UNIVERSITY OF CALIFORNIA, SAN DIEGO
INSTITUTIONAL ANIMAL CARE AND USE COMMITTEE

Policy and Guidelines for Euthanasia

Euthanasia is the act of killing animals by methods that induce rapid unconsciousness and death without pain or distress.

Only trained personnel should perform euthanasia. It is the responsibility of the Principal Investigator to assure that personnel performing euthanasia have been trained to perform the procedure used. UCSD offers training on an as-needed basis through the Animal Care Program.

Euthanasia techniques must be consistent with the 2007 AVMA Panel on Euthanasia. The method of euthanasia must be specified in the approved Institutional Animal Care and Use Committee (IACUC) protocol.

Any chemical euthanasia method must be followed by a physical method from which the animal cannot recover such as decapitation, cervical dislocation, bilateral thoracotomy, tissue perfusion, or dissecting of a major organ. Many of the chemical euthanasia drugs are controlled substances and must be maintained according to DEA regulations.

Use of anesthetic for euthanasia must be an **overdose**, not an anesthetic dose. Regardless of amount of chemical administered, animal must be completely non-responsive to noxious stimuli (hind paw pinch) before any physical means are applied.

Physical methods of euthanasia such as decapitation or cervical dislocation of unanesthetized animals require demonstration of competence, and may only be approved by the IACUC with proper scientific justification within the protocol.

The techniques listed below are suggested common methods for euthanasia of rodents. Other methods outlined in the AVMA Panel on Euthanasia are acceptable.

Do not euthanize animals in a room with other animals present.

Methods of Euthanasia for Rodents

CO2

Considered the preferred method of euthanasia for laboratory rodents when properly administered.

The NIH Office of Laboratory Animal Welfare (OLAW) recently issued a Public Health Service Policy guidance clarifying current requirements for the use of CO2 as a euthanasia agent. The acceptability of CO2 as a euthanasia agent is predicated on the following:

- High concentrations of CO2 may be distressful to some species. Accordingly, pre-filling of the CO2 chamber is recommended only under circumstances in which such use has not been shown to cause distress.
- All individuals administering CO2 euthanasia must be appropriately qualified and supervised. IACUC-approved protocols and institutional policies regarding CO2 euthanasia must be followed.

- Euthanasia chambers must not be overcrowded. Do not Mix unfamiliar or incompatible animals in the same container because it may be distressful.
- Compressed CO2 in cylinders is the only AVMA Panel-recommended source of CO2 for euthanasia purposes. Dry ice may not be used to generate CO2 for euthanasia.
- Neonatal rodents are resistant to CO2 induced euthanasia. Euthanasia of neonatal rodents is discussed further in a separate section.
- To insure that unintended recovery does not occur after CO2 exposure, a physical method must be used after the animal is unconscious. Cervical dislocation, decapitation, removal of a major organ or a bilateral thoracotomy (stab incision into the chest cavity on both sides of the animal) may be used.

Volatile Inhalant Anesthetics

Animals are placed in a closed container such as a bell jar containing gauze soaked with the anesthetic agent.

Animals must be separated from the anesthetic soaked gauze by a false bottom or other method to prevent direct animal contact with the liquid anesthetic.

A number of volatile inhalant anesthetics may be used for anesthesia, as described in the 2000 AVMA Panel on Euthanasia. Contact an ACP veterinarian for information regarding the use of volatile inhalant anesthetics for euthanasia.

All volatile inhalant anesthetics require some method of scavenging the waste anesthetic vapors (i.e., working in a fume hood).

Cervical Dislocation

Acceptable for mice only under the following conditions:

- Cervical dislocation should be performed on anesthetized mice only.
- Cervical dislocation on conscious mice requires scientific justification and prior approval by the IACUC.
- Investigators are responsible to determine that personnel using cervical dislocation are properly trained to do so.

Barbiturates

Barbiturates may be injected intraperitoneally to euthanize rodents.

Agents available for use include sodium pentobarbital and pentobarbital combinations.

Barbiturate drugs must be used under the supervision of personnel registered with the United States Drug Enforcement Administration (DEA).

- Requires strict accounting of quantities used.
- Requires double locked storage.

Exsanguination

May only be used to as an adjunct method to euthanize anesthetized animals.

Neonatal Rodents

The AVMA panel does not provide specific guidelines for the euthanasia of neonatal rodents.

Neonatal rodents up to 10 days of age are resistant to euthanasia with CO2.

Efficient euthanasia of neonatal rodents may be performed by:

- Decapitation
- Administration of barbiturates

Methods of Euthanasia for Rabbits

Barbiturates

Acceptable when administered intravenously

Barbiturates injected intravenously induce rapid euthanasia.

Barbiturates may also be administered to unconscious animals by intracardiac injection.

Sodium pentobarbital and several pentobarbital combination drugs may be used for euthanasia.

Sodium pentobarbital is a schedule II drug and therefore more difficult to obtain then the pentobarbital combinations marketed for euthanasia that are schedule III drugs.

Must be used under the supervision of personnel registered with the US Drug Enforcement Association (DEA)

- Requires strict accounting of quantities used.
- Requires double locked storage.

Requires a second physical method from which the animal cannot recover such as bilateral thoracotomy, tissue perfusion, exsanguinations, or dissecting of a major organ.

Exsanguination

May only be used as an adjunct method to euthanize unconscious animals.

Methods of euthanasia for other species are described in the 2000 AVMA Panel on Euthanasia. Training is available from the Animal Care Program.