Georgia State University  
Institutional Animal Care and Use Committee (IACUC)  

It is the responsibility of the Georgia State University (GSU) Institutional Animal Care and Use Committee (IACUC) to ensure judicious and humane use of animals used in its teaching and research programs that is consistent with federal requirements.*

Mouse Tumor Burden

Purpose: To establish guidelines that will allow GSU researchers, veterinary staff, and animal care staff to objectively evaluate the health and welfare of mice used with experimentally-induced solid tumors and determine when euthanasia might be warranted to alleviate pain and distress associated with these solid tumors. In general, solid tumors are induced by the administration of chemical carcinogens or viruses, inoculation with tumor cell lines, transplant of tumor fragments, or genetic manipulations.

General: With respect to mouse studies involving experimentally-induced solid tumors, it is typically necessary that the mice utilized experience tumor growth and possibly metastatic disease. These processes can ultimately be very debilitating for the mouse. In order to maximize study data acquisition and minimize animal pain and distress, the general health and welfare of test subjects need to be continually and comprehensively assessed and documented as the tumors and associated disease progress.

Humane Endpoints: Euthanasia may be warranted in tumor-bearing mice when such mice incur one or more health issues (e.g. from the list below or otherwise). In particular, the research staff, in conjunction with the veterinary staff, can work together to determine when an animal should be euthanized vs. rendered supportive therapy and/or monitored closely. The GSU IACUC has adopted the following criteria as objective assessments necessitating empirical euthanasia of the tumor-bearing mouse.

1. Animals with tumors will be weighed twice a week, with at least two days, but no more than four days, between each weighing.
2. Body Condition (See Appendix 1 for Guidance): A body condition score of 1 requires euthanasia.
3. Weight loss of >20% (or a deviation from an age matched control or a standard growth curve by more than 20% as it pertains to animals beginning the study as neonates or juveniles) requires euthanasia. Note: all animals should have bodyweights recorded at the initiation of the tumor study and these weights recorded in the Laboratory Animal Care Record located in the animal housing room.
4. Tumor Size: If, in a mouse, a single tumor is larger than a dime (spherical), or the aggregate of multiple coalescing tumors is larger than a dime then euthanasia is required.
5. Other clinical presentations, such as those delineated below, warrant special attention as they indicate a diminished health status that may result from an increasing tumor burden and metastasis. When such are seen they should be noted in the Laboratory Animal Care Record and brought to the attention of the veterinary staff. Determinations regarding euthanasia as it relates to the clinical presentations below will be made by the veterinarian on a case-by-case basis.

- Weight loss (or a failure to grow, if young mice) and decreasing body condition
- Severe diarrhea
- Progressive dermatitis
- Rough hair coat, hunched posture, lethargy, and recumbency
- Respiratory-associated symptoms such as labored breathing, coughing, and nasal discharge
- Icterus/Jaundice
- Hemorrhage from any orifice
- Neurological signs such as circling or ataxia
- Self-trauma
- Tumor interference with activities such as ambulation and/or food and water consumption
- Ulceration and necrosis of visible tumors

**Pertinent Regulations**
- U.S. Government Principles for the Utilization and Care of Vertebrate Animals Used in Testing, Research, and Training
- Public Health Service Policy
- Guide for the Care and Use of Laboratory Animals
- Animal Welfare Act (AWA) and AWA Regulations

**IACUC Approval Date:**

**Signature IACUC Chair:**

**Revision Dates:**