that requires IBC
approval in accordance with Appendix P of the *NIH Guidelines, Physical and Biological Containment for Recombinant DNA Research Involving Plants*.

9. Appoint at least one individual with expertise in animal containment principles (who is a member of the IBC) if the Institution conducts recombinant DNA research that requires IBC approval in accordance with Appendix Q of the *NIH Guidelines, Physical and Biological Containment for Recombinant DNA Research Involving Animals*.

10. When the Institution participates in or sponsors recombinant DNA research involving human subjects, the Institution must ensure that (i) the IBC has adequate expertise and training (using ad hoc consultants as deemed necessary), (ii) all aspects of Appendix M of the *NIH Guidelines, Points to Consider in the Design and Submission of Protocols for the Transfer of Recombinant DNA Molecules into One or More Human Subjects (Points to Consider)* have been appropriately addressed by the Principal Investigator; and (iii) no research participant shall be enrolled (see definition of enrollment in Section I-E-7) in a human gene transfer experiment until the RAC review process has been completed (see Appendix M-I-B of the *NIH Guidelines, RAC Review Requirements*).

11. Assist and ensure compliance with the *NIH Guidelines* by Principal Investigators conducting research at the Institution as specified in Section IV-B-7 of the *NIH Guidelines*.

12. Ensure appropriate training for the IBC Chair and members, BSO and other containment experts (when applicable), Principal Investigators, and laboratory staff regarding laboratory safety and implementation of the *NIH Guidelines*. The IBC Chair is responsible for ensuring that IBC members are appropriately trained. The Principal Investigator is responsible for ensuring that laboratory staff is appropriately trained. The Institution is responsible for ensuring that the Principal Investigator has sufficient training; however, this responsibility may be delegated to the IBC.

13. Determine the necessity for health surveillance of personnel involved in connection with individual recombinant DNA projects; and if appropriate, conduct a health surveillance program for such projects. The institution will establish a Health Surveillance program for personnel engaged in either:
   a. animal research requiring BSL3 containment
   b. large Scale work (as described in Appendix K of the *NIH guidelines*) requiring BSL3 containment

14. Report any significant problems, violations of the *NIH Guidelines*, or any significant research-related accidents and illnesses to NIH/OBA within 30 days; unless the Institution determines that a report has already been filed by the Principal Investigator or the IBC. Spills and accidents occurring in BSL2 or BSL3 laboratories and resulting in overt exposure to rDNA containing organisms shall be immediately reported to NIH/OBA.

15. Assess the IBC’s performance and IBC’s compliance with the *NIH Guidelines* by:
   a. Requiring an IBC Annual Report submitted to the Vice President for Research by the IBC Chair. This report shall include a list of all active protocols, including protocol numbers, name of investigator, title of the study, whether animals or humans are involved in the research, and Section of *NIH Guidelines* under which the work is covered. The report will also include a list generated by the BSO listing occurrences of significant biosafety problems, violations of the *NIH Guidelines* and significant research-related accidents or illnesses.
   b. Performing random audits of the IBC records to ensure completeness and compliance with the *NIH Guidelines*.

B. The IBC
The IBC’s responsibilities include, but are not be limited to:

1. In accordance with NIH Guidelines and Institution procedures, the IBC shall consist 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 the public health or the environment. The Institution shall follow the NIH Guidelines as necessary for the appointment of experts in certain fields of research. Those experts include (i) at least two (2) members not affiliated with the Institution and who represent the interest of the surrounding community with respect to health and protection of the environment, (ii) at least one individual with expertise in plant, plant pathogen, or plant pest containment principles when experiments utilizing Appendix P, Physical and Biological Containment for Recombinant DNA Research Involving Plants, require prior approval by the IBC, (iii) at least one scientist with expertise in animal containment principles when experiments utilizing Appendix Q, Physical and Biological Containment for Recombinant DNA Research Involving Animals, require IBC prior approval, (iv) when the Institution conducts recombinant DNA research at BL3, BL4, or Large Scale (greater than 10 liters), a BSO is mandatory and shall be a member of the IBC (as described in Section IV-B-3, Biological Safety Officer), (iv) when the institution participates in or sponsors recombinant DNA research involving human subjects, the institution shall ensure that the IBC has reviewers with adequate expertise and training to evaluate such research (using ad hoc consultants when necessary).

2. No member of the IBC may be involved in the review or approval of a project in which he/she is, has been, or expects to be engaged or has a conflict of interest.

3. The IBC chair, on behalf of the Institution, will file an annual report with NIH/OBA as described in section IV-B-2-a (3) of the NIH guidelines.

4. The IBC meetings shall be open to the public. The IBC reserves the right to hold executive sessions during IBC meetings. Executive sessions are not open to the public.

5. Minutes of each IBC meeting will be recorded and will be presented for approval to the IBC at the subsequent meeting. The information contained in the minutes shall include: date and time of the meeting, individuals in attendance, title of protocols being reviewed, description of the proposed research, sections of the NIH Guidelines under which the work is covered, biosafety concerns, major motions, major points of order, whether motions were approved or disapproved, and time of the meeting adjournment.

6. Upon request, the Institution shall make available to the public hard copies of the IBC meeting minutes and documents submitted to or received from funding agencies. All requests made by the public regarding the IBC will be handled by the RCO. When processing such requests, the Institution reserves the right to redact minutes or other IBC documents that will be made available to the public. Information that might be redacted includes but is not limited to: private information (names, addresses, telephone numbers, e-mail addresses), proprietary information, trade secrets, names of investigators, names of individual reviewers, location of biohazardous agents or any information that might compromise institutional or national security. Such redactions will be made by the RCO in consultation with the Tulane Office of the General Counsel.

7. When public comments or inquiries are made on Tulane’s IBC actions, the comments will be referred to the RCO. The response to the comments will be drafted by the IBC chair and the BSO. This response will be reviewed by the RCO in consultation with the Tulane Office of the General Counsel. Once the response has been approved, the IBC will forward the response to the individual(s) making the comments. In addition, the IBC will forward both the public comments and the IBC’s response to OBA. Responses to public comments will be completed within two weeks after receiving the comment, unless
an extension of time is mutually agreed upon among the parties involved.

8. On behalf of the Institution, the IBC is responsible for:

   a. Reviewing recombinant DNA research conducted at or sponsored by the Institution for compliance with the NIH Guidelines as specified in Section III, Experiments Covered by the NIH Guidelines, and approving those research projects that are found to conform to the NIH Guidelines. This review shall include:

      i. Independent assessment of the containment levels required by the NIH Guidelines for the proposed research;

      ii. Assessment of the facilities, procedures, practices, and training and expertise of personnel involved in recombinant DNA research;

      iii. Ensuring that all aspects of Appendix M of the NIH Guidelines have been appropriately addressed by the Principal Investigator;

      iv. Ensuring that no research participant is enrolled in a human gene transfer experiment until the RAC review process has been completed;

      v. For human gene transfer protocols 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;

      vi. Ensuring that final IBC approval is granted only after the RAC review process has been completed;

      vii. Ensuring compliance with all surveillance, data reporting, and adverse event reporting requirements set forth in the NIH Guidelines.

   b. Reviewing, establishing biocontainment levels and ensuring safe conduct of all research involving Select Agents.

   c. Reviewing and ensuring safe conduct of all research performed in BSL3 containment.

   d. Notifying the Principal Investigator of the outcome of the IBC’s review (approval; deferral or required modifications). There are three possible outcomes:

      i. “Approved as submitted”.

      ii. “Modifications/clarifications required to secure approval”. If conditions are placed on the approval, all conditions must be met, prior to approval. The investigator has 90 days to address the modifications or meet the conditions required. The response of the investigator is reviewed by the IBC chair, and if adequately addressed the protocol/registration is approved. If clarifications are not received within 90 days, the protocol submission will be considered voided and the investigator will have to resubmit a new protocol for review by the convened committee.

      iii. “Deferred”. If the Committee defers the protocol pending major modifications or clarifications, the investigator has 90 days to respond to the Committee’s concerns. Resubmissions of deferred protocols are reviewed by the convened committee.

   e. Lowering containment levels for certain experiments as specified in Section III-D-2-a of the NIH Guidelines;

   f. Setting containment levels as specified in Sections III-D-4-b of the NIH Guidelines;

   g. Periodically reviewing recombinant DNA research conducted at the Institution to ensure compliance with the NIH Guidelines. Post-approval monitoring of each protocol will be done
every 18 months. A “Post-approval Project Status Form” will be sent to investigators with approved protocols 18 months after the protocol is approved. The investigators are required to fill, sign and return the form updating the status of their project and indicating any changes in procedures, biosafety levels or personnel;

h. Adopting emergency plans covering accidental spills and personnel contamination resulting from recombinant DNA research;

i. Reporting any significant problems or violations of the NIH Guidelines and any significant research-related accidents or illnesses to the BSO, RCO and Vice President for Research and to NIH/OBA within 30 days, unless the IBC determines that a report has already been filed by the Principal Investigator. Spills and accidents occurring in BSL2 or BSL3 laboratories and resulting in overt exposure to rDNA containing organisms shall be immediately reported to NIH/OBA.

j. The IBC may not authorize initiation of experiments that are not explicitly covered by the NIH Guidelines until NIH (with the advice of the RAC when required) establishes the containment requirement;

k. Performing such other functions as may be delegated to the IBC under Section IV-B-2, of the NIH Guidelines.

C. The Principal Investigator

1. Eligibility: Only faculty members of the Institution are eligible to be Principal Investigators and submit registrations to the IBC. All non-faculty researchers and students are properly characterized as Co-Investigators for purposes of conducting recombinant DNA research sponsored by or conducted at the Institution. On behalf of the Institution, the Principal Investigator is responsible for full compliance with the NIH Guidelines in the conduct of recombinant DNA research.

2. General Responsibilities: As part of this general responsibility, the Principal Investigator shall:

a. Not initiate or modify recombinant DNA research which requires IBC approval prior to initiation (Sections III-A to III-D) until that research or the proposed modification thereof has been approved by the IBC and has met all other requirements of the NIH Guidelines;

b. Determine whether experiments are covered under Section III-E of the NIH Guidelines, (Experiments that Require Institutional Biosafety Committee Notice Simultaneous with Initiation) and ensure that the appropriate procedures are followed;

c. Report any significant problems or violations of the NIH Guidelines and any significant research-related accidents or illnesses to the BSO and to NIH/OBA within 30 days. Spills and accidents occurring in BSL2 or BSL3 laboratories and resulting in overt exposure to rDNA containing organisms shall be immediately reported to NIH/OBA.

c. Report any new information bearing on the NIH Guidelines to the IBC and to NIH/OBA;

d. Timely complete and submit Post-Approval Status Forms;

e. Be adequately trained in good microbiological techniques;

f. Adhere to IBC approved emergency plans for handling accidental spills and personnel contamination;

g. Comply with shipping requirements for recombinant DNA.

3. Information to Be Submitted by the Principal Investigator to NIH/OBA

The Principal Investigator shall:
a. Submit information to NIH/OBA, with notice to the IBC, for certification of new host-vector systems;
b. Petition NIH/OBA, with notice to the IBC, for proposed exemptions to the *NIH Guidelines*;
d. Petition NIH/OBA, with notice to the IBC, for determination of containment for experiments requiring case-by-case review;
e. Petition NIH/OBA, with notice to the IBC, for determination of containment for experiments not covered by the *NIH Guidelines*.
f. Ensure that all aspects of Appendix M have been appropriately addressed prior to submission of human gene therapy experiments to NIH/OBA, and provide a letter signed by the Principal Investigator(s) on Institution letterhead acknowledging that the documentation being submitted to NIH OBA complies with the requirements set forth in Appendix M.;

4. Submissions by the Principal Investigator to the IBC.

The Principal Investigator shall:

a. Adhere to the IBC-approved protocol and promptly report proposed changes to the IBC. The proposed changes will not be initiated without IBC review and approval, except where necessary to eliminate apparent immediate hazards to investigators, staff, personnel, the environment or the public. Changes made to eliminate apparent immediate hazards must be reported to the IBC promptly.
b. Make an initial determination of the required levels of physical and biological containment in accordance with the *NIH Guidelines*;
c. Select appropriate microbiological practices and laboratory techniques to be used for the research;
d. Submit the initial research protocol using the *IBC Recombinant DNA and Biohazard Registration Form* and any subsequent changes (e.g., changes in the source of DNA or host-vector system), if covered under Sections III-A, III-B, III-C, III-D, or III-E (*Experiments Covered by the NIH Guidelines*), to the IBC for review and approval;
e. Sign and date the Investigator’s Assurance page in the approved version of the protocol. The Assurance confirms that the investigator is responsible for training personnel, reporting violations of the *NIH guidelines*, reporting incidents or overt exposures, notifying the IBC about changes in the protocol, and certifying that the information in the protocol is accurate.
f. Remain in communication with the IBC throughout the conduct of the project and complete the “Post-approval Project Status” form when so requested.

5. Responsibilities of the Principal Investigator Prior to Initiating Research

The Principal Investigator shall:

a. Make available to all laboratory staff the protocols and Registration Forms that describe the potential biohazards and the precautions to be taken;
b. Instruct and train laboratory staff in: (i) the practices, techniques and proper biocontainment levels required to ensure safety; (ii) the procedures for dealing with spills, releases, accidents
and exposures; (iii) types of research covered under the *NIH Guidelines*, and (iv) maintain records documenting personnel training.

c. Inform the laboratory staff of the reasons and provisions for any precautionary medical practices advised or requested (e.g., vaccinations or serum collection).

6. Responsibilities of the Principal Investigator during the Conduct of the Research

   The Principal Investigator shall:

   a. Supervise the safety performance of the laboratory staff to ensure that the required safety practices and techniques are employed;

   b. Investigate and report any significant problems pertaining to the operation and implementation of containment practices and procedures in writing to the BSO (where applicable), IBC, NIH/OBA, and other appropriate authorities (if applicable);

   c. Correct work errors and conditions that may result in the release of recombinant DNA materials; or other biohazardous agents.

   d. Ensure the integrity of the physical containment (e.g., biological safety cabinets) and the biological containment (e.g., purity and genotypic and phenotypic characteristics); and

   e. Comply with reporting requirements for human gene transfer experiments conducted in compliance with the *NIH Guidelines* (see Appendix M-VII of the *NIH Guidelines*, Reporting Requirements--Human Gene Transfer Protocols).

D. The Biological Safety Officer

   The BSO’s duties include, but are not be limited to:

   1. Performing annual inspections of all laboratories conducting research under BSL2 and BSL3 containment, and labs conducting research covered under the *NIH Guidelines* (regardless of the level of biocontainment). Careful inspections are done to ensure that good laboratory practices and *NIH Guidelines* are rigorously followed;

   2. Reporting to the IBC and the Institution any significant problems, violations of the *NIH Guidelines*, and any significant research-related accidents or illnesses or overt-exposures to rDNA containing organisms of which the BSO becomes aware unless the BSO determines that a report has already been filed by the Principal Investigator; or the Institution.

   3. Developing emergency plans for handling accidental spills and personnel contamination and investigating laboratory accidents involving select agents, agents requiring BSL3 containment and recombinant DNA-containing organisms, including transgenic animals.

   4. Developing training materials for investigators to include a thorough description of the PI’s role and responsibilities, types of research covered under the *NIH Guidelines*, setting and maintaining the appropriate biocontainment levels, training personnel and maintenance of training records, and procedures to submit IBC registrations and obtain approvals.

   4. Providing advice on laboratory security for all laboratories in the university; and

   5. Providing technical advice to Principal Investigators and the IBC on research safety procedures.

   All Reports for submission to NIH/OBA shall be sent to:

   Office of Biotechnology Activities
VI. Protocol Submission, Post-Approval Review, Renewals, Amendments and Additional Procedures

1. Protocol submission: Before submitting a protocol, the Principal Investigator must make an initial determination whether the subject research is Exempt or Non-Exempt under the NIH Guidelines. It is the Principal Investigator’s responsibility to be knowledgeable of and abide by the provisions of the NIH Guidelines when making this determination. The principal investigators are encouraged to consult the IBC Chair or BSO when uncertain about making the exempt vs non-exempt determination.

When a completed IBC Recombinant DNA and Biohazard Registration Form are received by the Biosafety Office, it is date-stamped and assigned a protocol identification number that will be referenced on all subsequent IBC correspondence. This number is provided to the Principal Investigator in an electronic memo confirming IBC receipt of the protocol. The convened IBC will review all submitted applications. The IBC chair will notify the Principal Investigator of the outcome of the IBC’s review as described in V-B-8-d above.

2. Post-Approval monitoring: All approved protocols will be reviewed every 18 months by the IBC chair and BSO. A completed Post-approval Project Status Form indicating changes or lack thereof to the approved protocol must be submitted by the Principal Investigator within 30 days of receiving the form request.

3. Renewals: IBC approval is granted for a three (3) year period, after which a new application must be submitted for review. New applications must be submitted in the most current IBC Registration Form (available in the Institution IBC’s web page) and shall include updated information about the project and any changes including changes in the rDNA procedures.

4. Amendments. Modifications or amendments of approved Non-Exempt research protocols require IBC review and approval before implementation of the changes. The modifications should be submitted to the IBC using the IBC Amendment Form available in the Institution IBC web site. Amendments can be submitted by E-mail to ibc@tulane.edu. The IBC Chair and BSO will perform an initial review of the modification. Some modifications may require full committee review and/or a separate approval by the IBC prior to initiation of such experiments.

5. Additional Procedures: Additional considerations are necessary for studies involving transgenic animals or human subjects as delineated below:

Transgenic Animals:

1. The purchase or transfer of transgenic rodents that can be safely housed at BL1 containment is exempt from the NIH Guidelines.

2. All experiments involving viable recombinant DNA-modified microorganisms tested on whole animals (transgenic or not) require both IBC and IACUC approvals. There are no Exempt protocols in this category and all such procedures require IBC approval before initiation. Final approval of IBC protocols in this category is contingent upon obtaining an IACUC approval number.

3. Transgenic animals other than rodents are NOT exempt from the NIH guidelines.

4. The breeding of two different transgenic rodents or the breeding of a transgenic rodent and a non-transgenic rodent with the intent of creating a new strain of transgenic rodent is NOT exempt
from the NIH Guidelines if:

1. Parental or progeny transgenic rodents cannot be safely housed under BL1 containment; and/or
2. Parental or progeny transgenic rodents contain one or both of the following genetic modifications:
   i. incorporation of more than one-half of the genome of an exogenous eukaryotic virus from a single family of viruses.
   ii. incorporation of a transgene that is under the control of a gamma retroviral long terminal repeat (LTR).

**Human Gene Therapy Subjects:**

Experiments involving the deliberate transfer of recombinant DNA, or DNA or RNA derived from recombinant DNA, into one or more human research participants require IBC and IRB approvals and RAC Review before research participant enrollment. Tulane University contracts with Western Institutional Review Board Copernicus Group (WCG Inc) to review any human gene therapy protocol. WCG administers a separate IBC that serves to review human gene transfer trials on behalf of Tulane University.

**VII. Dual Use Research of Concern**

The Tulane University IBC serves as an extant committee to review all research that is or is potentially dual use research of concern as defined by the United States government. Policies and procedures for Dual Use Research of Concern can be found in "Tulane University Policy for Institutional Oversight of Life Sciences Dual Use Research of Concern."