Euthanasia of Mice and Rats

Objective: To provide guidance on humanely euthanizing mice and rats.
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Note: All euthanasia practices will comply with current editions of the Guide for Care and Use of Laboratory Animals and the AVMA Guidelines for the Euthanasia of Animals (2020 Edition).

Before euthanasia is to be performed, steps must be taken to ensure that any live animals within proximate distance of animals being euthanized are protected by a physical barrier sufficient enough to block visual and olfactory (i.e. pheromonal) indicators of euthanasia.

Procedure

1. Individual or group-housed animals can be placed gently in a clean, uncharged, translucent euthanasia chamber or euthanized in their home cage fitted with a special lid with a special port for delivery of the gas (e.g. carbon dioxide or isoflurane) to be used.

2. Gas is discharged into the chamber at a flow rate that produces rapid unconsciousness with minimal distress to the animal. The optimum flow rate should be:
   a. At a rate capable of displacing 30% to 70% of the chamber/cage volume per minute.

   Note: Excessive noise or high velocity air movement of CO₂ should be avoided.

3. Each animal must be visually observed during the euthanasia procedure to assure that animals receive adequate gas concentrations and do not regain consciousness during the terminal procedure.

4. Animals less than 15 days old must be euthanized separately from adults.

5. Carcasses will be bagged and stored in the appropriate freezer to await removal.

6. The euthanizing chamber and related work area will be thoroughly sanitized.

7. Questions should be directed to the Attending Veterinarian or Director of Laboratory Animal Resources.

<table>
<thead>
<tr>
<th>Animal</th>
<th>Age/Weight</th>
<th>Approved Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mouse or Rat Pups</td>
<td>0-6 days</td>
<td>Decapitation with sharp surgical scissors (requires scientific justification) OR Decapitation following deep isoflurane anesthesia.</td>
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<tr>
<td>Mouse or Rat Pups</td>
<td>7-14 days</td>
<td>Decapitation or cervical dislocation following deep CO₂ or isoflurane anesthesia.</td>
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<tr>
<td>Mouse</td>
<td>15 days - Adult</td>
<td>Cervical dislocation or decapitation following deep CO₂ or isoflurane anesthesia.</td>
</tr>
<tr>
<td>Rat</td>
<td>15 days - Adult</td>
<td>Decapitation or thoracotomy following deep CO₂ or isoflurane anesthesia.</td>
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</tbody>
</table>

Health & Safety

- All personnel performing euthanasia with CO₂ must be enrolled in the UNCC Occupational Health and Safety program.
- Appropriate laboratory attire must be worn at all times.

Personnel/Training/Responsibilities

- All personnel performing euthanasia with CO₂ must be trained in this procedure by the Attending Veterinarian/Director, Laboratory Animal Resources.
Required Materials
- Carbon Dioxide (CO₂) compressed gas cylinder
- Regulator and quick release tubing
- Euthanasia chamber

Guidelines
- AVMA Guidelines for the Euthanasia of Animals (updated 2020; published 01/16/2020).
- “Guide for the Care and Use of Laboratory Animals, Eighth Edition” ILAR, NRC, 2011

Quality Control Checks and Acceptance Criteria
- All procedures subject to review by the UNC Charlotte IACUC and Attending Veterinarian