

COMPARATIVE MEDICINE
LABORATORY ANIMAL FACILITIES

STANDARD OPERATING PROCEDURE
FOR
FOOTPAD INJECTIONS IN MICE AND RATS

1.0 Purpose:

Footpad injections can be used as models for pain, inflammation, arthritis, and immunization. They are a combination of intradermal and subcutaneous injection, and have the potential to cause significant discomfort, pain, inflammation, and tissue necrosis. Hind foot pads are recommended as the front limbs are required for accessing and manipulating food. Since the hind feet are the major weight bearing structures, only a single hind paw should be used for injection. A preferred, alternative injection site is the hock (lateral tarsal region) due to the reduction in incidence of debilitation following injection; be advised that the lymphatic drainage from the lateral tarsal region enters the same lymph nodes as from the footpads. Scientific justification must be provided for IACUC approval when proposing the use of footpad injections. The following procedure will provide guidelines for conducting proper footpad injections.

2.0 Scope:

This procedure applies to all CMLAF veterinary staff and all Principal Investigators and their associated staff involved with footpad injections in mice and rats.

3.0 Procedure:

- 1.1 Only one hind foot may be used – never inject both hind feet simultaneously.
- 1.2 Anesthesia is strongly recommended as a method of restraint. A restraint tube maybe used in unanesthetized rodents, however the foot will retract during injection making it more technically challenging.
- 1.3 The hind foot to be injected should be thoroughly cleaned with disinfectant soap or 70% alcohol.
- 3.4 Sterile syringes and needles (25 gauge or smaller) should be used. A new needle should be used for each animal. The maximum injection volume is 0.05 mL for mice and 0.10 mL for rats.
- 3.5 With the bevel facing the skin, push the needle into the skin past the bevel before injecting. Withdraw the needle slowly while keeping pressure on the injection site. Continue firm pressure for several seconds following injection, then check for leakage of injected material. If leakage occurs reapply pressure until it stops.
- 3.6 If anesthesia has been used place the animal in a recovery cage with a heat source until the animal can right itself. When the animal is mobile and alert it can be returned to its home cage.
- 3.7 Animals should be housed with deep, soft bedding following injection.

3.8 Post Injection Monitoring and Care:

- A. A RAT AND MOUSE ANESTHESIA &/OR SURGERY REPORT must be turned in to the LAF veterinary technicians following footpad injections, even if anesthesia is not used, so that post-procedure monitoring can be performed.
- B. Injectable analgesia must be administered for at least one day following footpad injection. Scientific justification must be provided on the IACUC protocol if analgesics cannot be given.
- C. Animals should be monitored daily for 4 weeks or until all lesions have healed and there is no sign of pain or discomfort.
- D. Consider providing wet chow and/or dry chow in a dish on the floor of the cage to allow ease of access to food in the event that the animals are unable to stand comfortably on their hind feet.