THE NEURO LABORATORY SAFETY MANUAL (rev. February, 2024)

General Laboratory Safety: Information, Policies and Procedures

PREAMBLE

The Laboratory Safety Website has been developed by The Neuro Research Laboratory Safety Committee to assist you in understanding and following safe laboratory practices. Working in or near a laboratory, the safety of yourself and your coworkers should always be paramount. It is the responsibility of you and your supervisor to ensure that you have the appropriate training for the experiments or other work you are conducting and the equipment you are using. Please read about the internal responsibility system and understand your role. You should be aware of the emergency plan for your laboratory and institution. Every laboratory or administrative unit should have an emergency plan, consistent with the overall institutional plan. The plan should be posted in a prominent place and emergency phone numbers (55-555) should be indicated on all telephones.

New investigators should consult the document **Orientation to Lab Safety at the Neuro** on the Neuro Lab Safety Website and the PI Orientation web page on the McGill Environmental Health and Safety website. Contact the The Neuro Research Laboratory Safety Committee (Labsafety.mni@mcgill.ca) for a personal training session to be held in conjunction with a McGill Safety Officer. Note: Our procedures are a combination of those of McGill and the MUHC.

All personnel should be aware of:

- Hazards of using any material, device or equipment.
- Proper technique in handling of material, devices or equipment, including procedures to follow if something should go wrong.
- Emergency telephone numbers.
- Location and use of eyewash fountains and emergency showers.
- Location and use of spill kits.
- Location and use of fire extinguishers.
- Emergency codes and proper response, exits and evacuation routes.

Principal Investigators are responsible for ensuring good occupational health and safety practices in their laboratories, including ensuring all personnel receive the proper training according to Environmental Health and Safety Policies.

Although ultimately responsible, a Principal Investigator at the Neuro may designate a Laboratory Safety Representative to supervise safety procedures in the laboratory.

Laboratory Safety Representative: This individual is usually a senior technician or lab manager. Under special circumstances a senior postdoctoral fellow might perform these duties, but never a graduate or undergraduate student. The name, contact information and qualifications of the designated individual must be forwarded to the Lab Safety Committee (labsafety.mni@mcgill.ca) to be registered and to obtain the necessary training and materials.

The duties of the Laboratory Safety Representatives are:

1. To serve as the contact person for the lab(s) to receive information from the Lab Safety Committee
2. To monitor safety in the lab(s) under the responsibility of the Principal Investigator
3. To be familiar with the policies and procedures governing lab safety and emergency responses at the MNI and McGill as described in relevant safety manuals and on The Neuro Lab Safety and McGill Environmental Health and Safety web sites
4. To ensure compliance with WHMIS and other safety legislation
5. To attend training sessions
6. To assist PI in completing the Assessment Tool to Identify Laboratory Hazards to identify hazards
7. To assist PI to identify and monitor training requirements of laboratory personnel [see Safety Training Record for The Neuro Laboratory Personnel and other training materials to be provided by the MNI Laboratory Safety Committee].
8. To assist PI in providing orientation to the laboratory for all new personnel and regular review for all personnel. Have each individual complete the form EHS-FORM-072_v1.0_LabSafetyOrientation and keep the record in the laboratory
9. To maintain a folder containing safety training records of laboratory personnel
10. To maintain the online inventory of chemicals and other hazardous materials in the lab(s) under the responsibility of the Principal Investigator (through myLab) and ensure read only access to all members of the lab(s). Ensure that all lab members know how to access Safety Data Sheets (SDS).
11. To generate/update a Lab Information Card in myLab, post it at the entrance to the laboratory.
12. Post appropriate signage:
    a. Signs for Cold Room Doors
    b. Signs for relevant hazards on doors (radioactivity, biohazard, *etc*.)
    c. Freezers in public areas must have a folder/binder attached listing contents, PI and emergency contacts
    d. Emergency contact information inside the laboratory and post location of a First Aid kit. You may use the First aid poster form provided by McGill EHS, ***BUT YOU MUST ADD "MNI - 55-555" to the SPILLS/URGENCE ENVIRONMENT SECTION***. If maintaining a first aid kit in the lab, keep up to date through quarterly inspections - First Aid Kit Inspection Form
13. To conduct safety inspections (complete The Neuro Laboratory Safety Inspection Checklist monthly) and arrange correction of deficiencies.

To supervise proper disposal of hazardous waste (See The Neuro Laboratory Safety Manual: Information, Policies and Procedures.**NOTE: to reach some web links you may need to 'sign in' on the McGill home page with your McGill user ID and password.**

HEALTH AND SAFETY MISSION AND ROLE OF SAFETY COMMITTEES

University Health and Safety Committees | Environmental Health and Safety - McGill University

IMPORTANT LEGISLATION

Canadian enviroOSH Legislation plus Standards (CCOHS)

REPORTING A HAZARD OR REQUESTING REPAIRS

Everyone is responsible for identifying and reporting safety hazards and necessity for repairs. When a Neuro staff person notices a deficiency requiring attention by Building Facilities, the person should report the deficiency to their supervisor (PI, lab manager, senior technician or

administrative assistant of the unit), who will submit an online request to Neuro Facilities to address the issue.

EMERGENCY CONTACTS AT THE NEURO: Unit Emergency Response Plan

The general number to call in case of any emergency is: 55-555 from a Neuro land line.

From a safe distance, inform your supervisor(s) of the situation. Hazard-specific protocols are presented below.

Every unit (including administrative, service and laboratory spaces) should have an emergency response plan and everyone in the unit should be aware of that plan. The plan should include:

- The contact information for the Manager/Principal Investigator and all unit personnel
- A designated location outside of the building as a meeting place in case of emergency or evacuation of the building. Account for all members of your team.
- Other relevant contact numbers including:
- Security desk for nonemergency (5542) *call 55-555 for all emergencies*
- McGill Environmental Health and Safety [http://www.mcgill.ca/ehs/staff for staff list]
  Radiation Safety Officer, Dr. Mario Badillo 398-2245 mario.badillo@mcgill.ca for McGill labs and, for MUHC clinical space, Dr. Christian Janicki christian.janicki@mcgill.ca; 8888-43866 from any McGill phone or (514) 934-1934 ext 43866)
  MNI Laboratory Safety labsafety.mni@mcgill.ca

EMERGENCY RESPONSE PROCEDURES AT THE NEURO

Download PDF formats at Lab Safety | The Neuro - McGill University Neuro Emergency Response Procedures and post in your labs.

Post these procedures in a visible location with the notice of first-aid kit location and list of first responders in your area.

CODE RED (FIRE ALARM)

If you detect a fire in your area:

1. Remove all persons in immediate danger.
2. Activate the manual fire alarm.
3. Dial 55-555 and specify the exact location of the fire (building wing, floor and room number).
4. Close all doors, windows and turn off oxygen flow meters, natural gas and vacuum taps.
5. If possible, without risk to yourself, attempt to extinguish or contain the flame with the appropriate fire extinguisher.
6. Pay attention to the instructions transmitted over the PA system.
7. Identify yourself to emergency personnel and remain available in a safe location until the situation has returned to normal (as announced: "*Code Rouge situation normale*, Code Red all clear".

When you hear the fire alarm and/or a code red is called:

1. **ALERT:**
   - Listen carefully to the announcement.
   - Return to your workplace without using elevators.
   - Make sure everyone in your area is aware of the alarm (working in closed rooms near noisy equipment can obscure the sound of the alarm).

2. **STAND BY:** The code red is a standby alert, unless any staff member are concerned for their immediate safety. Use common sense. If you feel threatened, you may leave at any time, but all personnel from your immediate unit should move together to a safe location, as defined in your departmental plan (A code green would be called if an evacuation is ordered.)
   - Do not start new work.
   - Prepare to stop ongoing work if the “all clear” is not called within a few minutes. Turn off any source of flame (or any other potentially dangerous equipment).
   - Close windows and doors.
   - Be prepared for a possible evacuation or request for assistance.
   - Listen for instructions. When the incident is over the "ALL CLEAR" will be announced.

   Note: A Code Red is not a signal to evacuate, unless you feel in danger. Any order to evacuate will be a Code Green, with specific instructions provided over the PA.

EMERGENCY RESPONSE PROCEDURES AT THE NEURO
CODE GREEN (EVACUATION)

If an evacuation order (code green) is called for your area (due to fire or other emergency), you MUST FOLLOW THE DIRECTIONS IMMEDIATELY. No excuses. Never use an elevator.

- Any evacuation will be systematic, by floor or area, according to specific instructions given over the public address system. Listen carefully for instructions.
- Secure your area according to instructions in CODE RED.
- Have an evacuation plan and ensure all personnel are aware. Also designate a meeting place for your personnel outside of the evacuated area and make sure everyone is accounted for.
- Follow the evacuation route using the stairs. If you are not able to use stairs or have other disabilities, please discuss your situation with your supervisor and with Neuro Security BEFORE an incident occurs to obtain specific instructions.
- Keep out of the way of emergency personnel.

EMERGENCY RESPONSE PROCEDURES AT THE NEURO

MEDICAL ATTENTION

MEDICAL ATTENTION

Report work accidents to EHS https://www.mcgill.ca/ehs/forms/forms/accident-and-incident-report.

Minor injuries

First aid kits should be available to all personnel and a notice indicating the location should be posted in each laboratory. This notice should include the names of individuals who have taken first aid or medical training, as well as emergency numbers. First aid kits must be inspected quarterly (January, April, July, October) and kept up to date. Fill in inspection checklist: and reorder supplies. It is not necessary to have a first aid kit in every laboratory room as long as a kit is accessible 24/7 nearby and the location is posted.

Ambulatory, but requiring medical attention

Go to a hospital Emergency Department (*e.g.,* the Montreal General Hospital). Be accompanied by a co-worker.

Onsite emergency care for conscious, non-ambulatory individual: inside or outside the building

- **Call 911**.
- Give precise location (Building, Pavilion, Floor, Room number), your name and a phone number to contact you.
- Then inform Security by **dialing 55555 from a Neuro landline.**
- State that you have called 911. Provide the information above.
- Make sure that someone will direct *Urgence Santé* to the appropriate location.

Medical emergency for unconscious individual (CODE BLUE) inside or outside the building

- **Dial 55555 from a Neuro landline and state Code Blue**.
- Give precise location (Building, Pavilion, Floor, Room number), your name and a phone number to contact you.
- The Code Blue team from the Neuro will respond.
- Make sure that someone will direct the Code Blue team to the appropriate location.

EMERGENCY RESPONSE PROCEDURES AT THE NEURO
CHEMICAL SPILL (CODE BROWN)

See also CHEMICAL SAFETY SECTION below.

This plan is adapted from the Code Brown Plans of McGill University Health Centre (MUHC) and McGill Environmental Health and Safety Office to respond to gas leaks or spills of chemicals, radioactive or biological materials used in laboratories of the Montreal Neurological Institute (MNI). Research funding at the MNI is administered through McGill University and as such researchers are governed by the policies and procedures of the University's Environmental Health and Safety Office. MNI laboratories participate in McGill's Waste Management Program for disposal of chemical and radioactive waste. On the other hand, "Code Brown" calls and responses, as well as housekeeping and security at the MNI, are under the jurisdiction of the MUHC. Thus, the MNI plans for emergency response must incorporate policies and procedures of both Institutions.

INVENTORY OF HAZARDOUS MATERIALS

An inventory of chemicals, compressed gases and radioactive compounds in each MNI lab is maintained by the Principal Investigators and their assigned Lab Safety Representative using the myLab inventory management system of McGill. All laboratory personnel must know how to access their lab's database (accessible only via McGill Campus Networks or VPN). The myLab administrator of McGill's Environmental Health and Safety provides access to the system as requested by Principal Investigators. For chemical inventories, there are two types of account:

- Full Access account - Each authorized user can view and modify the full inventory and SDS documents. Users log in with their own McGill Username and Password.

- Read Only account - These are generic user accounts, where multiple users use the same account to view the full inventory and SDS documents. Users log in with a single Username and Password communicated to them by the Principal Investigator.

Access to Safety Data Sheets (SDS): SDS are available online at eBinder | Chemical Management (ehs.com) (no password required). All laboratory personnel must know how to access this information.

General inquiries:
MNI Laboratory Safety Committee labsafety.mni@mcgill.ca or to the Committee Chair [Dr. Thomas Stroh thomas.stroh@mcgill.ca].
Neuro Facilities: facilities.neuro@mcgill.ca or the Building Supervisor franco.niro@mcgill.ca.
MyLab Knowledge Base: myLab Search - IT Portal (service-now.com)
McGill Environmental Health and Safety: https://www.mcgill.ca/ehs; ehs@mcgill.ca

Standard Procedures for Handling of Chemical Spills

DEFINITIONS:
A MAJOR SPILL, as defined under the MUHC "code brown" policy, is a spill that involves respiratory exposure, a highly toxic substance, a chemical product of 2 litres or more, **or any situation that is not manageable with competence or confidence**.
MAJOR SPILL: dial 55-555 from a Neuro landline and state Code Brown.

A MINOR SPILL, as defined under the MUHC "code brown" policy, is a small spill that can be readily handled by the user/generator of the product. Such an incident should not have widespread impact upon the Institute, Hospital, patients, staff and visitors, the environment or patient care. Should the spill become unmanageable; *i.e.*, cannot be immediately and effectively contained using available spill kits in the area, designate as a major spill.

ALERT PROCESS:
- The person responsible for or discovering the spill should immediately inform everyone in the room, stop traffic to the area and designate the spill as major or minor.
- **Major spill:** evacuate area, close door, and **dial 55-555 from a Neuro landline and state Code Brown**, specifying the hazard. Keep all personnel away from the area. Remain out of harm's way, but available to emergency responders. Inform the Lab Safety Representative and Principal Investigator.
- **Minor, controlled spill:** the Laboratory Safety Representative and/or Principal Investigator should be informed to assist in managing the incident.

INTERVENTION:
Major Spill: The emergency responders will handle the intervention.

Minor Spill: If the Laboratory Safety Representative is on duty, they should coordinate the clean up of a minor spill. However, all personnel using hazardous materials should know the procedures for dealing with minor spills in case the Laboratory Safety Representative or Principal Investigator is not available. Other laboratory personnel present should offer backup assistance and keep the area isolated from traffic.

For cleanup of minor spills, follow the guidelines outlined for specific classes of chemicals in section 3. Control of Chemical Hazards in the Laboratory Safety Manual published on the web site of McGill University's Environmental Health and Safety Office. Neuro-specific procedures for disposal of collected materials are described under "Recovery".

General Principles:

- **Avoid walking in spill, skin contact, or breathing vapours/aerosolized product**. If the clean up requires respiratory protection, **dial 55555 from a Neuro landline and state Code Brown**. [Note: If person or clothing is contaminated, immediately follow decontamination procedures appropriate to the product (identify from the Safety Data Sheet prior to working with the product) and seek medical attention as required.]
- Consult the Safety Data Sheet and McGill EHS Laboratory Safety Manual.
- Get spill kit and don appropriate personal protective equipment including gloves, face shields and, shoe covers. Prevent contamination of person, shoes and clothing.
- Prevent spreading of the product. Control the source and confine the spill to a small area using spill kit supplies. Apply neutralizing products if appropriate and available.
- Collect product using spill kit supplies.
- Clean residual product from the spill area with water.
- Place all contaminated materials and debris in a polyethylene waste container or bag (note: polyethylene biohazard/autoclave bags are chemically resistant). Dispose of as hazardous waste (see recovery procedures).

Important: Do not ask housekeepers to clean the material. Housekeeping would mop the floor only after the spilled material is picked up completely. If you have doubts, **dial 55555 from a Neuro landline and state Code Brown**.

RECOVERY:

- Call the "all clear" and dispose of waste.
    - **Major Spill:** Emergency responders will call the "all clear" and handle waste disposal.
    - **Minor Spill:**
        - Following completion of the cleanup, announce "all clear" to other laboratory personnel.
        - Dispose of liquid/solid waste and contaminated materials in Rm 045:
            - Fill in and attach a McGill Waste Management Program (MWP) tag (available in Rm 045) and attach to the container.
            - Fill in a "Chemical Waste Inventory Form"; place in the binder in Rm 045.
            - Notify Security and take waste to Rm 045 of the MNI for disposal.

- Report: The user/generator of the product must complete a McGill EHS incident report Accident and Incident Report Forms | Environmental Health and Safety - McGill University.

- Debrief: The Laboratory Safety Representative/Principal Investigator, in conjunction with the Chair of the Neuro Lab Safety Committee and Neuro Facilities will conduct a debriefing session on the incident and make any required adjustments to the departmental plan or training procedures.

- Remove anyone in immediate danger without putting your own safety at risk.
- Ask yourself the following questions:
    - Do I have the adequate skills to manage the situation (adequate training, practice)?
    - Do I have access to the necessary materials to manage the situation (personal protective equipment, MSDS, ventilation, materials, etc.)?
    - Is the size of the spill manageable?
    - Is the spilled product too dangerous to manage without assistance?
- If the answer to any of these questions is 'NO", call 55-555 and give the following information:
    - Code Brown
    - Product involved if known
    - Location of the spill or leak
    - Your name
    - Telephone numbers where you can be reached.
- Communicate promptly with the other occupants of the area in order to evacuate the premises.
- Notify your supervisor.
- Monitor the situation, remain available by phone and stay on site until the arrival of authorities and/or experts.
- The Call Center will announce the "ALL CLEAR".

Pharmaceutical Spills

Treat spill of research pharmaceuticals as chemical spills according to toxicity and chemical properties of the compound.

Spill of Radioisotopes

Spill of radioactive materials in a research lab is covered by the McGill Radiation Safety Manual. Contact the McGill Radiation Safety Officer, Mario Badillo 514-398-2245 mario.badillo@mcgill.ca. For a spill in an MUHC clinical space, contact Dr. Christian Janicki christian.janicki@mcgill.ca; 514-934-1934 x43866. From a Neuro landline, dial 9 before the number.

Biohazardous Materials and Biomedical Waste

MICRO-ORGANISMS ASSIGNED TO BIOSAFETY LEVEL 1 AND 2

- SPILL OF BODILY FLUIDS, LABORATORY MATERIALS, OR BIOMEDICAL WASTE THAT ARE SUSPECTED TO CONTAIN LEVEL 2 MICRO-ORGANISMS CAN BE HANDLED BY LABORATORY PERSONNEL OR HOUSEKEEPERS. ROUTINE PROCEDURE SHOULD BE FOLLOWED FOR CLEAN UP. *THERE IS NO NEED TO CALL CODE BROWN*.

Spill Involving Biological Agent

The MNI follows procedures defined by McGill Environmental Health and Safety. Refer to McGill's Biosafety Program (section 3, Biosafety Manual).

All individuals who work in a lab where pathogens are used must know how to handle these agents safely and what to do in case of a spill. An emergency spill response protocol specific for the microorganisms in use should be prepared and posted in a visible location within the laboratory.

Procedures specific to each situation should be indicated in the "Application to Use Biohazardous Materials" form that must be submitted to McGill EHS for all projects involving biohazards.

INCIDENT REPORTS (non-emergency):
To report any accident, incident, or occupational disease follow the instructions of McGill EHS at https://mcgill.ca/ehs/forms/forms/accident-and-incident-report within 24 hrs. You and your supervisor will need to fill in the relevant sections of the Accident and Incident Report Form.

RADIATION SAFETY

Radiation Safety is governed by McGill University. For procedures related to training and usage of radioactive materials at the MNI laboratories, go to
http://www.mcgill.ca/ehs/laboratory/radiation and the Radiation Safety Officer for McGill labs at the Neuro: Dr. Mario Badillo 398-2245 mario.badillo@mcgill.ca. For MUHC regulations and procedures, contact
Christian Janicki christian.janicki@mcgill.ca Local: 8888-43866.

LASER SAFETY

This McGill program applies to all Class 3b and Class 4 laser and laser systems in controlled areas (indoors) under the jurisdiction of McGill University and to all those identified as principal investigators, laser supervisors and laser workers. See the the McGill webpage http://www.mcgill.ca/ehs/laboratory/laser-safety, the Laser Safety Manual and, if using such lasers, register for **training** at Laser Safety Training | Environmental Health and Safety - McGill University.

BIOSAFETY

TRAINING REQUIRED
All personnel utilizing biosafety cabinets or handling biohazardous materials must receive training in their use. Courses are offered by McGill University EHS - register online at Biosafety Training | Environmental Health and Safety - McGill University. Lab supervisors should provide basic training in working with biohazardous materials before an individual begins work in the laboratory. The individual should read the appropriate sections of this Neuro Laboratory Safety Manual and McGill Biosafety manual prior to working with biohazardous materials.

INTRODUCTION TO BIOSAFETY
(for personnel working with biohazardous materials; most appropriate for individuals without prior biosafety training or experience)

SAFE USE OF BIOLOGICAL SAFETY CABINETS
(required for anyone working in biosafety cabinets to process tissues or to culture organisms/cells)

BIOSAFETY MANUAL
Biosafety Manual | Environmental Health and Safety - McGill University

Definition: "Biohazardous/infectious material falls under Class D, Division 3 of the Workplace Hazardous Materials Information System (WHMIS), and includes microorganisms such as viruses, bacteria, fungi, and parasites and their toxic metabolites. Blood and body fluids, and certain types of nucleic acids such as DNA derived from pathogenic organisms, human oncogenes, and DNA from transformed cell lines are considered biohazards as well. Exposure to biohazardous agents may occur via puncture wounds or as a result of absorption through the respiratory tract, digestive system, skin and mucous membranes: such exposures may result while handling animals, cell cultures and tissues or diagnostic specimens." (Biosafety Manual)

An Application to Use Biohazardous Materials must be completed by investigators who plan to work with potentially biohazardous/infectious materials including:

- mammalian bloods and body fluid
- unfixed tissue from humans and non-human primates
- cell lines and other tissue cultures
- genetically altered organisms (i**ncluding production and use of plasmid and viral expression vectors**), including plants and zoonotic agents

The form must be completed when starting new projects, changing a protocol (i.e., use of a new biohazardous material), upon expiry of a previously approved application. Forms are submitted to the McGill Environmental Safety Office.
"**Research projects using biohazardous/infectious substances that involve animals and/or animal tissue**, must be submitted to the Neuro Animal Care Committee with an approved biohazardous materials certificate attached (*see above*), before the project can begin". For further information refer to:
Public Health Agency of Canada Laboratory Biosafety Guidelines 3rd Edition - 2004
http://www.phac-aspc.gc.ca/lab-bio/index-eng.php
Laboratory Biosafety Manual, 3rd edition. World Health Organization. Geneva, 2004
http://www.who.int/csr/resources/publications/biosafety/WHO_CDS_CSR_LYO_2004_11/en/
CCAC Guide to the Care and Use of Experiment Animals Volume 1
http://www.ccac.ca/en_/standards/guidelines
Section 8 Occupational Health & Safety - Biological Hazards.
Canadian Council of Animal Care http://www.ccac.ca/. The telephone number for the local CCAC office number is 514-397-1046 or contact the Centre for Neurological Disease Models at 398-1403

DISPOSAL OF BIOHAZARDOUS MATERIAL
See Section Procedures for Disposal of Hazardous Waste.

IMPORTATION OF BIOLOGICAL PRODUCTS
Contact Biosafety Officer, Christina Jarabek Tel: (514) 398-4818 | christina.jarabek@mcgill.ca prior to your order to make sure you are following current procedures.
When importing Biological Products into Canada, additional information must be provided to Canada Customs. Please make sure that at the time of placing the order, you complete the form entitled "Declaration of Import for Biological Product" and fax it to 514-398-1885. Consult Procurement Import/Export of Goods. Imported Biological Products arriving at customs without

the required additional information may be refused entry into Canada. For living organisms, semen, embryos, animal products and by-products, regulations are governed by CFIA (Canada Food Inspection Agency). Complete Import Permit Application Form and have signed by the McGill University.

SHIPPING BIOHAZARDOUS MATERIAL
Biosafety Manual | Environmental Health and Safety - McGill University
section 2.8.3.1.

SPILL INVOLVING BIOLOGIAL AGENT
All individuals who work in a lab where pathogens are used must know how to handle these agents safely and what to do in case of a spill. Refer to Biosafety Manual | Environmental Health and Safety - McGill University **section 3.3** for how to:
1) Develop an emergency spill response protocol specific for the microorganisms in use. This should be posted in a visible location within the laboratory.
2) Assemble a spill response kit.
3) Safe handling of minor spills. For major spills, call 55-555 for 'code brown' (see above).

CHEMICAL SAFETY

LABORATORY SAFETY REPRESENTATIVES
Every Principal Investigator must nominate a Laboratory Safety Representative to liaise with the Neuro Research Lab Safety Committee and perform the duties outlined in the document Laboratory Safety Representatives - Duties**.**

TRAINING REQUIRED
WHMIS and Laboratory Safety training is required for all laboratory personnel every 3 years; the course is presented by McGill Environmental Health and Safety. Go to WHMIS Training | Environmental Health and Safety - McGill University for further information and registration. However, it is important for everyone to review The Neuro Laboratory Safety Manual (this document) and The Neuro Emergency Response Procedures as **certain procedures follow MUHC protocols, which may differ from McGill's.**

Hazardous waste management and disposal for lab personnel is now a requirement for laboratory personnel, in particular those serving as the laboratory safety representatives at the Neuro. The procedures for waste disposal in Neuro research labs differ from campus units and are presented in this manual (see below).

Safety Data Sheets (SDS)
All laboratory personnel must know how to access and interpret safety data sheets (SDS) for chemicals with which they are working. The SDS Database is accessed at eBinder | Chemical Management (ehs.com) (no password required) or through the McGill chemical/radiation management software, myLab. A link should be placed on the desktop of all laboratory computers and all personnel must receive training in and demonstrate facility in searching the database. The Principal Investigator of each research laboratories using chemicals is responsible for identifying an official Laboratory Safety Representative who will maintain the inventory of hazardous materials stored in the laboratory (using myLab) and ensure that all personnel have

access. The myLab administrator at McGill EHS will provide PIs and Lab Safety Reps access to myLab through their McGill username and ID and assign a username and password for read-only access of the chemical and MSDS databases. See next section for further information.

INVENTORY OF HAZARDOUS MATERIALS IN myLab

Please note that **myLab** can only be accessed from a **McGill IP address** (either from a McGill computer, through a remote desktop linked to a McGill computer, or by using VPN (Cisco AnyConnect) to connect to McGill.

McGill's myLab is a software tool for safe and simple management of hazardous materials, from acquisition to disposal and is the portal for management of **chemical** and **radioactive** compounds across the McGill campus. Information is provided on the myLab home page of EHS (general information) (note you must be connected to McGill to open this page - see above) and by searching 'myLab' in the IT Knowledge Base (specific instructions).

Each lab must keep their inventory up-to-date.

Required fields are:

Chemical Name
Vendor / Manufacturer Name
Product Catalogue Number OR Chemical CAS Registry Number(s)
Number of Containers
Total Volume of all containers
Container Size (optional if the total volume is provided)
Room Number
Building

Sharing: To facilitate sharing of chemicals, the search feature in myLab will allow you to identify other labs at The Neuro who may have a particular chemical (read-only access). Please enable access to your inventory.

Access to myLab (EHSA version) and training:

Laboratory Safety Representatives, one designated by each Principal Investigator, must obtain access to myLab and will have the following responsibilities:

1) Maintain and keep up to date the inventory of chemicals located in the laboratory/ies under the PI's jurisdiction and link SDS from the EHS database. Note, this inventory is MANDATORY for compliance with government health and safety regulations. Your inventory will be tested by EHS during lab inspections.
2) Place a link to myLab on the desktop of all lab computers.
3) Provide the read-only password assigned to your laboratory to all individuals in the lab so they can access the database.
4) Train all individuals in the laboratory on how to access the database of chemicals and SDS.

Authorization and access:

Principal Investigators email the myLab Administrators to request the necessary access for users in their lab. **PIs can request:**

- Full Access account - Each authorized user can view and modify the full inventory and MSDS documents (for the PI and Lab Safety Rep).
- Read Only accounts for lab personnel to view the full inventory and SDS documents.

Training:
No instructor-led training is necessary. Step-by-step instructional notes and videos are provided within the myLab home page.

Recording changed location of chemicals in myLab (to a different location already assigned to you and registered in myLab).

The location of the chemicals must be changed in your myLab inventory and the Laboratory Information Card updated if necessary. *If you are moving chemicals to a location not previously assigned to you, contact the myLab administrator* email the myLab Administrators to arrange.

Recording disposal of chemicals in myLab: Chemicals to be discarded must be disposed of properly as chemical waste and removed from the myLab inventory.

Notify the Lab Safety Committee Chair at labsafety.mni@mcgill.ca if the chemical content in the laboratory is changed significantly or if the lab is moving or being decommissioned.

Radiation Safety Module in myLab
All radiation users at the MNI must be registered with the Radiation Safety Officer in order to obtain the appropriate training and procedures for The Neuro Dr. Mario Badillo 398-2245 mario.badillo@mcgill.ca**.** Request a permit to purchase radioisotopes: Visit the Radiation Permits page
See https://mcgill.service-now.com/itportal?id=kb_article&sys_id=dfeedff01ba16890502e98e02a4bcb14 **for instructions and videos on how to:**

- Add New Inventory Item - McGill
- Add New Inventory Item - MUHC
- Waste container disposal
- Creating an 'In Progress Item'
- Removing an item from inventory
- Transfer procedure
- Recording Usage

STORAGE OF HAZARDOUS CHEMICALS
Laboratory directors, managers and personnel are responsible for understanding the general principles governing storage of the various classes of chemicals and for complying with McGill's policy. This includes segregation of incompatible chemicals, proper storage conditions (e.g., safety cabinets) and limits on volumes of certain chemicals that may be stored in the laboratory (e.g., flammable liquids). Chemical-resistant trays and pans (polypropylene) are available from scientific suppliers *(e.g.*, Fisher, VWR).
See the McGill Laboratory Safety Manual

- **Section 4**. Handling and Storage of Laboratory Chemicals
- **Section 7**. Laboratory Ventilation and Fume Hoods
- **Appendix 1**: Flammability Classification (NFPA) and Permissible Container Sizes (OSHA)

Rules of Thumb for Safe Storage:

Helpful hint: To segregate chemicals, you can use chemical-resistant trays such as polypropylene sterilization trays by Bel-Art or Nalgene. Improper storage of chemicals is considered A VERY HAZARDOUS SITUATION and will not be tolerated.

- Do not store more chemicals than you will need over a reasonable time.
- Always read the chemical's label and mark it with the date of receipt before storing.
- Never store highly reactive chemicals for longer than 6 months.
- Never store a chemical with an obscured or missing label.
- Separate chemicals into compatible groups and store alphabetically within the groups (see McGill laboratory safety manual **section 4**).
- Designate separate storage areas for highly toxic chemicals.
- Dry chemical storage: Dry chemicals can be stored together. To ensure compatibility, keep organic and inorganic chemicals segregated. Color-coded labels used by manufacturers are a handy reminder of compatible groups.
- Liquid chemical storage: The first step is to determine the major storage groups, such as acids, bases, flammables, oxidizers, and highly toxic chemicals.
    - *Acids***.** Acids should be stored in trays that will catch any spill and provide adequate segregation. Many labs store only mineral acids, including nitric acid, in chemically resistant acid cabinets. Nonorganic acids are usually stored in the cabinet under the fume hood.
    - *Bases:* Bases should be stored in non-reactive trays that will catch any spills and provide adequate segregation. Typical place for storing inorganic acids and bases is under the fume hood, but in separate trays for segregation.
    - *Organic acids, organic bases, and flammables***.** Organic acids and organic bases should be stored in flammable storage cabinets. They may be stored with other flammables, but acid resistant plastic trays must carefully segregate them.
    - *Oxidizers***.** Oxidizers are highly reactive. They should be separated from other chemicals.
- Flammables: Store chemicals that can ignite at room temperature in a flammables' cabinet. **If flammable chemicals require cold storage, store only in refrigerators or freezers approved for such use.** Frost free refrigerator/freezers are not to be used – the defrost cycle can generate a spark, triggering an explosion!!!
- Highly toxic chemicals: Toxic materials like carcinogens and reproductive hazards should be stored in a separate cabinet.
- Volatile toxic chemicals should be stored in an enclosure.
- Storage areas for corrosive, toxic, flammable, and highly reactive chemicals should be near a laboratory chemical hood to encourage use of the hood when transferring chemicals.
- Store only cleaning materials directly under the sink.
  Never store liquid hazardous chemicals above eye level.
  Store heavy chemical containers on lower shelves, not on the floor.
  Store chemicals on shelves with raised edges (edge guards).

Additional Storage for Flammable Liquids:
Make every attempt to purchase and store only volumes of chemicals that are really needed, particularly hazardous chemicals. Should additional storage be necessary, The Neuro does provide an area in Room 045 for storage of flammables. Any chemical stored in Rm 045 must be listed in the inventory book inside the room, must retain the original label on the container, and must be labelled with the following additional information: laboratory name, room number, person responsible and the date deposited. Otherwise, the chemical will be disposed of through the waste management system.

For chemical spill response, see CODE BROWN above.

PROCEDURES FOR DISPOSAL OF HAZARDOUS WASTE - MNI LABS

(chemical, biological, sharps, mercury arc lamps, batteries, miscellaneous)

DISPOSAL OF CHEMICAL WASTE

The current protocol is: Chemical waste must be properly contained and labelled (see below). An area in room 045 of the Neuro has been designated (alternatively, you can request pickup from your lab through MyLab. For Rm 045, the key must be obtained from Security at the main building entrance upon presentation of your Neuro or McGill ID badge. Disposal of any hazardous waste should be handled or supervised by designated laboratory safety representatives. All deposits must be recorded in the ledger inside the room. You may write directly in the book or fill in the following form beforehand and insert the page in the three-ring binder. Download the "Chemical Waste Inventory Form" from the Neuro Laboratory Safety website.
All containers must be labelled with: Name of Principal Investigator; Room Number; exact composition and if mixture, approximate percentages; indicate if organic solvent or oil.
Segregate flammables, acids, bases, and corrosives by placing in the indicated bins on the shelving.
Bulk chemical waste, spent solutions and / or liquid material discarded after use. Consult McGill Hazardous Waste Management for requirements.
Plastic containers can be obtained from Rm 045. Obtain key from Security at the main building entrance.

- Avoid mixing materials.
- Do not use for concentrated materials, only solutions.
- Use separate containers for different chemicals. Pre-label them to ensure compliance.
- Do not fill to more than 3/4 full. It need not be full for disposal.
- Fill out the label completely and legibly by indicating the name, dept., phone # and materials by a % indicator (approximate).
- Dispose of as chemical waste in Rm 045 (see above).

If you have any unstable or potentially explosive chemicals for disposal, please do not leave them in Rm 045. Contact McGill Hazardous Waste Management.

DISPOSAL OF BIOHAZARDOUS WASTE

All non-liquid material consisting of or contacting biological material should be disposed of in biohazard boxes supplied by the Institute (grey- yellow bins). This includes human anatomical waste (body parts/tissues), animal anatomical waste (carcasses, body parts, organs) and non-anatomical waste (sharps that have contacted animal or human blood, biological fluids, tissues;

tissue or microbial cultures, material contaminated by such cultures (pipettes, culture dishes, etc.); live vaccines; containers or materials saturated with blood products. Human tissue should be disposed of in separate containers from animal waste.

Biohazardous Sharps

- Collect sharps, including Pasteur pipettes in a plastic puncture-proof container with the biohazard label (available through The Neuro general stores (Rm 057A x1950) or general laboratory supplier – *e.g.,* Fisher Scientific, VWR).
- For disposal, close the lid and place in the biohazard box supplied by the Institute.
- Serological pipettes are to be double bagged in in biohazard bags, then tied and placed in the biohazard box.

Biohazard boxes are picked up and exchanged on a routine basis by housekeeping staff. Please fill to only 3/4 full so that it is not necessary to compress the contents to close and seal the box (this is a risk to personnel). If you require additional boxes or special pick up, please call: housekeeping ext. 36222. ***Regular garbage or chemical waste should never be placed in biohazard disposal!!***

Biohazardous Liquids (blood, culture media, etc.)

- Sterilize with 10% bleach (Javel) solution.
- Dispose of via a dedicated sink.
- When done, sterilize / clean sink with a 5-10% bleach and water solution. Rinse well to remove bleach odor.

SHARPS: COLLECTION AND DISPOSAL

Biohazardous Sharps (see above)

Non-contaminated Plastic and Glass Pipettes: Dispose of in the biohazard boxes. This avoids confusion with contaminated items and alleviates concerns of housekeeping staff.

Glass bottles (intact, not broken)

- Ensure that bottle is empty.
- Triple rinse bottle.
- Obliterate label and / or write “rinsed bottle” on the label.
- Place near your garbage container for pick up by housekeeping.

Broken glass (uncontaminated)

- Find a regular but sturdy cardboard box or plastic pail or purchase a disposal container from a vendor such as VWR.
- Place your broken glass inside.
- Seal container using tape.
- Write “broken glass / garbage” on the cover and place near your garbage container.

Recycling (paper, cardboard)
Place in the hall at the end of the day.

MERCURY ARC LAMPS

- Dispose of in designated box in Rm 045 (obtain key from Security at main entrance).

BATTERIES

Spent alkaline batteries

- Dispose of in designated box in Rm 045.

Rechargeable batteries: nickel cadmium (Ni-Cd); nickel metal hydride (Ni-MH); lithium ion (Li-ion): small sealed lead (Pb) batteries weighing less than 2 lbs/1 kg.

- Place in the designated box in Rm 045.

EQUIPMENT

Equipment must be properly decommissioned before disposal. A Certificate of Equipment Decontamination is required, downloadable from the Neuro Laboratory Safety Website. For disposal, make an **online** request to move the equipment near room A12 at the Duff where McGill Waste Management will pick it up.

Policy re transfer of tagged equipment valued at $10,000 CAD (or $5,000 U.S.D. for purchases on US federal grants).
https://www.mcgill.ca/financialservices/channels/news/research-asset-management-phase-2-management-and-disposal-used-and-end-life-ueol-research-equipment-267914.
Researchers who wish to decommission equipment for sale or donation, relocate equipment to another institution (including to an affiliated research institute) or to another McGill faculty member, or recycle equipment for whatever other purpose, must contact info.osr@mcgill.ca. All research assets under $10,000 can be decommissioned or reallocated locally, but Neuro IT will need to be notified of the decommissioning or reallocation so that our Asset Database can be updated with the new location and new owner information. This is especially important for all McGill Tagged equipment.

For **computer equipment** contact Neuro Information Technologies Services (Help.mni@mcgill.ca**).**

For **any questions,** contact the Building Supervisor, Franco Niro, franco.niro@mcgill.ca.

MOVING AND DECOMMISSIONING LABORATORIES

See the document "**Procedures for Decommissioning and Commissioning of Neuro Laboratories**".
The Principal Investigator is responsible for maintaining an accurate chemical inventory and contact information, for proper movement, storage and cleanup of laboratory materials, and for leaving the space clean and ready for another investigator. Release of responsibility will only occur after EHS has inspected the space and declared it properly decommissioned by following SOPs and completing and signing the checklist https://www.mcgill.ca/ehs/forms/forms/lab-decommissioning-documents and sending it to the contacts listed below by email.

The PI leaving a laboratory is responsible for leaving the premises in a decommissioned state, including disposal or transfer of all chemical, biological, or radiological materials (including records in MyLab) and verifying no residues remain (*e.g.*, swipes for radioactivity).

All equipment to be moved or discarded requires a Certificate of Equipment Decontamination, downloadable from the Neuro Laboratory Safety Website. If disposing of equipment, make an online request to move the equipment near room A12 at the Duff where McGill Waste Management will pick it up.

The PI should inform the following, as relevant, by email of any change in room assignments or retirement of space.

- The Administrative Coordinator assigned to you
- the Building Supervisor [franco.niro@mcgill.ca]
- The Neuro Laboratory Safety Committee (labsafety.mni@mcgill.ca)
- the Radiation Safety Officer [mario.badillo@mcgill.ca]
- the Centre for Neurological Disease Models [lisa.volume@mcgill.ca]

If you are moving and have not been contacted by the Chair of the MNI Laboratory Safety Committee or would like information *a priori*, contact labsafety.mni@mcgill.ca.

EQUIPMENT DECONTAMINATION

Wearing gloves, wipe inside and outside surfaces with warm soapy water (sponge would be good). Wipe out with clear water. Wipe with a 10% bleach solution in water. Wipe with 70% alcohol (to decontaminate the residual chlorine).

OTHER RELEVANT LINKS FOR CHEMICAL AND BIOLOGICAL SAFETY

McGill Training Reference Materials https://www.mcgill.ca/ehs/training/presentations

Canadian Centre for Occupational Health and Safety http://www.ccohs.ca/

WHMIS (Workplace Hazardous Materials Information System)
http://www.hc-sc.gc.ca/ewh-semt/occup-travail/whmis-simdut/index-eng.php
WHMIS classifications http://www.ccohs.ca/oshanswers/legisl/whmis_classifi.html

Other Sources of SDS data sheets
http://ccinfoweb.ccohs.ca/default.html
Supplier web sites
CSST (Commission de la santé et de la sécurité du travail) http://www.reptox.csst.qc.ca/
http://www.reptox.csst.qc.ca/ToEnglishUsers.htm

CANUTEC (Transport Canada) http://www.tc.gc.ca/eng/canutec/menu.htm

NIOSH (National Institute for Occupational Health and Safety USA) pocket guide to chemical hazards http://www.cdc.gov/niosh/npg/default.html