

## 3T/7T MRI FACILITY

<b>SOP Number:</b>	<b>100-01</b>
<b>Title</b>	<b>MRI Facility Access Approval Policy</b>

<b>Revision Chronology</b>		
<b>Version Number</b>	<b>Date</b>	<b>Changes</b>
<b>100.01</b>	<b>01 March 2010</b>	<b>Updated entry regulations</b>

**Facility Manager Signature:** \_\_\_\_\_

**Date:** \_\_\_\_\_

**ROBARTS RESEARCH INSTITUTE**  
**CENTRE FOR FUNCTIONAL AND METABOLIC MAPPING:**  
**3T/7T MRI FACILITY**

**Standard Operating Procedure #100-01**

**MRI Facility Access Approval Policy**

**1. Introduction**

- 1.1 The 3T/7T MRI Facility is used primarily for *in-vivo* studies of human and animal structure and function. These studies include assessment of metabolism and physiology, cognitive function and vascular dynamics, not only in normal and research patient populations, but also in *in-vitro* and animal models using a variety of advanced nuclear magnetic resonance imaging and spectroscopy techniques. The 3T/7T 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 Review Ethics Board (REB) protocols in place, see SOP#130-01: "New Protocols and Ethics".
- 1.2 Research involving Magnetic Resonance Imaging (MRI) at high magnetic field strengths presents unique hazards to both research subjects and individuals working within and around the MRI system. Consequently, the potential for serious personal injury is present due to the sheer magnitude and strength of the static magnetic field along with the immense flexibility of the research system and associated peripheral hardware.
- 1.3 The static magnetic field in the 3T/7T MRI Facility is always present. It is essential that everyone entering the facility is aware of the presence of the magnetic field, since we cannot otherwise detect it (i.e. magnetic fields cannot be seen or felt).
- 1.4 Dangerous and potentially lethal levels of electricity are used by both the 3T and 7T MRI systems. Therefore it is important that all individuals working around the MRI systems be aware of the dangers and understand the 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, thereby causing electrical arcing, sparking, and high heat levels before the system can shut down. In these instances there is a high potential for personal injury as well as the possibility of a fire being ignited.
- 1.5 Entry into the 3T/7T MRI Facility is restricted to the following individuals:
  - 1.5.1 Operators of the 3T or 7T MRI Scanner who have been trained according to standards outlined in SOP#120-01: "Safety and Operator Training".
  - 1.5.2 Investigators who are involved in research studies utilizing the 3T/7T MRI Facility and who understand and comply with the regulations stated in SOP#120-01: "Safety and Operator Training".
  - 1.5.3 Staff, students, or other personnel associated with the investigators (herein referred to as "experimental support personnel"), whose presence are necessary for the

- successful execution and completion of the research project, and have complied with the regulations in SOP#120-01: “Safety and Operator Training”.
- 1.5.4 Facility visitors who are supervised and accompanied by authorized personnel meeting the regulations listed in SOP#110-01: “MRI Facility Visitor Approval Policy”.
  - 1.5.5 Volunteer subjects and patients participating in studies, who have complied with the regulations stated below as well as those contained in SOP#130-01: “New Protocols and Ethics”. Note that volunteers and patients are NOT required to read SOP#130-01, rather it is the responsibility of the investigator to ensure that all studies and their corresponding subjects comply with the regulations set out by the Review Ethics Board (REB).
  - 1.5.6 Essential Building Services Personnel required for maintenance and cleaning of the 3T/7T MRI Facility and technical support for the computer systems in the facility.
- 1.6 Security access to the 3T/7T facility is subject to the discretion of the Facility Director and the Facility Manager. Scan operators may grant or deny entry to the facility under the discretion of the Facility Director, Manager, or Head MRI Technologist.

## 2. Security Access – Procedure

- 2.1 Anyone wanting to obtain security access to the 3T/7T MRI Facility must obtain letters from each of the Facility Director and Manager formally requesting security access. These letters are to be kept on file with the Facility Manager.
- 2.2 In order to obtain and maintain security access to the facility, appropriate safety training must be completed as set out by the facility. See SOP#120-01: “Safety and Operator Training”.
- 2.3 Operators require security access, and therefore must complete the safety and operator training outlined in SOP#120-01: “Safety and Operator Training”.
- 2.4 Security access will not be granted to anyone with medical devices, implants, or contraindications as listed in SOP#200-01: “General Safety”.
- 2.5 All access will be subject to the approval and discretion of the Facility Director and Facility Manager.

## 3. Entry Regulations

- 3.1 Visitors do not require security access to the 3T/7T MRI Facility. Rather, they must comply with the entry regulations listed in SOP#110-01: “MRI Facility Visitor Approval Policy”.
- 3.2 Volunteers and patients participating in research studies do not require security access to the facility, but must complete a screening form provided by the investigator of the study. This screening form must comply with the REB protocol. See SOP#130-01: “New Protocols and Ethics”.
- 3.3 Before entering the magnet room, ALL individuals – including investigators, experimental support personnel, volunteers, patients, visitors, Essential Building Services Personnel, and others – MUST complete and sign the facility’s “Magnetic Resonance Environment Screening Questionnaire” (see Appendix) and have it reviewed, signed, and approved by an authorized individual. All access to the magnet room is subject to the approval and

discretion of the Facility Director, Facility Manager, Head MRI Technologist, and MRI operators. Completed screening questionnaires will be kept on file with the Head MRI Technologist in a secure filing cabinet.

- 3.3.1 The Facility Director, Facility Manager, Head MRI Technologist, and MRI operators may refuse anyone entry into the magnet room at their discretion.
- 3.3.2 Researchers, experimental support personnel, and others who regularly require entry into the 3T/7T facility and have completed the "Magnetic Resonance Environment Screening Questionnaire" do not need to complete a new questionnaire before each admittance. However, it is the responsibility of these individuals to inform the Head MRI Technologist and/or their operator of any change in status (eg. if they undergo surgery, have an eye injury with metal, or obtain any metallic implants or devices). After any change in status these individuals must complete a new screening questionnaire and obtain approval before entering the magnet room.

#### 4. **Essential Access**

- 4.1 Essential Building Services Personnel must NOT enter the magnet room unless accompanied by the Facility Director, Facility Manager, or Head MRI Technologist. Essential Building Services Personnel are not permitted to bring visitors into the 3T/7T MRI Facility.
- 4.2 Building Services is responsible for instructing the cleaning staff of the restrictions set in place by the 3T/7T MRI Facility.