**Guidelines for Tail Clipping Mice**
The University of Texas at Austin
Institutional Animal Care and Use Committee (IACUC)

*These guidelines have been written to assist faculty, staff, and students in performing vertebrate animal procedures in a humane manner and complying with pertinent regulatory requirements. Under some circumstances deviations from these procedures may be indicated but such variances must be approved in advance by the IACUC.*

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This document provides information to be used when planning and performing tail-clipping procedures in mice used for research, teaching, or other purposes at The University of Texas at Austin. It is organized into five sections:

Section A – Background
Section B – Humane Considerations
Section C – Methods
Section D – Alternatives
Section E – Acknowledgements

## Section A – Background

DNA analysis of some experimental animals is necessary to monitor production of the desired genotype.

## Section B – Humane Considerations

Tail sampling for genotyping routinely involves the removal of the tip of a mouse that is of weaning age (21-28 days) or younger. This procedure involves minimal potential for prolonged pain or distress, and under these conditions can be performed without anesthetic. As the animal ages, tissue maturation results in mineralization of bone and increased vascularity. Tail tip sampling performed on an older animal (>28 days) is likely to cause more than momentary pain and distress as well as in increased potential for significant bleeding. Therefore, animals over four (4) weeks of age (>28 days) should be first anesthetized with a short acting anesthetic (e.g., isoflurane).

## Section C – Methods

- Tail tip removal should be performed at as young an age as possible.
- In animals less than twenty-eight (≤ 28) days of age clipping of the tail can be performed without general anesthesia.
- Sampling should be performed using sharp, sterile scalpel blades or scissors. If tail biopsies are performed on multiple mice, instruments must be disinfected appropriately between animals. Additionally, instruments must be replaced (scalpel blades) or sharpened (scissors) regularly to minimize tissue trauma caused by blunted instruments.
- The smallest possible section should be removed (3 mm is recommended), but no more than one (1) cm may be taken at ANY age without the use of anesthesia. Some DNA kits may recommend larger samples be taken but

experience has shown this is often not required.

- It is understood that sampling may occasionally have to be repeated for a variety of reasons. Under these guidelines, tail clips can be performed twice without a specific justification in the approved protocol for repetitive sampling. If possible, samples should be frozen to reduce the number of tail clips required.

- If three (3) or more tail clips are required for any reason, the rationale must be justified, within the relevant protocol, submitted to and approved by the IACUC prior to performing the procedure.

- More than one tail clip requires the use of anesthesia.

- Regardless of the age of the mouse or the size of the sample, bleeding must be controlled by applying direct pressure to the wound or through the application of heat (cautery), silver nitrate, or tissue adhesive.

- The animal should be closely monitored until it is fully recovered from the procedure and/or the anesthetic and shows no evidence of active bleeding at the sampling site.

## Section D – Alternatives

Alternatives to tail clipping that may be considered:

- Small quantities of blood from distal veins (e.g., saphenous vein) may be used[1]

- Tissue can be obtained by ear punching, which can also serve as identification[2]

[1]Campbell DB, Hess EJ. 1997. Rapid genotyping of mutant mice using dried blood spots for polymerase chain reaction (PCR) analysis. Brain Research Protocols 1: 117-123.

[2]Ren S, et al. 2001. A Simplified Method to Prepare PCR Template DNA for Screening of Transgenic and Knockout Mice. Contemporary Topics in Laboratory Animal Medicine 40 (2): 27- 30.

## Section E – Acknowledgements

This document contains content that was adapted from materials obtained from Stanford University.