

## UCAR Guideline: Euthanasia for Rodent Embryos, Fetuses and Neonates

### A. Embryos and fetuses from mice, rats, gerbils and hamsters (greater than E 15) or guinea pigs (greater than E 35)

1. If you have a pregnant dam in which you do not need to harvest the embryos/fetuses then the dam may be euthanized using an AVMA approved method. According to the 2013 AVMA Guidelines for the Euthanasia of Animals S2.2.4.1, "Rodent fetuses along with other mammals are unconscious in utero and hypoxia does not evoke a response. Therefore, it is unnecessary to remove fetuses for euthanasia after the dam is euthanized".

**Viable** embryos/fetuses (i.e. those which have been removed or harvested from a live dam for experiments) and allowed to breathe must be euthanized by cervical dislocation or decapitation. If you need the intact fetus preserved in fixative, it must be rendered unconscious by deep anesthesia or euthanasia first.

*Hypothermia anesthesia* – Neonates up to seven (7) days of age may also be anesthetized by hypothermia (see below). Care must be taken to protect the animal's skin from freezing by imposing a barrier between the animal and the source of cold. A good method is to place the neonate in a glove finger and place it into ice water until the animal is unresponsive. Animals may also be placed on ice with paper towels or other barriers between the animal and the ice. A second physical method must be used to ensure death. These include those listed below.

*CO<sub>2</sub> euthanasia* - Embryos/fetuses may also be exposed to CO<sub>2</sub> for euthanasia, but are relatively resistant to the effects of CO<sub>2</sub>, so the time must be increased (at least ten minutes). A second physical method to insure death must be employed.

### B. Neonates up to seven (7) days of age

1. Neonates may be euthanized using AVMA approved methods for adults with the following exception: CO<sub>2</sub> may be used for euthanasia, but the time of exposure must be increased (at least ten minutes). As with adults, a second, physical method must be used to insure death. Approved methods include:
  - Cervical dislocation
  - Decapitation
  - Removal of major organ/opening a major vessel
  - Opening the chest
  - Hypothermia anesthesia followed by freezing or one of the above methods. *According to the 2013 AVMA Euthanasia Guidelines, "fetuses that are believed to be unconscious and altricial neonates < 5 days of age that do not have sufficient nervous system development to perceive pain may be quickly killed by rapidly freezing in liquid N<sub>2</sub>. Also, "hypothermia for anesthesia is not recommended after approximately seven days of age."*
2. Neonates older than seven (7) days must be euthanized using the same procedures approved for adults.

#### References:

- AVMA Guidelines for the Euthanasia of Animals: 2013 Edition.  
<https://www.avma.org/KB/Policies/Documents/euthanasia.pdf>
- <https://www.aaalac.org/accreditation/RefResources/ReportofACLAMTaskForceonRodentEuthanasia.pdf>