Subject: Euthanasia of Mouse and Rat Fetuses and Neonates

BACKGROUND

The AVMA Guidelines for the Euthanasia of Animal: 2013 Edition (p. 50) provides recommendations for the euthanasia of prenatal or neonatal animals. PHS Policy on Humane Care and Use of Laboratory Animals requires IACUCs to use the recommendations of the AVMA Guidelines on Euthanasia.

Rodent fetuses along with other mammals are unconscious in utero and hypoxia dose not evoke a response. Therefore, it is unnecessary to remove fetuses for euthanasia after the dam is euthanized.

IACUC Guidelines

<table>
<thead>
<tr>
<th>Mouse and Rat</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Fetus &lt; 15 days gestation</td>
<td>Euthanasia of the dam or removal of the fetus results in rapid death of the fetus.</td>
</tr>
</tbody>
</table>
| Fetus ≥ 15 days gestation | 1. Tissue from fetuses not required: Euthanize the dam and leave the uterus intact in the abdomen, as death of the dam results in death of the fetuses.  
2. Tissue from the fetuses must be collected:  
   a. Euthanize the dam, then remove the entire uterus or pups with amniotic sac intact. The immediate cessation of uterine blood flow and oxygen delivery to the fetus results in rapid death. Fetuses can then be removed from the uterus/amniotic sac.  
   b. If fetuses are removed from the uterus and begin to breathe, additional steps must be taken to euthanize each fetus.  
      - Intraperitoneal injection of euthanasia solution or anesthetics (euthanasia dose is three times the anesthetic dose)  
      - Decapitation  
      - Cervical dislocation  
      - Anesthesia* followed by chemical fixation or rapid freezing  
      - Inhalant agents are not recommended. |
| Neonates < 10 days |  
- Intraperitoneal injection of euthanasia solution or anesthetics (euthanasia dose is three times the anesthetic dose)  
- Decapitation < 7 days of age  
- Cervical dislocation  
- Anesthesia* followed by chemical fixation or rapid freezing  
- Inhalant agents are not recommended.** |
| Neonates ≥ 10 days | Follow guidelines for adults. |

*Anesthesia may be achieved by injectable or inhalant agents; alternatively, hypothermia maybe used in pups < 6 days of age if adequately justified.

**The Guide for the Care and Use of Laboratory Animals (the Guide, NRC 2011) states: “because neonatal rodents are resistant to the hypoxia-inducing effects of CO₂ and require longer exposure times to the agent alternative methods should be considered (e.g., injection with chemical agents, cervical dislocation, or decapitation).” (p. 124)

In all cases, the person performing the euthanasia must be fully trained in the appropriate procedures.
For other species, please contact a veterinarian.

Approved: May 2005
Revisions Approved: 8/2008; 12/2012; 4/2013
PUBLIC STATEMENTS: Report of the ACLAM Task Force on Rodent Euthanasia, 2005 (p. 2-3)


Guidelines for the Care and Use of Mammals in Neuroscience and Behavioral Research, NRC, 2003, p. 108.