IOWA STATE UNIVERSITY
Institutional Animal Care and Use Committee

Guidelines for Establishing Humane Endpoints

Regulatory agency guidelines discourage death of the animal as an endpoint in any research project. Federal guidelines indicate that investigators must humanely euthanize all moribund experimental animals unless there is a strong scientific justification.

Moribund is defined as “in a dying state.” Animals are considered to be moribund if they manifest **one or more** of the following clinical signs:

- Inability to ambulate, preventing the animal’s easy access to food and/or water
- Inability to maintain itself in an upright position
- Prolonged—greater than 48 hours—inappetence and/or clinical dehydration
- Agonal breathing and cyanosis; chronic diarrhea or constipation
- Hematologic or biochemical parameters that indicate organ failure incompatible with life
- Unconsciousness with no response to external stimuli such as a toe-pinch withdrawal test

If death as an endpoint is necessary because euthanizing the animals would invalidate or compromise the hypothesis or design of the study, a strong scientific justification for using death as an endpoint must be provided in writing as part of the application for Institutional Animal Care and Use Committee (IACUC) approval. Investigators who receive approval from the IACUC to use death as an experimental endpoint must also agree to the following:

1. Use the minimum number of animals necessary to achieve statistical significance.
2. Employ alternative endpoints (other than death) whenever possible.
3. Monitor animals at least twice daily (including weekends and holidays).
4. Separate debilitated animals or animals with clinically abnormal behavior from group housing situations and house them individually to allow easy access to food and water.
5. Keep written records of all monitoring sessions which indicate the time observed, person observing, and any noteworthy observations such as clinical signs, number dead, etc. These records must be current and available to the Attending Veterinarian, Laboratory Animal Resources (LAR), and the IACUC at all times. The records must be maintained within the housing area unless other arrangements are made with the Attending Veterinarian and LAR and approved by the IACUC.

Investigators should note that any approved use of death as an experimental endpoint will be noted on all protocol forms and regulatory documents as being in USDA pain category E, unless analgesics or anesthetics are provided to alleviate pain or distress in the experimental animals.

I have read and agree to comply with the above guidelines.

Principal Investigator

Date

IACUC Chair

Date