Oral Gavage in Rodents

Introduction

Oral gavage (dosing) is used when a specific amount of agent needs to be administered orally. Whenever possible, choose alternatives such as purchasing custom-made chow containing the experimental agent, or dosing via a water bottle.

Recommended Supplies and Gavage Volumes

- Permanent Marker
- Scale
- Syringe
- Feeding tube
  - round or ball tip
  - straight or curved
  - adult mice = 20 gauge
  - small/young mice = 22 gauge
  - rats = 18 gauge

<table>
<thead>
<tr>
<th>Species</th>
<th>Gavage Volume</th>
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<tbody>
<tr>
<td>Mouse</td>
<td>0.1 ml / 10 g</td>
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<tr>
<td>Rat</td>
<td>0.1 – 0.2 ml / 10 g</td>
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Feeding Tube Examples

- Disposable straight mouse feeding tube with a round tip
- Autoclavable straight mouse feeding tube with a ball tip
- Autoclavable straight mouse feeding tube with a round tip
- Autoclavable curved rat feeding tube with a ball tip
**Procedure**

1. Scruff mouse grasping skin over shoulders with thumb and middle fingers.

2. Grasp skin over shoulders so the fore legs are extended out to the side.
   - This prevents the front feet from pushing the gavage tube away.

3. Gently extend head back with index finger placed on top of head.
   - This aligns the neck and esophagus.
   - Monitor for difficult breathing; if the animal is turning blue and chest movements are not visible, release the animal and allow to recover before attempting again.

4. Check the length of the gavage tube by measuring from the tip of the animal’s head to the last rib.
   - Inspect the gavage needle to ensure there are no burrs or points that could damage the esophagus.

5. Mark the tube at the nose with a permanent marker.
   - Do not pass the tube into the animal past that point to avoid perforation into the stomach.
6. Hold animal vertical to work surface while placing gavage tube in corner of mouth.

7. Advance tube through pharynx, gently pressing tube to roof of mouth to elevate head and straighten the esophagus.
   - The animal will naturally gag and have a swallow reflex.

8. Pass tube smoothly in one motion.
   - Gravity alone should be used to move the needle down the esophagus.
   - Do not attempt to force the needle down.
   - If there is resistance, pull tube out and try again.

9. After dosing, remove the tube gently following the same angle as insertion.

10. Return animal to its cage.

11. Monitor for 5-10 minutes for potential complications.
    - Labored breathing or other signs of distress indicate a problem. If this happens, call a veterinarian or euthanize the animal.

12. Recheck animals again between 12-24 hours after dosing.

**Tips / Trouble Shooting**

- Never force gavage needle
- If you are having difficulty advancing the gavage tube:
  - Try a thinner gavage tube
  - Verify head and neck are extended to create a straight line through the neck and esophagus
- If rodent is pushing gavage tube away with forelimbs, scruff more skin over shoulder area to extend forelimbs out to the side
- Dipping tip of gavage needle in water can help stimulate the swallow reflex