



Standard Operating Procedure (SOP)

<b>Title:</b>  <b>Anesthesia Induction and Maintenance</b>	<b>SOP No.</b> SAIL-MRI-SOP-02
	<b>Version No.</b> 02
	<b>Effective Date:</b> July 28, 2017
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Distribution

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## 1. Purpose

This SOP describes and outlines the procedures for the isoflurane and sevoflurane anesthetization of animals to be scanned in SAIL MRI facility to ensure that the animal is properly handled and anesthetized with a minimum of stress and effect on its long-term health in compliance with FACC standards.

## 2. Scope

Applicable to all MRI studies with scan protocols that utilize vaporized isoflurane and sevoflurane as the primary anesthetic for the duration of the scan session.

## 3. Responsibility

- 3.1 The study Principal Investigator and/or their designate is/are responsible for the well-being of the animal during the scan session within the SAIL MRI facility. The SAIL technician and the SAIL Manager will provide assistance as required.
- 3.2 The SAIL technician, under the supervision of the SAIL Manager, is responsible for the regulation of anesthesia depth and should any complications arise from the procedure, he/she is responsible for the immediate resolution of said complication in a humane and ethical manner as per the particular study AUP and/or applicable McGill and RI-MUHC SOPs.

## 4. Materials

- Isoflurane or sevoflurane
- Anesthesia Induction chamber
- Isoflurane or sevoflurane vaporizer
- Compressed medical air
- Personal Protective Equipment (PPE)

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## 5.Procedure

### 5.1 Anesthesia Induction

- 5.1.1 Refer to the *Scanner Preparation and Pre-scan Procedures* (SAIL-MRI-SOP-01) and ensure that all necessary procedures have been observed prior to anesthesia procedures (e.g. scan room and scanner preparation).
- 5.1.2 Check the level of isoflurane or sevoflurane in the vaporizers (one on the procedure bench [E.S2.8100] and one in the observation suite), when the gauge shows that it is less than half full, fill the vaporizer with isoflurane or sevoflurane.
- 5.1.3 Attach the vaporizer outlet tubing to the procedure bench induction chamber, open the medical air release valve, and set the flow rate at approximately 600 mL/min.
- 5.1.4 Remove the selected scan subject from its transport cage and place it in the anesthesia induction chamber.
- 5.1.5 Set the procedure bench vaporizer to 4-5% isoflurane or sevoflurane.
- 5.1.6 Perform the paw pinch test to verify that the animal is adequately anesthetized.
- 5.1.7 Once anesthesia depth is sufficient, turn off the procedure bench vaporizer and close the medical air valve and flowmeter.

### 5.2 Anesthesia Maintenance

- 5.2.1 Open the medical air release valve and flow meter of the observation suite vaporizer: setting the vaporizer to 1.5-3.5% isoflurane or sevoflurane at a flow rate of approximately 600 mL/min.
- 5.2.2 Detach the outlet tubing from the induction chamber and transport the animal to the MRI magnet room (E.S2.8183.1). Place the animal immediately on the scan bed with its nose in the nose-cone.
- 5.2.3 Allow animal's respiration rate to adjust, equilibrate, and stabilize to the new isoflurane or sevoflurane concentration (maintained at 1.5-3.5% for the duration of the scan).
- 5.2.4 Continue with *Scanner Preparation and Pre-scan Procedures* as per SAIL-MRI-SOP-01.

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## 6. References

SAIL-SOP-01: Animal Transportation

SAIL-SOP-02: Animal Management

SAIL-MRI-SOP-01: Scanner Preparation and Pre-scan Procedures

McGill SOP 110-Mouse anesthesia

McGill SOP 111-Rat anesthesia

## 7. Appendices

N/A

