

University Animal Care Committee Standard Operating Procedure		
Document No: 7.9.2	Subject: Intraperitoneal Injection (Mice)	
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Location: Queen's University

Responsibility: Principal Investigators, Research Staff, Veterinary Staff

Purpose: The purpose of this Standard Operating Procedure (SOP) is to describe the intraperitoneal injection in mice.

1. Introduction and Definitions:

Abbreviations: Animal Care Services **ACS**, Principal Investigator **PI**, subcutaneous **SC**, intravenous **IV**, intraperitoneal **IP**, intramuscular **IM**, per os **PO**, per rectum **PR**

Recommended Needle Sizes and Volumes	
<i>Length of needle: ½ to ¾ inch</i>	
	Intraperitoneal IP
Recommended Gauge (Maximum gauge)	26-27 (25)
Good Practice Volume (Maximum volume)	≤ 10 mL/kg (20 mL/kg)

The injection methods described within an Animal Use Protocol (AUP) must be followed at all times. The following guidelines provide recommended injection sites, needle sizes and maximum volumes. "Good Practices" include:

- All animals securely and safely restrained prior to injecting.
- Only three attempts per site should be practiced. If unsuccessful, allow another (trained and competent) person to complete the injection.
- Use the appropriate gauge needle and volume for the injection site based on the size of the mouse.
- Before injecting any substance, aspirate first to ensure appropriate placement of the needle (excluding intravenous injections).
- Always inject with the bevel up on the needle.
- Always ensure the substances you are injecting are sterile, and use sterile technique.
- Every animal requires a new sterile syringe and a new sterile needle. With small volumes, it may be preferable to dilute the injectable agent 2:1 (or greater) with diluent to ensure accurate dosing.
- Disinfecting the skin with alcohol is mandatory for intravenous, intraperitoneal,

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intramuscular, intradermal, and all biohazardous injections.

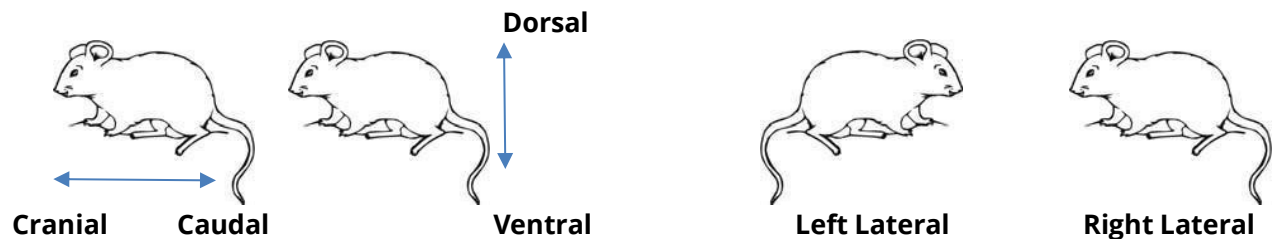
- Choose the appropriate administration route for the substance to be injected.

2. Materials:

- Sterile 1 mL syringes
- Sterile needles (26-27 gauge)
- 70% alcohol
- Injectable solution

3. Procedures:

Anatomical Terms of Location



- Every animal requires a new sterile syringe and a new sterile needle.
- Load the syringe and needle with appropriate volume to be injected.
- Safely restrain the animal using the scruff technique and place in dorsal recumbency with the head tilted slightly downward to provide a clear view of the abdomen.
- Identify the midline of the ventral abdomen. The optimal side to inject IP in a mouse is their caudal right side, avoiding the cecum which typically lies on the animal's left side.
- The needle should be inserted bevel up in line with the natural extension of the hip, between the two lower nipples and angled at ~45 degrees to the abdomen. The angle must be sharp enough to penetrate the abdominal cavity, affirming the site is not subcutaneous.
- Aspirate to ensure the placement of the needle is correct. Proper placement should yield negative pressure and no aspirate in the hub of the needle. If any fluids are seen; stop, reload a new syringe and needle, check injection site for trauma, reposition needle and attempt again.
- After ensuring proper placement, inject.
- If injecting with a biohazard ensure to wipe the abdomen with alcohol following injection.

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References:

SOP Revision History:

Date	New Version
April 25, 2016	Triennial Review
March 28, 2019	Triennial Review
December 12, 2022	Triennial Review, split apart separate injection methods, updated format and reviewed/updated maximum injection volumes
March 25, 2026	Triennial Review. Updated injection method to not include alcohol (unless working with biohazards). Updated volumes.