**IACUC Policy on the Route of Administration for Post-operative Analgesia for Rodents**

**Purpose:** The goal of this position statement is to ensure consistent and effective use of analgesics for the control of post-operative pain in rodents undergoing major survival surgery or other potentially painful procedures.

**Background:** According to the *The Guide for the Care and Use of Laboratory Animals*¹, “pain is a stressor, and if unrelieved, can lead to unacceptable levels of stress and distress in animals.” To optimize animal well-being and decrease scientific variability associated with distress, analgesics and anesthetics are used to alleviate pain resulting from spontaneous illness or experimental manipulation. Analgesics can be delivered by various routes, including oral (PO) administration or parenterally via subcutaneous (SC) or intraperitoneal (IP) injection. Although analgesics are sometimes administered via the drinking water, reliance on analgesics in the water may result in inaccurate dosing due to the normal variability in rodent water consumption.²³⁴ Against this backdrop, the proper dosing strategy for analgesics is imperative for the humane use of animals and scientific integrity.

**Position:** Analgesics must be administered by an appropriate route (e.g., oral gavage or parenteral) and in a way that ensures that the prescribed dose of a medication has been delivered to an animal.

**Recommendations:** Oral gavage or parenteral administrations are the recommended routes of administration for analgesics. To minimize the stress associated with multiple injections, sustained release (SR) formulations of opioids and non-steroidal anti-inflammatories (NSAIDs) represent excellent options for the provision of analgesia by decreasing the number of injections over time and should be considered. Please contact your area veterinarian for more information on these products and how to order them.⁵⁶

**Analgesics may be administered via the drinking water if the following conditions are met:**

1. A justification is provided in the IACUC-approved animal use protocol. The protocol should include methods to ensure that the correct analgesic dose has been delivered to the animal. For example, an acceptable method would include measuring the volume or weight of the water bottle to ensure that an acceptable amount has been consumed by an animal or by a group of animals, accompanied by daily weighing of each animal to ensure that all individuals within the group have consumed a sufficient amount to produce analgesia. Because animals may at first decline to consume water containing new substances, bottles containing drinking water with analgesics should be placed on the cage 12-24h prior to the painful procedure and continued throughout the post-op period⁷

2. Vessels, such as bottles, used to provide analgesics within the drinking water should never be empty when in use; therefore procedures should be outlined in the protocol for the administration of analgesics by RAR staff in the event of situations where an empty bottle is found including emergencies and/or after-hours if lab staff is unavailable.

3. The IACUC protocol should outline the use of rescue analgesics, euthanasia, or other steps to be taken in cases where animals show signs of unrelieved pain.

4. Appropriate analgesic records must be maintained in the animal housing room so that it is evident to animal care personnel that medicated drinking water is being provided. This can be done through proper identification or signage attached to the cage or cage card reflecting the analgesic, the date and the dose given, as well as ensuring bottles are properly labeled.
References: