EUTHANASIA OF FETUSES & PRE-WEANING RATS/MICE

PERFORMANCE STANDARD: All fetuses and pre-weaned animals will be euthanized in a humane manner, consistent with NIH Guidelines for euthanasia.

BACKGROUND: The 2013 AVMA Guidelines for Euthanasia does not provide specific recommendations for the euthanasia of prenatal or pre-weaned animals. The following guidelines are suggested to assist individuals in the use of rodent fetuses or pre-weaning animals, and are based on NIH recommendations. This policy applies to mice and rats. For guidance for less common species, please contact DLAR or OAWA. Researchers and animal care staff are expected to follow the methods of euthanasia as outlined and approved in their protocols or approved animal care SOPs.

ROLES: All participants will adhere to this policy, unless an exception is granted by the IACUC.

POLICY:

1. Mouse or Rat Fetuses:
   - Fetuses in utero: Euthanasia of the dam will cause euthanasia of fetuses that remain in utero. No additional actions are necessary when fetuses remain in the uterus.

   - Fetuses up to 14 days in gestation when removed from the uterus: Neural development at this stage is minimal and pain perception is considered unlikely.

   NOTE: Euthanasia of the mother or removal of the fetus from the uterus ensures rapid death of the fetus due to non-viability of fetuses at this stage of development.

   - Fetuses 15 days in gestation to birth when removed from the uterus: The literature on the development of pain pathways suggests the possibility of pain perception at this time. Fetuses at this age are less sensitive to inhalant anesthetics, therefore decapitation with surgical scissors is the preferred method of euthanasia. When chemical fixation or rapid freezing (immersion in liquid nitrogen) of the whole fetus is required, fetuses should be anesthetized prior to immersion in or perfusion with fixative solutions. Anesthesia may be induced by hypothermia of the fetus, by injection of the fetus with a chemical anesthetic, or by deep anesthesia of the mother with a chemical agent.
that crosses the placenta, e.g., pentobarbital. Attempts should be made to not allow the fetus to take a breath, as this may accelerate nociception and the perception of pain. A veterinarian should be consulted for considerations of fetal sensitivity to specific anesthetic agents. When fetuses are not required for study, the method chosen for euthanasia of a pregnant mother must ensure rapid death of the fetuses.

- **Pre-weaned Mice and Rats:**
  - **Up to 14 days of age:** The recommended method for euthanasia is decapitation (complete separation of the head from the body). For alternatives, contact an OAWA/DLAR veterinarian. IACUC approval is required for all methods of euthanasia. **DO NOT** expose any rodent younger than 15 days of age to CO₂!
  - **15 days or older:** See the policy “Euthanasia of Rodents”

- In all cases, the person performing the euthanasia must be fully trained in the appropriate procedures.
- Exceptions to this policy will be considered by the IACUC on a case-by-case basis and must be approved in the protocol.

**References:**

- FAQ #1; OLAW Website: Acceptability of CO2 for rodent euthanasia (NOTICE: NOT- OD-02-062) Release Date: July 17, 2002
- American College of Laboratory Animal Medicine Report of the ACLAM Task Force On Rodent Euthanasia (ACLAM)
- Guide for the Care and Use of Laboratory Animals (Guide) – the 8th Edition
- National Institutes of Health Guidelines for Euthanasia of Rodents Using Carbon Dioxide (NIH)
- Office of Laboratory Animal Welfare IACUC Guidebook (OLAW)
- Public Health Service Policy: Clarification Regarding Use of Carbon Dioxide for Euthanasia of Small Laboratory Animals (PHS)