RESEARCH AND INNOVATION
ANIMAL RESOURCES AND CARE
VIRGINIA TECH

Standard Operating Procedure: Mouse Intraperitoneal Injection

These SOPs were developed by the Office of the University Veterinarian and reviewed by Virginia Tech IACUC to provide a reference and guidance to investigators during protocol preparation and IACUC reviewers during protocol review. They can be used as referenced descriptions for procedures on IACUC protocols.

However, it is the sole responsibility of the Principal Investigator to ensure that the referenced SOPs adequately cover and accurately represent procedures to be undertaken in any research project. Any modification to procedure as described in the SOP must be outlined in each IACUC protocol application (e.g. if the Principal Investigator plans to use a needle size that is not referenced in the SOP, simply state that alteration in the IACUC protocol itself).

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I. Procedure Summary & Goal

Describes procedure for the administration of fluids or compounds into the abdominal cavity.

Considerations:

a. Intraperitoneal (IP) injections should be made into the animal's right abdominal quadrant so as to avoid penetrating the cecum on the left side.

b. Please refer to the Guidelines for Injections in Rodents and Rabbits, Virginia Tech Office of the University Veterinarian for recommended volumes and needles sizes.

II. Personal Protective Equipment (PPE) and Hygiene

a. Ensure appropriate PPE is used to protect technician from accidental exposure to blood and other body fluids, such as:

   i. Gloves

   ii. Eye protection

   iii. Mask

   iv. Other PPE as required by protocol/facility

b. Hands should be washed and/or gloves changed between animals.

c. Promptly dispose of used sharps in the provided leak-proof, puncture resistant sharps container.

III. Supply List

a. Needles (23 - 27 gauge; ½ - ⅝ inch)

b. Prefilled syringes

c. Antiseptic solution

d. Gauze pads

IV. Detailed Procedure

a. Anesthesia

   i. No anesthesia required.

b. Procedure

   i. Locate the peritoneal cavity in the lower quadrant of the abdomen, lateral to the animal's midline.

   ii. Restrain the animal manually with the body tilted downward, and the head of the animal tilted back. This assists in sliding the organs cranially so the needle is less likely to puncture them.

   iii. Swab the injection site with an antiseptic.

iv. Insert the needle into the inguinal area at a 45° angle or lower to the skin (Figure 1).

1. The needle should easily penetrate the skin and musculature and enter the peritoneal cavity in this region.

v. Aspirate the syringe to make sure the urinary bladder or large intestines have not been entered accidentally.

1. If foreign matter is drawn back into the syringe, then withdraw the needle and repeat the injection using a fresh syringe, needle and material.
2. If nothing is drawn back into the syringe, then inject the required amount of material and withdraw the needle.
3. Do not aspirate if you are injecting suckling animals.

vi. Dispose of needle in approved sharps container.

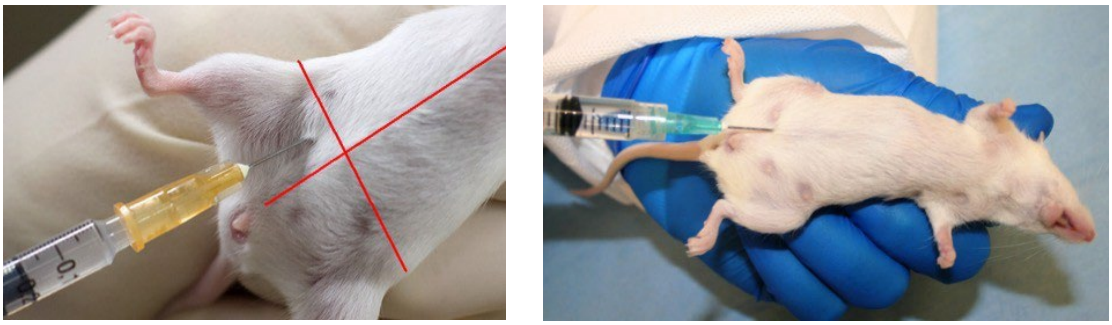

Figure 1. Landmark Identification, Restraint, and Administration of IP Injection

V. Variations

None

VI. Potential Adverse Events, Mitigation, or Treatment

a. Distress due to restraint

b. Complications as a result of perforating or infiltrating abdominal organs

i. Sepsis, exsanguination, death

ii. Contact veterinary staff if the animal appears ill or unthrifty

VII. References

American Association of Laboratory Animal Science. Laboratory Animal Technician Training Manual. (Memphis, TN: Drumwright and Co, 2007)

Charles River Insourcing Solutions. Biomethodology in the Laboratory Mouse

Charles River SOP 2405-3 – Dosing of Rodents – TGS and Discovery Services

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Suckow, M., Danneman, P., and Brayton, C. The Laboratory Mouse. (Boca Raton, FL: CRC Press LLC, 2001)

Turner, P.V., Brabb, T., Pekow, C., and Vasbinder, M. Administration of Substances to Laboratory Animals: Routes of Administration and Factors to Consider. J Am Assoc Lab Anim Sci.; 50(5): 600–613. (2011 September) http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3189662/