

Quick Reference Summary Sheet

TECH 10b - Intraperitoneal Injections in Adult Rats

Procedure:

1. Pre-warm sterile substance to be administered. Do not exceed 37°C.
2. Weigh animal. Calculate volume to administer (maximum = 10 ml/kg).
3. Fill an appropriately sized syringe and needle. Maintain sterility.
 - a. Rats: 1-5 ml syringe, 23-25G needle, 5/8" length
4. Restrain animal appropriately for safe access to abdomen for injection.
 - a. One person: lay rat along non-dominant arm with head towards elbow. With dominant hand supporting the back, roll rat and press its back against your body. Splay fingers to spread and hold hind legs apart. Keep body straight and tilted in a slightly head down position (Figures 1-3).
 - b. Two people: use V-hold restraint method while another person injects. Dominant hand holds the head extended between index and middle fingers and rest of hand is wrapped around the thorax. Non-dominant hand supports hind end while placing thumb and middle finger in the groin area to straighten legs and expose belly. Tilt head slightly lower than body (Figure 4).
Second person can now perform the injection (Figure 5).
5. Insert the needle into the lower right quadrant of the abdomen with your dominant hand (Figure 4).
 - a. Inject into the centre (blue circle) of an imaginary triangle consisting of:
 - i. Vertical line along animal's midline
 - ii. Horizontal line just above level of hip or at level of second visual set of nipples (female only)
 - iii. Diagonal line to genitalia
 - b. Can alternate sides if injecting over multiple days.
 - c. Direct the needle towards the head at a 30-40° angle to the horizontal plane of the animal (Figure 5).
 - d. Insert $\frac{3}{4}$ of the needle length for a lean animal or the whole needle length for a fat animal.
6. Pull back on the plunger. If no blood, urine or intestinal contents appear, inject contents and remove needle.
 - a. If contents are aspirated, replace needle and syringe and re-attempt only if animal remains healthy after 5-10 minutes of observation.
 - b. When re-attempting, redirect the needle angle slightly. Monitor animal afterwards for 5-10 minutes after to ensure no complications arise.
7. Discard syringe and needle into sharps container. Do not recap.
8. Return animal to its cage and observe for any complications.
9. Note procedure (drug, dose, route, volume, any complications) on cage card/monitoring records.

Potential Complications:

- Bleeding at injection site
- Signs of abdominal pain
- Peritonitis
- Laceration of abdominal organs, intestine and/or damage to internal blood vessel
- Injection into the intestinal tract or bladder

