17.6 T Magnet Standard Operating Protocol
Live Subject Support

General
The live subject must be maintained under anesthesia throughout the setup, measurement and removal procedures. First induce anesthesia (using the induction box), place the subject in measurement probe, and then into the magnet. After the measurement, remove the subject from the measurement probe before removing anesthesia. During all stages under anesthesia, monitor the subject’s physiological signs (respiration and temperature).

Physiological Monitoring

Core Temperature
- Insert the Luxtron 110 volt AC plug into the UPS by the console computer.
- Use the Luxtron thermometer to monitor the subject’s core body temperature. The temperature can be regulated with the temperature setting on the gradient water chiller (see below).

Respiration
- Use the Bruker Physiogard system to monitor respiration using a standard respiratory pillow. The respiration rate is used to monitor the anaesthesia level.

Anesthesia
- Assure that the anaesthesia machine and sufficient O$_2$ is available for your session, and that the O$_2$ regulator is functional (check with AMRIS Facility Staff).
- Make sure that you have adequate Isoflurane before you get started.
  - **Induction Box**: First connect the anesthesia machine tube to the induction chamber and connect the box outlet to the tube of an activated carbon canister (F/AIR cartridge) in order to scavenge any unused anaesthetic. Place the subject in the box, close lid, then set the level of anesthetic gas delivery (typically 4-5% isoflurane in O$_2$), and wait for the subject to lose consciousness.
  - **Setup measurement probe**: Quickly transfer the subject to the probe cradle, then connect the anesthetic tubing to the probe nose cone (or bite bar). Maintain subject respiratory and temperature during setup procedure.
  - **Maintenance in magnet**: While monitoring physiological signs, maintain anestheis at an acceptable level (typically 1.0-2.0% isoflurane at about 0.8 liters/min). Use a vacuum system, filtered through an activated carbon canister, to scavenge unused anesthetic and remove exhaled CO$_2$.
  - **Removal from measurement device**: While maintaining anesthesia, remove the subject from the measurement probe, then remove anesthesia and allow the subject to recover when maintaining core temperature.

Temperature Regulation
- Use the gradient coil cooling system to maintain the subject temperature at 30 C while it is in the bore of the magnet.