Curtin University Standard Operating Procedure

Lateral Tail Vein Injections in Mice and Rats

Number: TEC 24
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Aim/Purpose: To provide directions for the technique of lateral tail vein injections in mice and rats.

All employees have a duty of care (see Occupational Health and Safety) to ensure their own health and safety, and that of their fellow workers at all times.

ALL ANIMALS MUST BE HANDLED HUMANELY i.e. carefully and kindly.

Definitions:

AEC: Animal Ethics Committee

PPE: Personal Protective Equipment

Materials:

- Sterile 27-30 gauge needles for Mice
- Sterile 25-27 gauge needles for Rats
- Syringes
- Heating device
- Ethanol
- Gauze
- Anaesthetic / Anaesthetic equipment if required
- Restraint if required.
- PPE

Calculations:

Weigh each animal before injection.
Volumes to be given as a maximum are as follows

- Mouse: 5ml/kg as a bolus E.g. 0.1ml for a 20g mouse
- Rat: 5ml/kg as a bolus e.g. 1.25ml for a 250g rat.
Procedure:

1. Warm animal for 5-10 mins to dilate the veins. This can be done by placing the animal in a commercially available warming box or by a heating pad under the cage. A heating lamp can be used however care must be taken to avoid over heating the animal.

2. It is recommended that the animal is lightly anaesthetised (using a drug such as isoflurane – needs to be approved by the Curtin AEC) unless the operator is very experienced.

3. Position the animal on its side on a heating pad.

4. If the animal is conscious, the animal should be restrained using a commercially available restraint of the appropriate size. The duration of time in the restraint should be minimised, and ensure the restraint is washed frequently to prevent pheromonally induced stress or cross contamination.

5. Wipe the tail with ethanol on some gauze or chlorhexidene.

6. Grasp the tail at mid-length or at the distal (further down the tail) end. The index and middle fingers of the non-dominant hand are placed around the tail above where the needle will be inserted (the digital pressure will act as a tourniquet). The lower part of the tail is held between the thumb and ring finger below the injection site. Put slight tension on the tail by applying pressure with both sets of fingers. Insert the needle into the vein. Blood should be visible at the nub of the needle and pulsing, indicating that the needle is in the vein. Inject the substance into the vein. Blood should become pale as the substance is injected in. If the needle is not in the vein, the area around will quickly swell - stop immediately, pull the needle out, and apply pressure to the area.

7. Once the substance has been injected, remove the needle and apply pressure over the area for approximately 10 seconds or until the bleeding stops.

8. Wipe the area again with a gauze swab with ethanol.

9. Release the animal from the restraint, or wake the animal from the anaesthetic and watch until the animal has fully recovered.

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Reviewed:

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