

**UNIVERSITY OF DELAWARE**  
**OFFICE OF LABORATORY ANIMAL MEDICINE**

**Subcutaneous (SC or SQ) Injection SOP #PRO-007**

The aim of this technique is to administer fluids or drugs into the space between the skin and the underlying tissue.

**Equipment required:**

- Sterile needle and syringe
  - Mouse: usually 25-30 gauge needle
  - Rat: usually 22-25 gauge needle

**Technique:**

1. Restrain animal
2. **Mouse** - if awake, the mouse can be placed on wire bar lid so it will hang on with front paws assisting restraint. One hand will restrain the mouse and tent the skin.
3. **Rat** - if awake, the rat can be restrained by grasping the base of the tail with one hand and with the other hand, flatten the rat against the table.
4. Lift skin to form a tent. The loose skin between the shoulders, the abdomen, or flank is most often used. Make sure your fingers are at the top of the tent to avoid puncture by the needle.
5. Insert needle, bevel up, at the base of the tent (close to the body) and parallel to the animal's body to avoid puncturing underlying structures.
6. Aspirate by pulling back on syringe plunger to ensure that needle has not entered a blood vessel. If blood is aspirated, redirect needle and aspirate again. If air is aspirated, you may have gone through the skin and out the other side. Reposition needle.
7. Inject at a moderate rate. Use several sites if larger volumes are to be injected.
8. Withdraw needle and press skin to seal site. This will prevent bleeding and leakage of injected fluid. A bubble (bleb) may be felt at the injection site. This is normal.
9. Return animal to its cage.
10. Observe animal for bleeding or any signs of pain or distress.



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**Maximum Recommended Volume to be Injected:**

- **Mouse:** 1ml
- **Rat:** 10 ml (2 ml/site)