1. **PURPOSE**

The intent of this Standard Operating Procedure (SOP) is to describe the various rodent-handling techniques necessary for basic research with rodents.

2. **GENERAL CONSIDERATIONS**

2.1. The use of proper restraint and handling techniques reduces stress to animals and animal user.

2.2. Handling stress represents an experimental variable and should be minimized whenever possible.

2.3. Animals can inflict serious injuries to humans and to themselves as a result of improper handling.

2.4. Animals experience stress as a result of shipping. All animals must be allowed to acclimate to the facility for three days. During this time they may not be experimentally manipulated. Acclimation periods of up to one week are recommended.

2.5. If a study will involve significant handling of animals it is recommended that the animals be acclimated to the handling. Prior to experimental manipulation, handle the animal on a regular basis in a non-threatening situation, e.g. weighing, petting, and giving food treats. Most animals, even rodents will respond positively to handling and will learn to recognize individuals.

2.6. Handle animals gently. Do not make loud noises or sudden movements that may startle them.

2.7. Handle animals firmly. The animal will struggle more if it sees a chance to escape.

2.8. Use an assistant or a commercially available rodent restraint device, where possible and appropriate.

2.9. Anesthesia should be considered for any prolonged or potentially painful procedure.

3. **MATERIALS**

- Lab coat
- Appropriate PPE
- Appropriate surface for handling the rodent (e.g. wire hopper)
- Restraint device, if appropriate
- Towel

4. **PROCEDURE**

4.1. **Mouse Handling**

4.1.1. **Tail Transfer**

4.1.1.1. This can be used or for brief restraint; e.g. transferring animals from cage to cage or to quickly determine the mouse’s gender

4.1.1.2. Never suspend the mouse for prolonged periods of time by its tail.

4.1.1.3. Lift mouse up by the base of the tail using thumb and forefinger. Grasping the mouse by the tip of the tail may cause a degloving injury (the skin to be...
stripped off).

4.1.1.4. Place the mouse on surface to which the animal will cling, such as a wire cage top or into another container (e.g. cage, weigh boat, etc.)

4.1.2. Scruff hold

4.1.2.5. Pick up the mouse by the base of the tail and place him on to an easily griped surface e.g. wire hopper

4.1.2.6. Ensure the mouse’s head is facing away from you

4.1.2.7. While holding the tail of the mouse with your dominant hand, use your non-dominant hand to allow your thumb and index finger to grab the scruff (loose skin at the back of the neck). The mouse’s head should be immobilized if the skin is held properly. Place tail between palm and baby finger or ring finger and little finger.

4.1.2.8. Monitor the mouse closely while restrained, for signs of distress. If too loose he will be able to turn its head; if too tight and the mouse may appear to gasp or become cyanotic (turn blue).

4.1.2.9. Use this restraint for anytime you need to examine the animal closely or perform certain procedures (e.g. intraperitoneal injection).

4.2. Rat Handling

4.2.1. Rats are typically docile animals, particularly if they are routinely handled using appropriate techniques. Bites from rats are uncommon and will typically only occur if the animal is stressed or in pain

4.2.2. Do not attempt to grasp rats at the nape of the neck. Unlike mice, rats object strongly to being restrained by the scruff.

4.2.3. Tail Transfer

**NOTE: tail transfer should not be used for rats weighing more than 500 g**

4.2.3.10. Lift rat up by the base of the tail using thumb and all fingers. Grasping the tip of the tail, may cause a degloving injury (the skin to be stripped off).

4.2.3.11. Support the rats body weight by allowing its front feet to touch the wire hopper or side of the cage or lifting with your other hand supporting its body weight

4.2.3.12. This can be used to transfer animals between cages or to a weigh scale or to quickly determine the rat’s gender

4.2.3.13. Never suspend the rat by its tail.

4.2.4. To calm a rat place it on your forearm. Providing a place to hide such as under a towel will also help to calm the rat. It is best to calm a rat before proceeding with the “C” or “V” hold, if the rat is not accustomed to being handled.
4.2.5. **The “C” hold**

4.2.5.14. Gently grasp the rat behind the forelimbs with one hand.

4.2.5.15. With the second hand, scoop the rat up and continue to support the hind end of the rat.

4.2.5.16. Then place a finger under the rat's chin to prevent the rat's head bending down towards the hand.

4.2.5.17. Avoid squeezing the rat too tightly as it may result in difficulty breathing – monitor the rat continuously for signs of distress.

4.2.5.18. Use this restraint, or the “V” grip (see 4.2.6, below) for anytime you need to examine the animal closely or perform certain procedures (e.g. intraperitoneal injection).

4.2.6. **“V” grip**

4.2.6.19. With your dominant hand slide your index and middle finger along both sides of the head as far as possible and grasp the head with your knuckles on the jaw bone.

4.2.6.20. Place your thumb and remaining fingers under both forelimbs to grasp the thorax.

4.2.6.21. If possible you can hold the lower body with your other hand or rest the rat on your chest for the comfort of the animal. This is especially important for pregnant or larger rats.

5. **SAFETY**

5.1. If bitten or scratched by animal place animal back into the cage and close the lid, then follow OHS 02 Animal Related Injury SOP

6. **REFERENCES**

SOP OHS -02 Animal Related Injury

Assessing the Health and Welfare of Laboratory Animals  Mouse Handling and Restraint  005-2014 Newcastle Universit  http://www.ahwla.org.uk/site/tutorials/BVA/BVA05-Mouse/Mouse.html


Mice: Basic Handling and Technique Workshop University of North Carolina, Chapel Hill  2012  https://www.nc3rs.org.uk/handling-and-restraint National center for the replacement, refinement and reduction of animals in research  Kelly Gouveia, John Waters and Jane L Hurst, University of Liverpool