

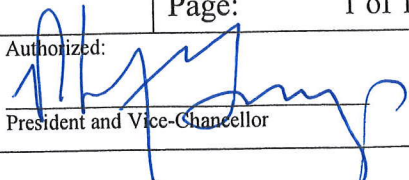
 <b>McMaster University</b> <b>Risk Management</b> <b>Manual</b>	<b>RMM # 600</b> <b>Title: Biosafety Program</b>	<b>Date: December 2006</b> <b>Page: 1 of 10</b>
<b>Submitted:</b>  Biosafety Officer	<b>Approved:</b>  Vice President, Administration	<b>Authorized:</b>  President and Vice-Chancellor

## 1 PURPOSE

- 1.1 To protect employees, students and the community and the environment from the risks which may arise in the handling of potentially hazardous biological materials, by ensuring that the following elements of the program are implemented prior to work being conducted with potentially hazardous biological material:
- Supervisors planning to work with biohazardous material file a biohazard project application with the Biosafety Committee (BSC);
  - approval is obtained from the BSC prior to work commencing;
  - containment facility has been approved by the BSC; and
  - the level of training of the persons assigned to the project has been approved.
- 1.2 To ensure compliance with the Occupational Health and Safety Act (OHSA) and Regulations, Environmental Protection Act and the guidelines of Health Canada, the National Science and Engineering Research Council (NSERC), and all applicable federal and provincial regulations respecting biohazardous material management.

## 2 SCOPE

- 2.1 All teaching and research projects which use:
- infectious biological materials;
  - potentially oncogenic biological materials;
  - recombinant DNA which may be hazardous to humans, animals, or other life forms;
  - human and simian cell cultures and bodily fluids;
  - transgenic material which may be hazardous to humans, animals and plants and the environment; and
  - parasites.
- 2.2 All persons who work with or arrange for the transportation of biohazardous material.



### 3 RELATED DOCUMENTS

- 3.1 Occupational Health and Safety Act of Ontario (OSHA), O. Reg. 860 1990 WHMIS.
- 3.2 Transportation of Dangerous Goods Act.
- 3.3 Health Canada Laboratory Biosafety Guidelines, 3<sup>rd</sup> edition 2004.
- 3.4 Biohazards Committee Terms of Reference.
- 3.5 Hepatitis B Policy.
- 3.6 Medical Monitoring of Persons working with Biological Agents Policy.
- 3.7 Level 3 Biocontainment Approval Policy.
- 3.8 Andenovirus Biocontainment Downgrade Criteria Policy.
- 3.9 Rabies policy

### 4 DEFINITIONS

- 4.1 **Biohazardous Material:** Bacteria, viruses, parasites, fungi and other infectious agents which are pathogenic to humans. In addition, recombinant DNA or genetic manipulations which may present a risk and all mammalian cell in culture until proven to be free of adventitious agents.
- 4.2 **Biological Restricted Area:** A physical containment classification based on level of risk or hazard to be encountered while handling biohazardous material. There are four levels of physical containment based on the Health Canada Guidelines.
- 4.3 **Oncogenic Biological Material:** A material that induces cancer i.e., malignant tumors. Oncogenic viruses are a typical example of this material.
- 4.4 **Physical Containment:** Use of physical facilities and equipment and good work practices to prevent the release of organisms into the environment.
- 4.5 **Principal Investigator:** A faculty or supervisory staff member who is responsible for the research project.
- 4.6 **Recombinant DNA :** (DNA molecules which are constructed outside living cells by joining natural or synthetic DNA molecules that can replicate in a living cell or (b) DNA molecules that result from the replication of those described in (a) above.
- 4.7 **Risk Group:** The Health Canada system of classification of infective pathogens by severity of individual and community risk. Risk Group 1 presents the least level of risk and Risk Group 4 presents the most risk.



#### 4.8 **Acronyms:**

- BSC Biosafety Committee;
- CAF Central Animal Facility
- CJHSC Central Joint Health and Safety Committee;
- MSDS Material Safety Data Sheets

### 5 **RESPONSIBILITIES**

#### 5.1 **Office of Research shall:**

- Ensure that research funds are not released until the appropriate biosafety project certification has been submitted and approved by the chair of the Biosafety Committee.

#### 5.2 **Department Chair shall:**

- Ensure that facilities and activities related to Biosafety are approved by the Biosafety Committee prior to the start of research or teaching projects involving biohazardous materials.

#### 5.3 **Principal Investigator shall:**

- apply to the BSC before commencing work with biohazardous materials. Such information shall include:
  - (a) the nature of the proposed research or teaching project;
  - (b) required safety procedures to protect individuals and the environment;
  - (c) facility requirements including the required containment level;
  - (d) names of persons involved in the project and status of training requirements; and
  - (e) emergency plans.
- arrange for facilities and equipment necessary to meet the required level of containment and other recommendations of the BSC;
- arrange for appropriate training as prescribed by the BSC;
- ensure that staff and students are aware of any required medical surveillance;
- ensure that prescribed procedures are followed to ensure that biohazardous materials are properly stored and / or destroyed, that contamination is controlled and that the laboratory is secure against unauthorized access at all times;
- ensure that the Biosafety Officer is immediately informed of any laboratory incident involving biohazardous material. All such incidents shall be documented on the Injury / Incident report for;




- compliance with the requirements of Health Canada permits, and the Transportation of Dangerous Goods Act and regulations; and
- post project documentation and door signage as required.

5.4 **Chair of the Biosafety Committee (BSC) shall:**

- chair and set the agenda for Biosafety Committee meetings;
- provide certification and advice as required to funding agencies and the Biosafety Officer concerning:
  - (a) the level of biological containment to be used;
  - (b) the qualification and training of laboratory personnel;
  - (c) compliance with proper procedures.
- serve as liaison between the University and funding agencies on biosafety issues associated with research funded by such agencies.

5.4 **Biosafety Committee shall:**

- develop a comprehensive health and safety program for all work deemed to constitute a biohazard;
- approve biohazard projects and oversee the operation of the Level 3 biohazard containment facility (See Biohazard project Form Appendix B);
- identify and approve for biosafety all activities involving biohazardous materials;
- assess the Principal Investigators qualifications and experience relative to biohazardous materials and ensure that Principal Investigators and staff are fully aware of the guidelines and conditions of the Biohazard Project Approval;
- assess the level of containment required and the containment facilities available;
- assess the proposed work procedures for the storage and handling and manipulation of biohazardous materials;
- audit biohazardous facilities as required to ensure the safety of persons working with biohazardous materials and compliance with safety regulations and guidelines;
- ensure that worker and students who are potentially exposed to biohazardous materials are trained in the handling of such materials;
- provide copies of minutes and Biohazard Project listings to the Central Joint Health and Safety Committee (CJHSC) for information purposes;
- periodically review the Biosafety Program; and
- through the Chair advise the President of any issues pertaining to biosafety.

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**5.5 The Biosafety Officer / Faculty Health Sciences Safety Manager shall:**


- serve as the audit and control manager of the BSC;
- assist principal investigators to prepare an assessment of the proposed biosafety project and facility;
- audit teaching and research laboratories for compliance with biosafety project requirements, established safety procedures and performance of safety containment equipment;
- coordinate the services of maintenance/ construction and services for maintenance work in biohazard restricted areas;
- maintain project files for McMaster University Biohazard Project Certification, Biocontainment Certifications and copies of special emergency procedures established for each project;
- maintain and provide information on biohazardous materials, policy and procedures, safety equipment, personnel training material, regulations and guidelines, contingency and decontamination procedures and material safety data sheets (MSDS) for biohazardous materials when available;
- provide advice on biohazardous materials and work procedures; and
- order, on the advice of the Chair of the BSC, the suspension of any activity involving the use of biohazardous material, when there is reason to suspect the health and safety of University personnel and / or the public are at risk, or that regulatory conditions of the project have been breached.

**5.6 Faculty / Staff and Students shall:**

- comply with all conditions outlined in the biosafety certification form;
- report any unsafe conditions or procedures to the Principal Investigator;
- report any illness suspected of being related to work with biohazardous materials to the Principal Investigator and Biosafety Officer, Ext. 24956; and
- participate in biosafety training and spills mitigation.

**6 BIOSAFETY COMMITTEE (BSC) TERMS OF REFERENCE**

- 6.1 **Authority:** The BSC receives its authority and reports to the University President.
- 6.2 **Membership:** Membership will normally be for three years with one third of the positions re-appointed each year. The slate is to be approved by the President or his designate and the Chair of the Committee.
- 6.3 **Structure of the Committee:** There will be a minimum of nine voting members and three non-voting members on the BSC.

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**Voting Members:**

Field of expertise to include:

- One Environmental Expert / Environmental Engineer.
- One Cell Culture Expert.
- One Virology Expert.
- One Infectious Diseases / Medical Microbiologist Expert
- One Biochemist.
- One Central Animal Facility (CAF) representative.
- One Faculty Representative from Biology.
- Three faculty representatives from off campus locations.
- One Level 3 User Group Representative.
- One Worker Representative from Level 3 Facility, MDCL, Biology, Health Sciences, Engineering
- Representative from Undergraduate Teaching
- Manager, EOHSS

**Non Voting Members:**

- Safety Manager Faculty Health Sciences.
- Safety Officer EOHSS.
- Biosafety Technician.

**Advisor:**

- Infectious Diseases Specialist

**See Appendix “A” for current membership list.**

**7 RECORDS**

- 7.1 Records of the BSC minutes, training and audits of laboratories will be retained by the Biosafety Office, for a minimum of five (5) years beyond the completion of a biohazard project.
- 7.2 Records of organisms and autoclave monitoring will be maintained by the individual researcher.
- 7.3 Records of waste disposal will be maintained by those responsible for disposal within each facility.




## Appendix A

### Current BSC Membership:

#### VOTING MEMBERS

1. Chairman: Dr. R. Truant  
Professor, Biochemistry
  
2. Environmental Expert / Environmental Engineer:  
  
Dr. C. Filipe  
Assistant Professor, Chemical Engineering  
  
Dr. A. Holloway  
Assistant Professor, Obstetrics & Gynecology,  
Reproductive Biology
  
3. Cell Culture:  
  
Dr. K. Mossman  
Assistant Professor, Pathology & Molecular Medicine
  
4. Recombinant DNA:
  
5. Virology:  
  
Dr. J. Bramson  
Assistant Professor, Pathology & Molecular Medicine
  
6. Infectious Diseases / Medical Microbiologist:  
  
Dr. P. Margetts  
Associate Professor, Medicine
  
7. Biochemistry:  
  
Dr. B. Coombes  
Assistant Professor  
Biochemistry and Biomedical Sciences
  
8. Faculty Representative from off-campus:  
  
Henderson Division  
  
Dr. G. Werstuck  
Assistant Professor,  
Biochemistry and Biomedical Sciences & Medicine

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St. Joseph's Healthcare

Dr. Chengsheng Zhang  
Assistant Professor,  
Pathology & Molecular Medicine

General Division

Dr. Joseph Macri  
Assistant Professor,  
Pathology & Molecular Medicine

9. Faculty Representative from Department of Biology

Dr. Christian Baron  
Associate Professor, Biology

10. Faculty Representative of Level 3 Users Group

Dr. Karen Mossman  
Assistant Professor, Pathology & Molecular Medicine

11. Worker Representative from Michael DeGroote Centre for Learning & Discovery:

Carol Lavery  
Research Assistant, Pathology & Molecular Medicine  
Michael DeGroote Ctr for Learning & Discovery


12. Worker Representative from Health Sciences:

Pat Bilan  
Research Assistant,  
Biochemistry & Biomedical Sciences

13. Worker Representative from Biology:

14. Worker Representative from Faculty of Engineering:

Rena Cornelius  
Research Assistant/Engineer

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15. Worker Representative from Level 3 Facility:

Sherrie Fernandez  
HIV Group

16. Worker Representative from Level 3 Facility:

Anna Nowacki  
Research Technician - Mtb Group

17. CAF Representative:

K. Gourlay  
Facilities Manager, CAF

18. Representative from Undergraduate Teaching:

Rena Cornelius  
Research Assistant/Engineer

19. Environmental & Occupational Health Support Services:

Steven Fletcher  
Manager  
Environmental & Occupational Health Support Services

#### **NON-VOTING MEMBERS**

1. Lisa Morine  
Health & Safety Specialist, Environmental & Occupational Health Support Services
2. Karin Cassidy  
Safety Manager - Biosafety Support  
Faculty of Health Sciences
3. Leanne Withyman  
Biosafety Technician



**Appendix B**  
Biosafety Project Form



Request for  Summary Page Attached  Construct Page Attached  AUP Summary Page Attached  
Biohazard Approval

Reset Form

Last Revised Sept. 05

Approval #:

Principal /Co-Investigators  Phone Extension

Granting Agency   New  Renewal

Import Permit Required?  Yes  No

Project Title:

Start Date \_\_\_\_\_ End Date \_\_\_\_\_

Length of Approval Granted: \_\_\_\_\_

Containment Level: 1  2  3

One level per form. For Clarification, see  
www.hc-sc.gc.ca/pphb-dgsp/ols-bsl

**Biological Agents:** Please check all that apply and provide a list of agents.

Cultured Cells:

Human Blood/Fluids/Tissues:

Bacteria:

Resistance:   Clinical Isolates  Lab Strains

Virus:  Replicating  Defective

Viral species:

Viral Tropism:

Parasites:

Vectors/constructs (See vector description page)

Other:

**Staff Handling Biohazards:**

Training Requirements:  
WH FS Bio WUP FUP BUP

<input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Immunization/Medical Monitoring Required

Specifics:

Animal Involvement: Yes  No  Level: 01  02  03

Species: \_\_\_\_\_ Route: \_\_\_\_\_ Material: \_\_\_\_\_

<input type="checkbox"/> Mouse	<input type="checkbox"/> IV	<input type="checkbox"/> DNA/Protein
<input type="checkbox"/> Rat	<input type="checkbox"/> SCU	<input type="checkbox"/> Cultured cells
<input type="checkbox"/> Dog	<input type="checkbox"/> Oral	<input type="checkbox"/> Bacteria Virus
<input type="checkbox"/> Rabbit	<input type="checkbox"/> IP	<input type="checkbox"/> Range of concentration:
<input type="checkbox"/> Other	<input type="checkbox"/> Other	<input type="text"/>

AUP: Pending  Approved  #  Enclose Procedures Page Section 8

**Biological Cabinets:**

Clean Air:  Class II:  Confirmation:

Make: \_\_\_\_\_ Model: \_\_\_\_\_

Serial #: \_\_\_\_\_ Room #: \_\_\_\_\_

Last Date of Audit: / /

**Signatures:**

Grantee: \_\_\_\_\_

Research using the above reagents will be carried out under my direction in conformity with requirements of the CIHR and Health Canada Laboratory Safety Guidelines, 2004.

Chair, Biosafety Committee (Ray Truant): \_\_\_\_\_

The Biosafety Committee authorized by this University/institution certifies that procedures and equipment to be used in the research are consistent with the requirements of the CIHR and Health Canada Laboratory Biosafety Guidelines, 2004.