



Title: Animal Use with the TTNi functional Magnetic Resonance Imaging Unit

SOP Number: 053

Purpose: To ensure separation of animal and human uses within the dual-use functional Magnetic Resonance Image (fMRI) unit. To ensure that no contamination from animal or human studies is carried forth from one study to the next.

PRECONDITIONS FOR FMRI USAGE INVOLVING ANIMALS:

- A. The PI must have an approved Institutional Animal Care and Use protocol (IACUC) prior to any use of the fMRI which involves live animals or those euthanized for the purposes of research, testing or demonstration.
- B. Under no circumstances should an animal with a known zoonotic disease, infectious agent, or other biohazard be transported to the fMRI without prior approval from the Texas Tech Neuroimaging Institute (TTNI)
- C. Animal subjects are not to be scanned during the same days of a week as are human subjects and should be scheduled as to preferably not overlap with human studies.

TRANSPORTATION:

The TTNi provides animals with a separate entrance way and service elevator into the scanner area to eliminate any contact with human participants.

- A. Animals are transported in a covered transport enclosure and returned in the same manner. The cage exterior should not be identifiable, nor should the interior of the cage or any part of the animal be visible.
- B. Trained, client-owned pets may be transported by leash
- C. Animals must be attended by the PI's staff or ACS at all times and never left alone with TTNi staff.
- D. To minimize the likelihood of animal vocalization, animals should be sedated or anesthetized during transport, holding times, scanning, and return to origin, unless the animals have been trained and habituated to not make vocalizations during these times.
- E. Entry and exit from the fMRI suite shall be performed to minimize visualization of animal transport into the fMRI suite.
 - 1. To this end, one person must ensure that the fMRI suite is clear of all human subjects.
- F. Designated holding areas or routes should be identified and used whenever possible.

ANESTHESIA:

Scanning is to be performed under general anesthesia, unless animals have been deemed sufficiently trained to participate without general anesthesia for the purposes of the study, as designated in the approved IACUC protocol.

- A. Injectable anesthesia should be determined based on species and length of time to be scanned in consultation with the veterinarian staff with details included in the approved IACUC protocol.
- B. Inhalational anesthesia will be performed using dedicated fMRI compatible, animal anesthesia machines not intended for human use.
 - 1. However, dedicated medical gas, scavenging and/or vacuum wall supply systems can be used for animals.
- C. Only monitoring equipment that is fMRI compatible is permitted in the scan room
 - 1. Non-fMRI-compatible equipment must be kept out of fMRI scan rooms or be appropriately tethered to the walls.
- D. Any special equipment, devices or drugs that are used for animals must be promptly removed from the scan room at the termination of any fMRI scan.

SCAN TABLE SETUP:

Animals undergoing scanning procedures should have a barrier under them which separates them from direct contact with the scanner table -- only the head coil is exposed and that too has a plastic wrapped support pillow inside that is either removed or cleaned thoroughly before/after use, thus posing no risk to human participants.

PERSONAL PROTECTIVE EQUIPMENT (PPE):

Personnel involved in the project will have completed appropriate fMRI training.

- A. Lab coats, scrubs, gloves, and other PPE will be used as appropriate to the study.
- B. All magnetic items must be removed from the persons (i.e. jewelry, glasses etc.) and animals (i.e. collar, leash).

CLEANING:

- A. Following scanning, animals are removed from the scanner and a thorough cleansing is initiated.
- B. All surfaces are sprayed with a 10% bleach solution or wiped with approved disinfecting towelettes, and then wiped clean.
- C. Surfaces to be cleaned include table, power contrast injectors, all leads previously connected to the animal, all coils used, and all spills and drips on the floor.
- D. Trash and linens should be properly bagged and removed to designated areas.

LOGBOOK:

Personnel will record use of equipment in the logbook;

- A. Records will include:
 - 1. species,
 - 2. user's name,
 - 3. date,
 - 4. times (arrival and departure),
 - 5. protocol number, and
 - 6. verification of cleanup.

REFERENCES AND ACKNOWLEDGEMENTS:

This document was derived largely from an SOP entitled “Standard Operating Procedures (SOP) for Animal Imaging in the MRI Service Center Instruments” revised 6/2007, and information provided by Yiyuan Tang.