



Biomedical Research Support Facility

Standard Operating Procedure

Euthanasia by Cervical Dislocation

The IACUC is specifically charged with reviewing the methods of euthanasia for each research protocol to assure compliance with the recommendations contained in the American Veterinary Medical Association (AVMA) Guidelines for the Euthanasia of Animals (2013 Edition) http://www.avma.org/issues/animal_welfare/euthanasia.pdf. Since physical methods of euthanasia (such as cervical dislocation) require the most skill to perform and are most likely to be affected by human error, the AVMA recommends that such methods be used only when pharmacological methods are not appropriate. Cervical dislocation (CD) is rapid, requires neither special equipment nor transport of the animal and yields tissues uncontaminated by chemical agents. Situations where CD may be indicated in non-sedated rodents include research studies which require the harvest of drug residue-free brain tissues. The use of CD as a euthanasia method and the names of the individuals performing this procedure must be listed in the approved IACUC protocol covering the study.

Acceptable Use

The use of cervical dislocation in rodents is only appropriate for mice and small rats (<200g), and whenever possible the use of sedation or light anesthesia prior to euthanasia is recommended. The protocol must contain adequate scientific justification if CD must be performed on conscious animals due to study requirements. CD may also be used as a secondary means to assure death after euthanasia with CO₂ or another gaseous euthanasia agent.

Training

Cervical dislocation (CD) euthanasia must be performed by trained individuals using appropriate equipment. The IACUC reviews all protocols using physical euthanasia techniques to assure that personnel performing the procedures are appropriately trained. The primary responsibility for establishing and monitoring this training lies with the principal investigator. Principal Investigators must ensure that all individuals responsible for administering CD euthanasia are appropriately qualified and monitored, and that they adhere to IACUC-approved protocols and institutional policies. Before using physical methods, inexperienced persons should be trained by experienced persons and should practice the method on carcasses or deeply anesthetized rodents until the operator is competent and proficient in performing the method properly and humanely.

Method for Cervical Dislocation

Restrain the rodent in a normal standing position on a firm, flat surface and grasp the base of the tail with one hand.

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Place a stick-type pen, a rod-shaped piece of sealed wood or metal, or the thumb and first finger of the other hand against the back of the neck at the base of the skull. To produce the dislocation, quickly push forward and down with the hand or object restraining the head while pulling backward at a 30 degree angle from the table with the hand holding the tail.

Performing the procedure on a surface that the animal can grip may make it easier to gain access to the base of the skull because rodents often stretch themselves forward when held by the tail. The effectiveness of dislocation can be verified by separation of cervical tissues. When the spinal cord is severed, a 2-4 mm space will be palpable between the occipital condyles and the first cervical vertebra. Occasionally, however, the dislocation occurs between thoracic vertebrae. Check closely to confirm respiratory arrest, and when possible verify, by palpation, that there is no heartbeat.