

**STANDARD OPERATING PROCEDURE:**  
**FACILITY ACCESS**

**1. INTRODUCTION**

- 1.1 The 9.4T MRI Facility is used primarily for *in-vivo* studies of animal structure and function. These studies assess metabolism and physiology, cognitive function and vascular dynamics using a variety of advanced nuclear magnetic resonance imaging and spectroscopy techniques. The 9.4T MRI Facility represents a unique national resource for state-of-the-art evaluation of structure and functional activity using a variety of MRI and MRS techniques in a research setting. The facility resources are available to peer-reviewed grant funded scientific collaborators with appropriate and current Animal Use Protocols approved by the University of Western Ontario. See SOP#405-01 "Animal Use in the 9.4T MRI Facility".
- 1.2 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.
- 1.3 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.
- 1.4 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.
- 1.5 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.

**2. ENTRY REGULATIONS**

- 2.1 Entry into the 9.4T MRI Facility is restricted to the following personnel:
  - 2.1.1 Operators of the 9.4T MRI Scanner that have received a Hepatitis B vaccination and have been trained according to the standards in SOP#200-01 "Safety and Training of Personnel".
  - 2.1.2 Investigators that are involved in research programs at the 9.4T MRI Facility, and have complied with the regulations stated in SOP#200-01 "Safety and Training of Personnel".

- 2.1.3 Members of the groups of investigators, herein after referred to as experimental support personnel, that are necessary to the successful execution and completion of the research project, and have complied with the regulations stated in SOP#200-01 "Safety and Training of Personnel". Investigators are responsible for arranging the appropriate training for their staff, and for ensuring the rules are followed.
  - 2.1.4 Visitors, accompanied by authorized personnel that have complied with the procedures listed in SOP#105-01 "Visitor Approval".
  - 2.1.5 Tours of the 9.4T MRI Facility are restricted to the console room ONLY.
  - 2.1.6 Essential Building Services Personnel required for maintenance and cleaning of the 9.4T MRI Facility and technical support for the computer systems in the facility. See section 4 below for more details.
- 2.2 Access to the 9.4T MRI Facility is limited during Level 2 Biohazard experiments. Signs indicating that a Level 2 experiment is underway will be mounted over the card readers of the Facility. If the experiment is taking place in the optical lab, a sign will be hung on the door of the optical lab as well. The door connecting the console room and the magnet room will be locked during the experiment. If the MRI system is to be used, it will be operated from the animal preparation room. Only those people that have received the appropriate level of vaccinations are permitted to enter the facility during these experiments (Tetanus, Hepatitis B, Rabies, negative Tuberculosis status).
- 2.3 Access is subject to the discretion of the Facility Director and the Facility Manager. The operator at any given time may grant and deny entry to the facility under the direction of the Facility Director, Manager or Head Technician.

### 3. **PROCEDURE FOR OBTAINING SECURITY ACCESS**

- 3.1 All those who wish to obtain security access to the 9.4T MRI Facility must obtain letters from each of the Facility Director and Manager formally requesting security access for the individual. These letters are to be kept with the Facility Manager.
- 3.2 All those who would like to obtain and maintain security access to the facility must complete the appropriate level of training as set out by the facility. Consult SOP#200-01 "Safety and Training of Personnel".
- 3.3 Operators require security access and must complete the safety and operator training listed in SOP#200-01 "Safety and Training of Personnel".
- 3.4 Security access will not be granted to anyone having any medical devices, implants or objects as listed in SOP#205-01 "General Safety Guidelines".
- 3.5 All access will be subject to the discretion of the Facility Director and Manager.

### 4. **ESSENTIAL BUILDING SERVICES PERSONNEL**

- 4.1 All Essential Building Services Personnel must not enter the magnet room unless accompanied by the Facility Director, Manager or Head Technician. Essential Building Services Personnel are not permitted to bring visitors into the 9.4T MRI Facility.
- 4.2 Building Services is responsible for instructing the cleaning staff of the restrictions set in place by the 9.4T MRI Facility.

ROBARTS RESEARCH INSTITUTE  
CENTRE FOR FUNCTIONAL AND METABOLIC MAPPING  
9.4T MRI FACILITY

#100-01

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*SOP Approval Signatures*

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Dr. Robert Bartha, Facility Director

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Date

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Dr. Greg Dekaban, RRI Biosafety Officer

\_\_\_\_\_  
Date

\_\_\_\_\_  
Ron Noseworthy, RRI Occupational Health & Safety Officer

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Date