GUIDELINE FOR TUMOR BURDEN ASSESSMENT IN RATS and MICE

This document provides guidelines for assessing tumor burden in rats and mice.

1. All tumor bearing rats and mice must be observed to assess the progress of tumor growth and/or metastasis. The animals should be assessed by the laboratory staff at least 3 times per week (including holidays and weekends) and observed daily as the tumors are nearing their endpoint. These assessments must be documented.

2. Both weight loss and weight gain from tumor growth must be considered. Body condition scores should be used – palpable dorsal pelvic bones and, prominent skeletal structures indicate significant impact on body condition. Please contact the CAR Veterinary Staff if additional guidance on body condition score is needed.

3. Animals showing any of the signs below will be euthanized, unless an exemption is provided by the IACUC or the Attending Veterinarian:
   - Mice: Tumors are larger than 523mm$^3$ in volume (approximately a 1cm sphere – see equation below)
   - Rats: Tumors are larger than 4184mm$^3$ in volume (approximately a 2cm sphere – see equation below)
   - Tumors are ulcerated (any break in skin observed), or there are signs of sepsis or metastasis (see clinical signs)
   - Tumors interfere with normal essential behaviors such as eating and drinking
   - Tumors that cause the animal to chew or lick excessively at tumor site

4. Other clinical signs requiring determination of treatment/euthanasia (based on the performance of the animal):
   - Significant weight loss from baseline, failure to gain weight in otherwise young growing animals, or as compared to negative control animals, taking into account body condition as noted above
   - Abdominal distension indicating ascites
   - Hunched posture
   - Rough hair coat
   - Failure to eat or drink
   - Reluctance to move or abnormal gait, or any other significant neurological impairment (blindness, circling, convulsions)
   - Lethargy

Equation used to assess tumor dimensions

<table>
<thead>
<tr>
<th>Measure the tumor in three dimensions</th>
<th>Assume the tumor is a sphere or an ellipsoid and use this measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>$d_1 = \text{length}$</td>
<td>$\text{Volume (in mm}^3\text{)} = 0.523 \times d_1 \times d_2 \times d_3$</td>
</tr>
<tr>
<td>$d_2 = \text{width}$</td>
<td></td>
</tr>
<tr>
<td>$d_3 = \text{thickness / height}$</td>
<td></td>
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</tbody>
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