

UNIVERSITY OF DELAWARE
OFFICE OF LABORATORY ANIMAL MEDICINE

Intravenous (IV) Tail Vein Injection SOP #PRO-005

Equipment required:

- Sterile needle and syringe
 - Mouse: 27-30 gauge needle
 - Rat: 25-28 gauge needle
- Source of heat to dilate the tail veins:
 - (warm water, warm water bed, heat lamp, heated IV Injection equipment for mice) **Be very careful not to overheat or burn the animal!**

Technique:

1. Restrain the animal in a restraint device if animal is not anesthetized.
2. Use heat to dilate the tail veins which run laterally along each side of the tail.
3. Clean the tail with 70% alcohol.
4. Stabilize the tail between the thumb and forefinger of the hand that will not be manipulating the syringe. Hold the tail above (proximal to) the injection site. Digital pressure will act as a tourniquet.
5. Put slight tension on the tail.
6. Locate the vein on one side of the tail and begin injections at mid-length or slightly distal (further down the tail).
7. **Make certain that prior to insertion there are no air bubbles in the syringe!**
8. Insert needle, bevel up, toward animal's head and approximately parallel to the vein.
9. **Do not aspirate** as this may cause the vein to collapse!
10. Proper placement may not be verifiable until injection occurs although you may see a flash of blood in hub of needle when it is first placed.
11. Lessen digital pressure so fluid may flow into vein.
12. Inject slowly. If vein blanches, placement is correct.
13. If there is any swelling (blister or bubble) or resistance to injection, stop injecting immediately and remove the needle. Reinsert slightly above the initial injection site. (May need to discard the needle and replace with a new one.)
14. Remove needle after injection.
15. Observe injection site for bleeding.
16. Control any bleeding by applying digital pressure to the site until bleeding stops (approximately 1 minute).
17. Return the animal to its cage.
18. Observe animal for bleeding or any signs of pain or distress.

Maximum Recommended Tail Vein injection Volumes:

- **Mouse:** 0.125 ml (bolus)
0.03 ml (very slow infusion)
- **Rat:** 0.5 ml