

Guidelines for Endpoint Monitoring and Humane Termination

The University of Texas at Austin
Institutional Animal Care and Use Committee (IACUC)

These guidelines have been written to assist faculty, staff, and students in performing vertebrate animal procedures in a humane manner and complying with pertinent regulatory requirements. Under some circumstances deviations from these procedures may be indicated but such variances must be approved in advance by the IACUC.

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This document provides information to be used when planning and performing procedures in vertebrate animals used for research, teaching, or other purposes at The University of Texas at Austin. It is organized into three sections:

Section A – Definitions

Section B – Specific Considerations

Section C – Acknowledgements

Section A – Definitions

Moribund is defined as "in a dying state." Animals are considered to be clinically moribund if they manifest any of the following clinical signs:

- Inability to ambulate that prevents the animal's easy access to food and/or water
- Inability to maintain itself in an upright position.
- Prolonged (greater than 48 hours) in appetite and/or clinical dehydration.
- Agonal breathing and cyanosis.
- Chronic unrelieved diarrhea or constipation.
- Hematological or biochemical parameters that indicate organ failure incompatible with life.
- Unconsciousness with no response to external stimuli such as a toe-pinch withdrawal test.

Section B – Specific Considerations

1. Whenever possible, experiments should be designed and refined so that animals will never predictably be subjected to potentially life-threatening conditions.
2. In order to minimize animal pain or distress, and to comply with guidelines governing the use of animals in experimentation, animals that show evidence of pronounced, terminal debilitation should be humanely euthanized rather than being allowed to progress to death.
3. If experiments will result in predictable debilitation, the PI must describe the expected time frame for this to occur, and provide a plan in the approved protocol, which documents that:
 - The minimum number of animals necessary to achieve statistical significance will be used;
 - Animals reaching the terminal phase of the study will be monitored at least twice daily (in the early morning and late afternoon including weekends and holidays);
 - Any animals evidencing clinically abnormal behavior will be removed from group housing situations and

- housed individually with easy access to food and water; and
 - Written records of all monitoring sessions, indicating the time of the observations, the person observing the animals, and any observations such as the number of animals evidencing clinically abnormal behavior and the number of animals found dead, must be maintained and made available to the IACUC, the ARC staff, or outside regulatory personnel upon request.
4. Researchers must perform euthanasia on all moribund experimental animals unless there is an IACUC approved scientific justification that euthanasia would invalidate experimental data collection.
 5. If euthanizing a moribund animal would invalidate the study, the scientific justification for using death as an endpoint must be provided in writing as part of the animal care protocol and must be approved by the IACUC prior to initiating this procedure. In addition to following the requirements listed in "3" above, the PI must assure that dead animals will be promptly collected and removed from the cage.

NOTE: ANY APPROVED USE OF DEATH AS AN EXPERIMENTAL ENDPOINT WILL BE NOTED ON ALL PROTOCOL FORMS AND REGULATORY DOCUMENTS AS BEING IN THE HIGHEST PAIN LEVEL CATEGORY, "E," UNLESS ANALGESICS OR ANESTHETICS ARE PROVIDED TO ALLEVIATE PAIN OR DISTRESS IN THE EXPERIMENTAL ANIMALS.

Section C – Acknowledgements

This document contains content that was adapted from materials obtained from Stanford University.