

9.4T MRI FACILITY  
SOP#200-03 SAFETY AND TRAINING OF PERSONNEL

**1. INTRODUCTION**

- 1.1. Research involving Magnetic Resonance Imaging (MRI) at high magnetic field strengths presents unique hazards to individuals working within and around the MRI system. The potential for serious personal injury is present due to the sheer size and strength of the static magnetic field along with the immense flexibility of the research system and associated peripheral hardware.
- 1.2. The static magnetic field in the 9.4T MRI Facility is always present. It is important that all those entering the facility be aware of the presence of the field, as it cannot be detected by our person in any way, i.e. magnetic fields cannot be felt, seen, or smelt.
- 1.3. There exist dangerous and potentially lethal levels of electricity in the 9.4T MRI system. As such, it is important that all individuals working around the MRI system be aware of the dangers and safety issues concerning electricity. Current carrying cables, connections and junction points in the vicinity of the main magnetic field are particularly susceptible to damage due to the extreme Lorentz forces created through the normal operation of the system. Periodically, the effects of prolonged mechanical fatigue will result in breakage causing electrical arcing, sparking and high heat levels before the system can shut down. There is therefore a high potential for personal injury and the possibility of a fire being ignited.
- 1.4. Due to the nature of the MR environment and the many safety risks present, anyone wishing to obtain security access is required to follow ALL of the Standard Operating Procedures for the 9.4T MRI Facility. All operators of the 9.4T MRI system must be authorized by the facility.
- 1.5. The 9.4T MRI Facility, excluding the Tech office and the Control room, is considered a Level 2 Biohazard Facility as outlined by Health Canada's "Laboratory Safety Guidelines, 3<sup>rd</sup> edition". However, not all work conducted is Level 2.
- 1.6. Animals may be present in the 9.4T MRI Facility at any time. As a result, no eating, drinking or storage of food is allowed in the lab areas. Because it is possible for diseases to be transmitted from animals to humans, any individual at particular risk of such an infection should be identified before the risks are encountered. In particular, individuals who are immune compromised should be made aware of the potential risks involved prior to entering the 9.4T MRI Facility. Personnel who have not been trained to handle animals should not do so.

**2. FACILITY ACCESS**

- 2.1. Security access to the 9.4T MRI Facility will be subject to the discretion of the Facility Director and Manager. Consult SOP#100 "Facility Access" for further information.

### **3. FACILITY TRAINING & MRI SAFETY TRAINING**

3.1. Due to the variance of work being conducted in the 9.4T MRI Facility, the training required will depend on each individual's level of involvement in the various projects and operations within the Facility. Investigators are responsible to ensure that all staff involved in research projects receives the necessary training for their particular study and ensure an updated Position Hazard Form is submitted to Workplace Health for review. The Animal Technician, Facility Manager and/or the MRI Operator will conduct all or parts of the necessary training.

### **4. TRAINING VIA SOPs**

4.1. Everyone (Principle Investigators, scientists, research staff, veterinarians, building maintenance staff, etc.) wishing to have security access to the 9.4T MRI Facility is required to sign a form indicating they have read, understood and agree to abide by ALL pertinent SOPs.

**4.2. Any person deviating from the prescribed SOPs will be notified in writing (as will their supervisor) as to their improper behaviour and a copy of the incident will be kept on file. If disregard for the SOP is repeated, access will be denied and their security card access will be cancelled immediately.**

4.3. The SOPs are to be strictly followed in order to ensure the safety of all staff, the health of the animals, the research being conducted and the integrity of the entire facility.

4.4. If concerns arise as to procedures not included within the SOPs, the Facility Manager will determine the course of action.

4.5. Contact the Animal Technician for information regarding where and how to access the SOP's.

### **5. OPERATOR TRAINING**

5.1. Operators are required to read all SOPs and to produce their signature declaring that they have read, understood and plan to follow all of the guidelines set in place by the SOPs.

5.2. Due to the responsibility incurred when operating the scanner, and the importance of the safety of the experimental support personnel, all operators are encouraged to obtain a valid Emergency First Aid Training certificate and CPR Level A Training certificate, as well as AED training.

### **6. GENERAL LAB TRAINING**

6.1. Training with regards to general lab upkeep, policies and procedures, and the use of animal related equipment will be conducted after all SOPs have been read, understood and signed off by both the Facility Manager and Animal Technician/Lab Manager.

6.2. Contact the Animal Technician for this training.

**7. UWO SAFETY TRAINING**

- 7.1. WHMIS training is mandatory by law. Re-certification is necessary every 3 years. Training is available through UWO, and is mandatory for access to the 9.4T MRI Facility.
- 7.2. Laboratory and Environmental Waste Management Safety training is available through UWO, and is mandatory for access to the 9.4T MRI Facility.
- 7.3. Biosafety training is also available through UWO and must be completed for all personnel working in a Biosafety Level 1 or 2 lab, and/or any personnel working with animals. Staff working in the 9.4T MRI Facility must also read the UWO Biosafety Manual located in the 9.4T Prep Room.
- 7.4. Other specific training may be required as indicated on the employees position hazard form or as indicated by their supervisor.

**8. WESTERN UNIVERISTY ANIMAL CARE & USE TRAINING**

- 8.1. Principle Investigators, scientists, graduate students, post-doctoral students, visiting fellows, residents, tutorial assistants, research technicians, and animal care technicians or others who use animals in academic endeavours or through their employment and as listed in their Animal Use Protocol, are required to complete the Animal Care and Use WebCT course and appropriate 'hands-on' workshops (and associated WebCT prerequisites) as indicated in their protocol, prior to commencing any work with animals. These courses must be updated every 5 years.