

<b>Institutional Animal Care &amp; Use Committee</b>		
<b>Title: Tail Biopsy of Mice and Rats</b>		
<b>Policy#:</b> IACP 002	<b>Date in Effect:</b> 03/17/09	
<b>Rev #:</b> 01	<b>Rev Date:</b> 02/26/10	
<b>Rev #:</b> 02	<b>Rev Date:</b> 03/27/13	
<b>Rev #:</b> 03	<b>Rev Date:</b> 10/19/15	
	<b>Re-reviewed:</b> 12/14/18 – no changes	
<b>In Effect</b> <input checked="" type="checkbox"/> <b>Rescinded</b> <input type="checkbox"/>	<b>Date Rescinded:</b>	

**A) RESPONSIBILITIES**

It is the responsibility of all personnel using animals in an approved research and teaching IACUC protocol to ensure that tail biopsies of mice/rats meet the standards outlined below. It is the responsibility of the IACUC to review for approval properly justified requests for an exception to this policy.

**B) APPLICATION**

This policy applies to all mice and rats used in research and teaching at UTSA.

**C) DEFINITIONS**

Tail Biopsy - a procedure to remove the distal end of the tail to obtain small amounts of tissue or blood from a mouse or rat. It involves the removal of a 5 mm or smaller piece at the tip of the tail, which leads to bleeding at the site.

**D) PROCEDURES**

- 1) Only the minimum amount of tissue necessary for analysis should be taken.
- 2) Tail clipping is not considered a surgical procedure. Because it is not a surgical procedure:
  - a) 70% ethanol/isopropanol can be used to wipe down the tail.
  - b) Instruments must be sharp, sterile or disinfected and clean of visible debris.  
At a minimum instruments must be wiped down with 70% ethanol/isopropanol, unless a stronger disinfectant is used. Ideal methods of sterilizing/disinfecting instruments include exposure to autoclave, glass bead sterilizer, or chemical disinfectants.
- 3) Bleeding from the sampling site may stop spontaneously, however if required, adequate hemostasis must be achieved via a styptic pen, silver nitrate, tissue adhesive, gauze, cotton ball, tape, etc.

- 4) The investigator should be aware that handling pre-weanling rodent pups may lead to rejection by the dam in some cases; therefore, investigators may want to consider performing tail biopsies after the weaning period.
- 5) Data<sup>1</sup> indicates that significant ossification of the distal end of the tail has occurred by post-partum day 17. Based on this data, appropriate analgesia/anesthesia is always required when:
  - a) Animal is  $\leq 16$  days old and more than 2 mm of the tail will be biopsied.
  - b) Animal is  $\geq 17$  days old regardless of the amount of tail that will be biopsied.
- 6) Analgesia/anesthesia is NOT required when:
  - a) Animal is  $\leq 16$  days old and 2 mm or less of tail is biopsied.
- 7) Only one biopsy sample per animal should be performed unless it is scientifically justified and approved by the IACUC.
- 8) Other less invasive alternatives should be considered in lieu of tail biopsy. Examples of alternatives are small ear punch, small quantity of blood from distal veins (e.g., saphenous vein), and PCR analyses using saliva or hair.
- 9) Scientific justification for doing tail biopsies is required when:
  - a) Analgesia/anesthesia cannot be provided and the rodent is  $\geq 17$  days old.
  - b) Anesthesia/analgesia cannot be used and the sample is to be  $>2$  mm.
  - c) Sample is  $>5$  mm.
  - d) More than one biopsy is needed for each animal.
  - e) Other less invasive procedures could be used.

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<sup>1</sup> Hankenson F. Claire, Laura M. Garzel, David D. Fischer, Bonnie Nolan and Kurt D. Hankenson. "Evaluation of Tail Biopsy Collection in Laboratory Mice (*Mus musculus*): Vertebral Ossification, DNA Quantity, and Acute Behavioral Responses." Journal of the American Association for Laboratory Animal Science 47.6 (2008): 10-18.