

STANDARD OPERATING PROCEDURE:
GENERAL EXPERIMENTAL GUIDELINES

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 It is imperative that all personnel who are within and around the 9.4T MRI Facility always keep in mind the potential safety risks and act in accordance with the guidelines set out in the Standard Operating Procedures.

2. GENERAL SETUP PROCEUDRE

- 2.1 The operator must log on to the console at the beginning of the scan session. See SOP#110-01 "System Scheduling and Billing Guide".
- 2.2 Everyone must remove all metallic objects from their person before entering the magnet room of the 9.4T MRI Facility. For a list of prohibited articles see SOP#205-01 "General Safety Guidelines".
 - 2.2.1 The operator is responsible for screening all objects entering the magnet room for ferrous components.
 - 2.2.2 All objects not already in the magnet room should not be brought into the magnet room unless they are necessary for the successful execution of the experiment and have been tested using a permanent magnet in the control room or have been viewed and permitted for entry by one of the Facility Director, Manager or Head Technician.
- 2.3 It is mandatory for everyone who will be present in the magnet room during the scan session to wear hearing protection in the form of earplugs provided by the 9.4T MRI Facility.
- 2.4 It is imperative that all research support personnel present in the magnet room be aware of the responsibilities and risks associated with equipment as it is operating. This includes being aware of areas of high electrical activity and potential mechanical failure points. All personnel must remain a safe distance from these designated areas. Failure to do so could result in severe injury or death!

3. RESPONSIBILITIES OF BUILDING SERVICES

- 3.1 Building Services is responsible for ensuring that all necessary safety devices are operational. All safety devices are listed below.
 - 3.1.1 Fire extinguisher
 - 3.1.2 Smoke detector
 - 3.1.3 Oxygen detector

4 **RESPONSIBILITIES OF THE OPERATOR**

- 4.1 The operator is responsible for ensuring the physical and emotional wellbeing of all research personnel within the magnet room. This includes reminding everyone to wear proper hearing protection and making everyone aware of the critical operating areas.
- 4.2 It is at the discretion of the operator to cancel the scan session at any time if any or all of the safety devices are not operational.
- 4.3 The operator is responsible to notify the Facility Manager or the Head Technician of any safety device that is not operational.
- 4.4 The operator is responsible for notifying the Facility Manager or the Head Technician of any peripheral device that is not operational. Peripheral devices include but are not limited to the following:
 - 4.4.1 Stimulus Projection Systems
 - 4.4.2 Physiological Monitoring Devices
 - 4.4.3 Control or Stimulus Presentation Computers
 - 4.4.4 Projection Screens
 - 4.4.5 RF Coils
- 4.5 It is the responsibility of the operator to screen all items entering the magnet room for ferrous components. A strong hand held magnet is made available for such testing.
- 4.6 The operator is responsible for returning all peripheral devices and any other items used during the scan session to their original holding places upon completion of the scanning session.

5 **RESPONSIBILITIES OF THE FACILITY**

- 5.1 The facility is responsible for ensuring the proper functioning of the MRI system.
- 5.2 The facility will inform operators and investigators of problems with the MRI system, if their scan time will be affected.
- 5.3 Peripheral devices will not be checked daily. Peripheral devices are listed in section 4.4. If one of these devices fails, the facility may out of courtesy inform operators and investigators. If the facility is aware of the failure of a specific device that will affect upcoming scan time, the facility will notify the appropriate operators and investigators.

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

SOP #300-01

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SOP Approval Signatures

Dr. Robert Bartha, Facility Director

Date

Dr. Greg Dekaban, RRI Biosafety Officer

Date

Ron Noseworthy, RRI Occupational Health & Safety Officer

Date