Policy 3 – Humane Endpoints and Animal Monitoring

Version 2.0
Approval Date: 1/22/07

Purpose – The purpose of this policy is to provide investigators with guidelines pertaining to animals that are nearing death, relating to monitoring of such animals and when euthanasia is required.

Background –

“Animals that would otherwise suffer severe or chronic pain or distress that cannot be relieved should be painlessly killed at the end of the procedure or, if appropriate, during the procedure.” - OLAW [1]

“Studies that may result in severe or chronic pain or significant alterations in the animal’s ability to maintain normal physiology, or adequately respond to stressors, should include descriptions of appropriate humane endpoints or provide science-based justification for not using a particular, commonly accepted humane endpoint.” - the Guide [2]

Death as an Endpoint - The continuation of a study until an animal dies is almost never acceptable. Strong scientific justification is required for such a study.

Policy -

Selected Criteria For Euthanasia: [3,4,5]

- Weight loss ≥15% within one week (considered rapid weight loss)
- Weight loss ≥ 20% over any time period (progressing to an emaciated state)
- Body condition scoring (BCS) <1.5 (refer to Policy 5)
- Lesions (such ulcerative dermatitis) covering ≥10% of the skin (see Table 1)
- Rough hair coat, hunched posture, distended abdomen, or lethargy; especially if debilitating or prolonged (≥3 days)
- Diarrhea; especially if debilitating or prolonged (≥3 days)
- Coughing, rales, wheezing, or nasal discharge
- Distinct icterus (yellow skin) and/or anemia (pale skin)
- Rapid growth of mass (or masses), or clinical signs of neoplasia not related to study (see Policy 1 for cancer models)
- Central nervous system signs such as head tilt, tremors, spasticity, seizures, circling, or paralysis/paresis, especially if associated with anorexia
- Frank bleeding from any orifice
- Significant hypothermia
- Markedly discolored urine, polyuria, or anuria
- Persistent self-induced trauma
- Lesions interfering with eating or drinking
- Clinical signs of suspected infectious disease requiring necropsy for diagnosis
- Other clinical signs as judged by the Veterinary Staff to be indicative of moribund condition

**Frequency of Monitoring:** Research Staff must monitor all animals at least 3 times a week. Animals approaching humane endpoints must be monitored daily including weekends and holidays (or more), as according to the IACUC approved protocol.

**Geriatric animals:** Geriatric mice (>16 months of age) must be monitored for tooth loss weekly. If tooth loss is observed, animals must be provided with softened food and overgrown incisors must be trimmed every 1-2 weeks (recorded on blue treatment card). Because these animals are prone to tumors and organ failure, Policies 1, 3, and 5 must also be followed.

**Table 1 - Body surface area (BSA) of mice for evaluating significance of skin lesions [6]**

<table>
<thead>
<tr>
<th>BW (gm)</th>
<th>Body surface area (cm²)</th>
<th>10% BSA (cm²)</th>
<th>Diameter of circle covering 10% BSA, (cm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>65</td>
<td>6.5</td>
<td>2.8</td>
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<td>25</td>
<td>75</td>
<td>7.5</td>
<td>3.1</td>
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<tr>
<td>30</td>
<td>84</td>
<td>8.4</td>
<td>3.3</td>
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<tr>
<td>35</td>
<td>95</td>
<td>9.5</td>
<td>3.5</td>
</tr>
<tr>
<td>40</td>
<td>102</td>
<td>10.2</td>
<td>3.6</td>
</tr>
</tbody>
</table>

(Meeh coefficient for mouse = 9)

**Any exceptions to this policy must have IACUC and Veterinary approval**

**References -**

   http://www.nal.usda.gov/awic/newsletters/v6n1/6n1otbl3.htm