

University of Pennsylvania-Radiology

Small Animal Imaging Facility

Standard Operating Procedure

Title: Guideline for the Optical/Bioluminescence Imaging Studies at the Small Animal Imaging Facility.

SOP Number: 4.08

Revision Number: 3

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Last Review Date: September 15, 2023

Approval: Ching-Hui Huang, PhD Technical Director, Optical Imaging Core

- I. Purpose:** The purpose is to provide the guideline for the proper usage of the Optical/Bioluminescence component of the Small Animal Imaging Facility (SAIF)
- II. Responsibilities and Scope:** All investigators involved in performing Optical/Bioluminescence animal studies must familiarize themselves with this SOP.
- III. Definitions:**
None
- IV. Procedures:**
 - a. Principal Investigators (PIs) wishing to use any Fluorescence/Bioluminescence imaging instruments at the SAIF must follow the animal transfer SOP (refer to #SOP 4.01).
 - b. It is the responsibility of all investigators to have completed their hands-on animal training from IACUC. Only those researchers listed in the protocol may handle animals
 - c. It is the responsibility of the researchers to follow the SOP for the Transportation of Animals for Imaging Studies (refer to SOP #4.01)
 - d. It is the responsibility of the investigators to care for animals in a humane way in accordance with IACUC protocol's standards.
 - e. It is the responsibility of the researchers not to bring animals to the imaging facility if:
 - i. Animals are sick.
 - ii. Animals are distressed.
 - iii. Animals are bearing large tumors that bring discomfort or pain to them.
 - iv. Animals are residing in a room that is under quarantine for viral infection, pinworms or fur mites.
 - f. When animals are found in distress or discomfort, the Technical Director of the facility will ask researchers to remove the animals immediately from the imaging facility, transport them to their animal facility, and see a veterinary doctor.
 - g. It is the responsibility of the researchers to have IACUC approval for repeated animal transportation between the imaging facility and their animal housing facility if researchers plan to image the same animals more than once within a 24-hour period (refer to SOPs 4.03 and 4.04).
 - h. All small rodents in the longitudinal imaging studies must be transferred to SAIF housing in either JMB-100 or SCTR-1, depending on which scanner to be used,

only after prior written approval from ULAR and from the Animal Oversight Subcommittee (AOS) of the SAIF (refer to SOP 4.04).

- i. It is the responsibility of researchers to remove animals and see a veterinary doctor in the event that animals die during the imaging session.
- j. It is the responsibility of the researchers to carefully and responsibly administer animal sedation and perform animal handling.
- k. It is the responsibility of the researchers to arrive at the imaging facility at the scheduled time. In the event that a researcher is late or does not show up, he will still be charged for the scheduled time. When reserving imaging session time slots, researchers must include 10 minutes in their imaging session for cleaning and sterilization.
- l. It is the responsibility of the researchers to clean and sterilize all equipment used during the imaging session.
- m. During animal preparation, all researchers must follow the facility guidelines for use of Isoflurane gas anesthesia (refer to SAIF SOP 2.04).
- n. Perform imaging procedure.
- o. Return animal to cage. Monitor animal until it is fully recovered.
- p. Dispose of absorbent pads and any other waste in the appropriate container.
- q. Clean and sterilize all equipment used.

V. Directions: None

VI. Safety Considerations:

- a. **Drinking, eating and open-toe shoes are not allowed under any circumstances in all of SAIF.**
- b. **When the “hot” radioactive materials are used for the longitudinal studies, the imaging procedures involved with radioactive materials must be performed last.**

VII. References:

- a. Penn-ULAR-SOP #4.20. Transport of Laboratory Rodents-Philadelphia Campus (updated version is available as of July 12, 2022)
- b. SAIF SOP 4.01 Transportation of Laboratory Animals for Imaging Studies
- c. SAIF SOP 4.03 Guideline for Transfer of Mice to SAIF Housing Facilities
- d. SAIF SOP 4.04 Guideline for the Longitudinal Imaging Studies at the Small Animal Imaging Facility
- e. SAIF SOP2.04 Guideline for use of Isoflurane

VIII. Attachments: None

IX. Document History:

Version Number	Effective Date	Author	Reason
1	February 13, 2015	E. Browning	New Policy
2	March 24, 2022	C-H Huang	Update
3	November 18, 2022	C-H Huang	Update

