

# **Rodent In vivo Bioluminescence Imaging**

(Lab Animal SOP #3)

This document describes **standard operating** procedures for in vivo bioluminescence imaging including: animal transport, anesthesia and biocontainment.

## **Contact information:**

The name and contact information for the individual responsible for the imaging device will be clearly posted on or adjacent to the device.

## **Responsibilities of the investigator using the IVIS\* to image live animals:**

1. Procedures involving live animals must be covered by an IACUC approved protocol that includes the following information:
  - a. An explanation of the purpose of the study
  - b. The number of animals
  - c. Imaging frequency and the expected number of imaging sessions
  - d. A description of other procedures performed on these animals either prior or subsequent to imaging (such as administration of luciferin)
  - e. The location of the imaging device
2. Consult with an ARP veterinarian regarding anesthesia
3. Provide or arrange for animal transport as described below

## **Transport of Animals**

Animals on study may be transported from neighboring rooms on a cart in covered cages. Contact the Animal Resource Program office (865-1495) to coordinate transport from other facilities.

## **General Procedures:**

- Animals will be anesthetized with isoflurane (in an anesthetic chamber or via nose cone) and placed in the camera where isoflurane anesthesia is maintained via nose cone.
- Alternative anesthetics may be used following veterinary consultation.
- Following the imaging session animals are returned to their home cage and observed until they are able to move about the cage.
- Animals that display clinical signs of illness which place them at risk for anesthetic death, will not be imaged.
- Active anesthetic scavenging will be employed to minimize personnel exposure to anesthetic gases.

## **Record Keeping:**

A permanent written log listing the date, name of personnel using the equipment, the PI and their IACUC number will be maintained with the imaging device.

## **Working with Biohazards:**

The following procedures will be followed **when working with infected animals.**

*Last revised: 6-26-2015*

*Last approved by the IACUC: 2/15/2016*

1. Work will only be conducted in an area approved for work with biohazards.
2. Only Biosafety Level 2 pathogens or lower are permitted.
3. **Animal Handling Procedures** will be prominently posted in the procedure area.
4. Work surfaces and equipment (counter tops, the biosafety cabinet, imaging chamber, anesthetic equipment) inside and outside the camera will be disinfected before and after each imaging session. **Disinfectant should never be sprayed directly into the imaging chamber of the IVIS system as this may damage the camera. Use a disinfectant soaked paper towel to clean the imaging chamber.**
5. Biohazardous waste will be placed in a biohazard container located within the room.
6. Any spills will be handled as potential biohazardous.
7. Disinfectants (Steriplex, Virkon-S, or chlorine dioxide) will be available in the procedure area.
8. All personnel working with infected animals will wear gloves and a disposable smock. Procedures that have the potential to aerosolize infectious agents will be conducted within a biosafety cabinet.

## To be posted on or adjacent to the imaging device

### Animal Handling Procedures Bioluminescence Imaging

1. **Each person** using the IVIS or Pearl imaging system must be specifically trained and authorized to use the equipment.
2. Personnel using the IVIS or Pearl camera must record their use in the log book including: Date, Name of user, PI name, IACUC number and name of infectious agent (if applicable).
3. Personnel must wear a lab coat and gloves while working with animals.
4. Animals must be transported to and from animal rooms on a cart in covered cages.
5. Animals will be returned to their home cage or a separate enclosed container and observed continuously during recovery from anesthesia.
6. All surfaces and equipment (counter tops, the biosafety cabinet, imaging chamber, and anesthetic equipment) must be disinfected between groups of animals.

**Disinfectant should never be sprayed directly into the imaging chamber of the IVIS system as this may damage the camera. Use a disinfectant soaked paper towel to clean the imaging chamber.**

Approved animal facility disinfectants include: Steriplex, Virkon-S, Quatricide, Ethyl alcohol or Chlorine dioxide

7. Dispose of contaminated biohazardous materials in the biohazard container located within the room.
8. Wash hands after handling animals.

Personnel may not eat, drink or store food intended for human consumption in this area.