**Task Performed:**
Intra-peritoneal (IP) injection of rats / mice.

**Hazards:**
1. Refer to GLP 105 – Working with and Handling Mice and Rats for a risk assessment covering working general aspects of working with Mice and Rats.
2. Needle-stick injury

**Risk Assessment:**
1. Refer to GLP 105 – Working with and Handling Mice and Rats for a risk assessment covering working general aspects of working with Mice and Rats.
2. The risk of needle-stick injury is reduced with the risk controls in place.

**Risk Control:**
1. Refer to GLP 105 – Working with and Handling Mice and Rats for a risk assessment covering working general aspects of working with Mice and Rats.
2. Do not resheath needles after use.
3. Dispose of needles and scalpel blades directly into sharps container.
4. Training should be provided by personnel experienced in the specific procedures used and in appropriate animal handling.
5. All persons working with rats / mice should undertake an Animal Handling Course as soon as practicable when it is known that they will be working with animals.
6. All personnel accessing the Animal House should have been indoctrinated into this area by

<table>
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<th>NAME (signed)</th>
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<tr>
<td>Petrina Guthrie</td>
<td>Lynn Herd</td>
<td>Phillip Dickson</td>
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Distributed To: GLP Master File / GLP Lab File
Animal House personnel.

7. Training should be undertaken in General Laboratory Safety.

I have read and understood the Risk Assessment for GLP 106 – Intra-peritoneal injection of rats and mice.
I agree to abide by the Risk Controls outlined in this Assessment.

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2. **Purpose:**
   2.1 To describe the procedure for intra-peritoneal (IP) injection of rats / mice.

3. **Equipment:**
   3.1 Cage of rats / mice

4. **Materials:**
   4.1 1ml syringe – mice
   4.2 3ml syringe - rats
   4.3 26G needle – mice
   4.4 23G needle - rats
   4.5 Tissue/towels
   4.6 Gloves

5. **Reagents:**
   5.1 Material to inject – conduct a risk assessment for the specific material used.

6. **Set Up:**
   6.1 Ensure that you have read and understood the Safety Precautions (Section 7 of this SOP) prior to commencing this procedure.
   6.2 Prior to the day of IP injection, book the use of the surgery room by an appropriate entry in the diary located at the entrance to the animal containment areas in MSB Animal House.
   6.3 Prepare the material to inject prior to proceeding to the Animal House on level 2 MSB.
   6.4 Collect all materials from the labs on level 3 LSB before proceeding the Animal House on level 2 MSB.
   6.5 Upon entering the Animal House put on a lab coat and plastic booties before walking through to the mouse room.
   6.6 Collect the cage of rats you wish to inject from the rat room, **OR** the mice you wish to inject from the mouse room.

7. **Safety Precautions:**
   7.1 Good laboratory techniques are to be used at all times.
   7.2 Wear PPE, including lab coat, gloves, and enclosed shoes.
   7.3 If allergic or sensitive to rats / mice ensure that you are familiar with the precautions outlined in GLP 105 – Working with and Handling Mice and Rats.
8. **Method:**

8.1 This procedure is usually carried out with two people. One to hold the animal and one to inject. Find someone appropriately trained in this procedure to help before proceeding to the Animal House.

8.2 Walk through into the hallway and into the appropriate animal holding room, locate the cage of rats / mice you want to inject and take to the procedures room or surgery. Place cage on the table. Put some gloves on.

**MOUSE**

8.3 Take the lid off the cage and pick up one mouse by the tail, put the lid back on the cage and place the mouse on the lid of cage. Ensure you hold onto the tail.

8.4 Using a towlette placed in the palm of your hand, pick the mouse up by the scruff of the neck using your thumb and forefinger. Ensure that you have a good hold of the mouse so that it is unable to move. If the mouse can overly move its head, place the mouse back on the lid of the cage (while holding onto its tail) and try again to pick it up by the scruff of the neck.

8.5 Once you have a sufficient hold of the mouse it is ready to be injected.

8.6 Whilst one person is handling the rat the other should be preparing the material to inject.

8.7 To prepare the material to inject, unsheathe a 1ml syringe and 26G needle. Attach the needle to the syringe.

8.8 Draw up to 200ul of material to inject. Ensure you do not inject any more than 200ul per mouse.

8.9 Locate approximately 2mm lateral to the umbilicus on the right hand side of the mouse. This is the site for intraperitoneal (IP) injection.

8.10 With the bevelled edge of the needle facing upwards, insert the needle shallowly to ensure that it does not enter an abdominal organ. This is best achieved by placing the needle almost parallel to the abdominal wall when injecting.

**NOTE:** To avoid inadvertent intravenous injection, the syringe plunger should be drawn back after introducing the needle into the tissue. If the needle has penetrated a vessel, blood will be seen in the hub of the needle. Push down on the syringe to inject the material.

8.11 Withdraw needle. Discard needle and syringe directly into sharps container. **Do not resheath.**

8.12 Return mouse to the cage or if multiple mice are to be injected, place mouse in an empty cage so as to distinguish it from mice that have not been injected.

8.13 If multiple mice are to be injected repeat from 8.3. Ensure that a new needle is used for each mouse.
8.14 Once all mice have been injected, return all the mice to their original cage by picking them up by the tail and placing them back in their original cage.

8.15 Ensure the health and well being of the mouse/mice before returning the cage to the rack where the mice are housed.

**RAT**

8.16 Take the lid off the cage and pick up one rat by the BASE of the tail, do not pick rats up by the tip of the tail.

8.17 Put the lid back on the cage and place the rat on the table. Ensure you hold onto the base of the tail.

8.18 Using a towel wrap the rat inside the towel (not unlike rolling a kebab). Ensure that you keep the back legs somewhat exposed so that you are able to reach the abdomen.

8.19 Locate one of the hind legs and pull downward upon it to expose the abdomen.

8.20 Whilst one person is handling the rat, the other should be preparing the material to inject.

8.21 To prepare the material to inject, unsheathe a 3ml syringe and 23G needle. Attach the needle to the syringe.

8.22 Draw up to 1ml of material to inject. Ensure you do not inject any more than 5ml per rat, depending on body weight.

8.23 Locate approximately 3mm lateral to the umbilicus on the right hand side of the rat. This is the site for intraperitoneal (IP) injection.

8.24 With the bevelled edge of the needle facing upwards, insert the needle shallowly to ensure that it does not enter an abdominal organ. This is best achieved by placing the needle almost parallel to the abdominal wall when injecting.

**NOTE:** To avoid inadvertent intravenous injection, the syringe plunger should be drawn back after introducing the needle into the tissue. If the needle has penetrated a vessel, blood will be seen in the hub of the needle. Push down on the syringe to inject the material.

8.25 Withdraw needle. Discard needle and syringe directly into sharps container. **Do not resheath.**

8.26 Return rat to the cage or if multiple rats are to be injected, place rat in an empty cage so as to distinguish it from rats that have not been injected.

8.27 If multiple rats are to be injected repeat from 8.16. Ensure that a new needle is used for each rat.

8.28 Once all rats have been injected, return all the rats to their original cage by picking them up by the base of the tail and placing them back in their original cage.
8.29 Ensure the health and well being of the rat/rats before returning the cage to
the rack where the rats are housed.

9. Maintenance:
9.1 Refer to GLP 105 Working with and Handling Mice and Rats.

10. Shutdown:
10.1 Refer to GLP 105 Working with and Handling Mice and Rats

11. Illustrations:
11.1 See Table.1 Section 11 of GLP 105 Working with and Handling Mice and Rats

12. Attachments:
12.1 University of Newcastle, Animal Care and Ethics Committee, Standard
Operating Procedure – Intraperitoneal Injection of Mice
12.2 University of Newcastle, Animal Care and Ethics Committee, Standard
Operating Procedure – Intraperitoneal Injection of Rats

13. References:
13.1 See GLP 105 Working with and Handling Mice and Rats

14. Change History:
14.1 Issue Number: 1st Issue
Date Issued: 30th January 2007

14.2 Issue Number:
Date Issued:
Reason for Change: