

Subcutaneous (SC or SQ) Injection in Rats and Mice SOP

Purpose

This Standard Operating Procedure (SOP) describes the procedure of subcutaneous injections into rats and mice. This SOP follows the CCAC guidelines for acceptable injection volumes in rodents.

Responsibility

Those trained persons listed on an approved Animal Care Committee protocol performing the procedure

All animal users injecting rodents must have successfully completed the UBC Animal Care Services (or equivalent) Rodent Biology and Husbandry course

References

Canadian Council on Animal Care (CCAC) guidelines (www.ccac.ca)

Recommendations

Use the manufacturer's recommended route of injection since some drugs may have adverse side effects or cause discomfort if injected via a non-recommended route
The volume to be injected should be the least amount possible and not exceed the current recommended guidelines (see chart below)

Highly viscous liquids should be avoided as they are more difficult to inject and require a larger needle size

All substances for injection should be sterile since contamination can cause infection and irritation at the site of injection

Warm substances to room or body temperature since injection of cold substances can cause discomfort

	Subcutaneous Volume	
Species	Needle Gauge	Volume
Mouse (25 gm)	25-27g	< 3 ml
Rat (200 gm)	25g	< 10 ml

Materials

Syringes

Needles

Appropriate substance to be injected

Facecloth or small towel for rat restraint

Procedure

1. Prepare the syringe by placing the needle on the syringe. Line up the bevel with the numbers on the syringe.



2. Draw up, into the syringe and needle, the amount of solution to be administered.
3. **For mice:** scruff and restrain the animal with your non-dominant hand allowing access to an area with loose skin.
For rats: use a facecloth or small towel to restrain the rat and tent the loose skin with your non-dominant hand.
4. Holding the syringe in your dominant hand, and with the bevel of the needle facing upwards, insert the needle through the skin at the base of this tent.



Mouse



Rat

5. Pull back on the plunger to ensure negative pressure prior to injecting. If there is negative pressure, proceed with the injection - depress the plunger until the solution has been fully administered.
6. If blood is drawn back into the hub of the needle, remove and try again with a new needle, syringe and solution.
7. Remove the needle and place directly into a sharps container without recapping.
8. Place the animal back into its cage and observe for any complications.

Complications

1. Bleeding at injection site – apply pressure until the bleeding stops and clean with gauze and water
2. Inflammation, abscesses or ulcers at the injection site due to pH of solution, contamination or tissue irritation