Purpose Bred Mice and Rats in Research, Testing and Teaching

Section 5 (part 3): Rodent Pain, Distress, and Euthanasia
Rodent Pain, Distress, and Euthanasia

Having reviewed blood collection, drug administration, tumor induction, anesthetics, and the current surgical guidelines in Parts I and II, we will now address rodent pain and distress, and euthanasia.

“How are pain and distress monitored in a rodent?”

Assessing Pain and Distress

Researchers must develop and follow an approved regimen for monitoring pain and distress. Some observable signs of discomfort include—but are not limited to

- Decreased activity level
- Changes in appearance (hunched posture, rough fur, discharge from the nose and eyes, recumbency)
- Changes in temperament (aggression, increased or decreased activity, self-mutilation, abnormal peer interaction)
- Decreases in food and water intake (weight loss)
- Physiological changes (respiratory rate and pattern, heart rate, temperature, color)
- Redness, swelling, and/or discharge at or around the surgical site
Rodent Pain, Distress, and Euthanasia

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“What are the appropriate methods of euthanasia?”

Rodent Euthanasia

The American Veterinary Medical Association Panel on Euthanasia dictates the acceptable methods for euthanizing animals. The IACUC at the University of Pittsburgh follows this panel’s guidelines.

Rodent euthanasia must be performed by trained personnel using appropriate techniques, equipment, and agents. Death must be induced as quickly and painlessly as possible. Upon completion of the procedure, death must be confirmed by an appropriate method, such as ascertaining cardiac and respiratory arrest via physical methods. Euthanasia should not be performed in the animal room or in view of conspecifics. The euthanasia method must be appropriate to the species, approved in the protocol by the IACUC, conform to the Report on the AVMA Guidelines on Euthanasia and be performed by properly trained individuals.
If using CO$_2$, Remember to follow the IACUC SOP and to Properly Secure Compressed Gas Tanks

NOTE: Because young rodents are able to tolerate high levels of CO$_2$ for prolonged periods of time, it is always recommended—and in the case of neonates required—that a secondary technique be employed to ensure death after CO$_2$ exposure. Appropriate secondary techniques include thoracotomy, cervical dislocation, exsanguination, or decapitation.
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Before concluding training Session 5, one further question will be addressed. In essence,

“What hazards are associated with rodent research?”

Rodent research entails various hazards. Some risks include exposure to chemicals, infectious agents, radioactive compounds, and irradiation. Specific hazards associated with a certain protocol will be detailed in the Risk Assessment attached to that protocol. Necessary precautions will also be listed in this document. Remember to accurately label rodent cages with DLAR stickers which list the types of hazards. Other hazards are related to injuries from bites, scratches, and sharp objects such as hypodermic needles, blades, and broken glass. Report all injuries and follow the procedures posted in the animal facilities and labs. Information is also available on-line. More information on Occupational Health and Safety is available on their website. If you acquire an illness or allergy while working with rodents, inform your physician and the University’s Health Assessment Program.
First Impressions: Is this your laboratory?

Keep your laboratory neat and organized. That says a great deal about the lab and conveys an image that the animal users are interested in a quality program.

Personnel are not permitted to eat, drink, use tobacco products, or apply cosmetics in an animal room. This applies to laboratory space as well. In addition, your garb must be appropriate for the experiments that you are performing. Your protocol has had a risk assessment completed by the Environmental Health and Safety (EHS) Department and will give you guidance. If you have any additional questions or concerns, the EHS will be able to help you.

Good Animal Care = Good Science