Rodent In vivo Bioluminescence Imaging

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

Contact information:
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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 is in HEB 043
   f. Animals that are to be imaged should be fed a diet free of alfalfa and alfalfa by products as this can negatively influence the image. DLAR carries two alfalfa free diets, Teklad 2916 (Irradiated standard diet) and Teklad 2919 (Irradiated 19% protein breeder diet).

2. 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 their home cage/s. Contact the DLAR office (383-4310) to coordinate transport from other facilities in different buildings.

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**.

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 for working with hazards** 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 place in a biohazard container located within the room.
6. Any spills will be handled as potential biohazardous.
7. Disinfectants (isopropyl alcohol Virkon-S, or chlorine dioxide) will be available in the procedure area.
8. All personnel working with infected animals will wear the approved personal protective equipment. Procedures that have the potential to aerosolize infectious agents will be conducted within a biosafety cabinet “BSC” as much as possible but the imaging is outside of the BSC which may require respiratory protection such as an N-95 mask or PAPr.
Animal Handling Procedures
Bioluminescence Imaging

1. **Each person** using the IVIS imaging system must be specifically trained and authorized to use the equipment.

2. Personnel using the IVIS 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 proper posted PPE while working with animals.

4. Animals must be transported to and from animal rooms on a cart in microisolator 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: isopropyl alcohol Virkon-S, or chlorine dioxide.

7. Dispose of contaminated biohazardous materials in the biohazard container located within the room.

8. Wash hands after handling animals.