

**Location:** University

**Responsibility:** Principal Investigators (PI), Research Staff, Veterinary Staff

**Purpose:** The purpose of this Standard Operating Procedure (SOP) is to describe the procedure of intravenous substance administration via the tail vein.

**1. Introduction and Definitions:** The lateral tail vein is a commonly used injection site in mice and rats. The procedure causes only minimal or transient pain and distress and does not require anesthesia in the mouse.

**2. Materials:**

*\*All drugs, fluids, suture material and autoclaved items must not be used if passed their expiry date\**

**MOUSE**

EMLA cream\*  
26-30g needle (use the smallest gauge possible to allow accurate infusion and to accommodate particle size and viscosity)  
Appropriate sized syringe (usually 1ml)  
Injectable solution  
Mouse restrainer  
Heat lamp or vessel with warm water  
70% isopropyl alcohol  
x gauze

**RAT**

EMLA cream\*  
25-27g needle (use the smallest gauge possible to allow accurate infusion and to accommodate particle size and viscosity)  
Appropriate sized syringe (usually 1ml)  
Injectable solution  
Rat restrainer  
Heat lamp or vessel with warm water  
70% Isopropyl alcohol  
x gauze  
Anesthetic, if required

\*EMLA cream requires a minimum 15 minute absorption time post application (species and site dependent). It is strongly recommended to use this topical anesthetic prior to any injection (particularly in the case of novice handlers), however this step may be waived if it contributes to an animal's

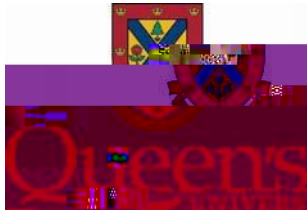
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### **3. Procedures:**

Diagram of a transverse sectional  
view

Diagram of a transverse sectional view of mouse tail





| University Animal Care Committee Standard Operating Procedure |   |                      |
|---|---|----------------------|
| <b>Document No:</b><br>7.12                                   | <b>Subject:</b><br>Rodent Tail Vein Injections (Mice) |                      |
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Push the plunger in slowly and steadily with your finger until the required volume has been injected. ***If the needle is in the vein, there will be no resistance. If the needle is not in the vein, the solution will be infused perivascular and cause skin blanching or a subcutaneous bleb. Accurate placement can also be confirmed when the vessel clears as the compound is administered and the fluid temporarily replaces the blood.***

A second attempt may be performed by removing the needle and attempting a site on the same vessel in a more cranial location on the tail. Additional attempts can be made on the contra-lateral vein, however limit the number of puncture attempts to three. After three unsuccessful attempts, request the assistance of another trained person.

Administer infusion at a constant flow rate.

Do not inject into inflamed or damaged tissue.

Remove the needle from the vein and apply light pressure to the puncture site with gauze.

Remove the mouse from the restrainer and place in its home cage.

Monitor the animal for 5-10 minutes to ensure hemostasis.

**References:**

<http://www.animalcare.ubc.ca/sop/>

<http://www.mcgill.ca/research/researchers/compliance/animal/>

<http://www.jefferson.edu>

**Revised: November 26, 2015 / February 28, 2019 / February 28, 2022**

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