1 PURPOSE

This SOP describes the procedure for orally dosing mice and rats via gavage.

2 CONSIDERATIONS

2.1 All animal users must be trained in proper technique by Animal Care and Veterinary Services before performing oral gavage with live animals

2.2 An approved Animal Use Protocol must be approved by the Animal Care Committee before beginning any procedure

2.3 Alternatives such as custom made chow or gels should be considered in place of gavage

2.4 Mice and rats should be trained to accept the restraint and gavage needle before the study begins unless contraindicated by the study parameters

3 GENERAL PROCEDURE

3.1 Weight the animal to determine the total dose that may be administered

3.1.1 No more than 10-20 mL/kg may be administered

3.1.2 Up to 2 doses per 24 hours may be administered unless otherwise approved by the Animal Care Committee

3.2 Collect all supplies before beginning any procedure

3.2.1 Syringes should be loaded before animals are removed from their cages

3.2.2 Liquid should be drawn through the gavage needle into the syringe. This reduces dead space and injecting air into the esophagus. This is also necessary to provide accurate volumes

3.2.3 Any vials or syringes not used immediately should be labeled with the substance, concentration, and date

3.2.4 Some substances are light sensitive, care should be taken to store these in brown vials or covered

3.3 Ensure the proper sized feeding needle is firmly attached (see chart below)

3.3.1 For length, measure the distance from the oral cavity to the xyphoid process (caudal point of the sternum) with the feeding tube and mark this point as the distance to insert the needle

<table>
<thead>
<tr>
<th>MOUSE</th>
<th>Weight (g)</th>
<th>Gauge</th>
<th>Length (inches)</th>
<th>Ball Diameter (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>&lt;14</td>
<td>24</td>
<td>1</td>
<td>1.25</td>
</tr>
<tr>
<td></td>
<td>15-20</td>
<td>22</td>
<td>1-1.5</td>
<td>1.25</td>
</tr>
<tr>
<td>Weight Range</td>
<td>CRF</td>
<td>Restraint</td>
<td>Min.</td>
<td>Max.</td>
</tr>
<tr>
<td>--------------</td>
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<td>-----------</td>
<td>------</td>
<td>------</td>
</tr>
<tr>
<td>20-25</td>
<td>20</td>
<td>1-2</td>
<td>2.25</td>
<td></td>
</tr>
<tr>
<td>25-30</td>
<td>18</td>
<td>2</td>
<td>2.25</td>
<td></td>
</tr>
<tr>
<td>&gt;30</td>
<td>18</td>
<td>3</td>
<td>2.25</td>
<td></td>
</tr>
</tbody>
</table>

**RATS**

<table>
<thead>
<tr>
<th>Weight Range</th>
<th>CRF</th>
<th>Restraint</th>
<th>Min.</th>
<th>Max.</th>
</tr>
</thead>
<tbody>
<tr>
<td>50-75</td>
<td>20</td>
<td>1-1.5</td>
<td>2.25</td>
<td></td>
</tr>
<tr>
<td>75-120</td>
<td>18</td>
<td>2</td>
<td>2.25</td>
<td></td>
</tr>
<tr>
<td>100-200</td>
<td>18</td>
<td>3</td>
<td>2.25</td>
<td></td>
</tr>
<tr>
<td>200-300</td>
<td>16</td>
<td>3</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>&gt;300</td>
<td>14</td>
<td>3</td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>

3.4 Restrain the animal in an upright position and ensure that the head and neck are held in a straight line.

3.4.1 For mice and rats scruff the animal by gathering up the loose skin around the neck and shoulder area.

3.4.1.1 Rats may also be restrained by using the v grip and wrapping there body with a towel.

3.4.2 Enough pressure should be applied that the animal is unable to move its head without causing distress.

3.4.3 In rats, a finger may be placed below the mandible to help raise the head. A second restrainer may be required as well.

3.5 Slide the feeding tube along the roof of the oral cavity, directing the needle slightly to the left.

3.5.1 The needle should slide easily into the esophagus.

3.5.2 If there is resistance, remove the needle and attempt again.

3.6 Do not attempt to force the feeding tube through the esophagus as this may cause injury to the animal or force the needle into the trachea.

3.7 Continue to insert the needle to the premeasured distance and slowly inject the solution to prevent the fluid from coming back up the esophagus.

3.7.1 There should be no resistance during injection.

3.7.2 If you hear coughing will injecting you may be in the trachea. Come out and attempt again.

3.8 Once the injection is completed, remove the tube and return the animal to its home cage.

3.9 Monitor the animal closely for 5 minutes following injection for complications such as abdominal swelling or labored breathing.

3.10 Record the procedure on the cage card or on a schedule provided to animal care including the date, substance injected, route, and be initialed by the person who performed the procedure.

3.11 If complications occur, contact Animal Care and Veterinary Services immediately so that a health record may be created and the animal monitored.
3.12 Monitoring Parameters and Potential Complications

3.12.1 Incorrect technique may result in administration or aspiration of the substance into the lungs, or perforation of the trachea resulting in respiratory distress. Animals showing signs of labored breathing or respiratory distress following oral gavage should be immediately euthanized.

3.12.2 Perforation of the stomach or esophagus may also occur; clinical signs may include sudden lethargy, poor mucous membrane color. Animals displaying these signs must be closely monitored and may need to be euthanized. Confirmation of ruptures esophagus or stomach can only be confirmed on post-mortem examination.

4 SAFETY

4.1 In the event of an injury, to animal user, seek medical attention (x4444) and notify your supervisor. In the case of an animal bite refer to SOP: Animal Related Injury.

5 REFERENCES

