Albert Einstein College of Medicine

Tail Clipping Mice and Rats for Genotyping Policy

I. Purpose

The purpose of this policy is to provide guidelines for tail-clipping mice and rats for genotyping [1,2,3]

II. Scope

This policy applies to all research experiments and programs at Einstein.

III. Policy

Tail clipping requires prior approval by the Institutional Animal Care and Use Committee (IACUC).

a. The procedure must be clearly described in the Animal Use Protocol.
b. The PI must provide evidence that the procedure is conducted least painfully and most humanely possible.

Tail clipping is an acceptable method for genotyping rodents 14-17 days old[4].

For PCR, 2 mm of the distal tail is generally sufficient; no more than 5 mm is permitted.

A. Specific Age Requirements

a. 5-9 days old – recommended age: No anesthesia required.
b. 10-21 days old (conduct as early as possible in this age range: Local/topical anesthesia is required.
    i. Immersion of tail in ice-cold alcohol for 10 seconds

    OR

    i. Spray with ethyl chloride (topical–freeze anesthesia)
    ii. Hemostasis is generally spontaneous but may require digital pressure or cautery (especially older, i.e., close to 21 days of age)

c. 22-35 days old: Anesthesia required.
    i. General anesthesia is required & provides easier handling of mice & rats.

    ii. Greater attention to hemostasis - cautery is required in this age group (see Hemostasis below).

d. Greater than 35 days old: **This is a surgical procedure (biopsy) at this age. General anesthesia is required, and preemptive analgesia is required for 24 hours. You must place a pink surgery post-operative monitoring card on the cage and complete the documentation of pre-emptive and post-op analgesia with observations.**
   i. Pain perception and ossification are complete at this age.
   ii. To avoid injuring the bone, limit the tissue sample to 2 mm of the distal tail iii. Hemostasis is critical and must include cautery (see Hemostasis below).

B. Hemostasis

Animals must be monitored for 5 minutes after returning to the cage for any signs of bleeding from the amputation site. In addition:

a. Mice and Rats 7-12 days little bleeding expected; apply digital pressure for a few seconds.
b. Mice and Rats 12-21 days; digital pressure or cautery of an amputated stump.
c. Mice and Rats greater than 21 days old - cautery required; use Silver Nitrate Stix, Quik-Stop powder, or electro-cautery pen.

IV. Definitions

None.

V. Effective Date

Effective as of: 21 February 2018.

VI. Policy Management and Responsibilities

Einstein's Institutional Animal Care and Use Committee (IACUC) is the Responsible Office under this Policy. The Institutional Official for the IACUC is the Responsible Executive for this policy. The IACUC Chairperson is the Responsible Officer for the management of this policy.

VII. Approved (or Revised)

3/20/24
Date

Revision dates: 9/21/11, 4/29/15, 10/20/15, 2/21/18, 12/22/22, 3/20/24

[1] NIH-Animal Research Advisory Committee http://oacu.od.nih.gov/ARAC/.
[2] Guidelines for the Genotyping of Mice and Rats http://oacu.od.nih.gov/ARAC/documents/Rodent_Genotyping.pdf.
[3] Guide for the Care and Use of Laboratory Animals – 8th Edition http://oacu.od.nih.gov/regs/guide/guide_2011.pdf.
[4] Hankenson FC, Garzel LM, Fischer DD, Nolan B, Hankenson KD (2008). Evaluation of Tail Biopsy Collection in Laboratory Mice (Mus musculus): Vertebral Ossification, DNA Quantity, and Acute Behavioral Responses. *Journal American Assoc for Lab Animal Sci: JAALAS*, 47(6):10-18.