

Procedure Type: Tissue Collection for Genotyping

Procedure Title: Toe Clipping for Genotyping in Conscious Mice

Species: Mouse

Pain/Distress Category: C

Background Information:

Techniques will comply with ACUC Guidelines for “Antemortem Tissue Collection for Genotyping.” If techniques will not comply with ACUC Guidelines, insert variation with justification below in the section: "How does this procedure fit into or address your overall research goals?"

Tissue collection for genotyping guidelines: Obtaining blood/tissue samples from mice to determine the presence/absence of a particular gene product is a common procedure when breeding genetically modified mice. The tissue collection method used is largely dependent upon the quantity of DNA sample required for Polymerase Chain Reaction (PCR) analysis. Some analytical and confirmatory techniques may require more tissue. The most common method for collecting those tissue samples (< 5mm) is tail clipping.

Note: This procedure requires a written justification to clip toes in lieu of collecting other tissues that would not impact the animals’ feet. It should only be performed on mice between 3 to 6 (<7) days of age, and is limited to one digit per extremity.

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Procedural Steps for toe clipping:

1. Cleanse the foot with a dilute betadine solution or betadine swab.
2. Using autoclaved, chemically disinfected, or glass bead sterilized scissors amputate the first, most distal bone and place in the specimen vial; amputating different digits will provide a unique identification method for each animal, as well as ample tissue for genotyping.
3. Apply pressure to the paw with a sterile gauze pad until bleeding has stopped. Styptic powder or tissue adhesive can also be used to aid hemostasis.
4. Return pup to its cage once hemostasis has been achieved. It is very important to remove any blood from the paws before returning to dam to discourage cannibalism. 5. Note: Disinfect scissors between animals. Scissor blades should be sharpened regularly to minimize tissue trauma.

How does this procedure fit into or address your overall research goals?

(Insert protocol-specific rationale here.)

Please list any clinical effects or changes from the normal health and behavior of an untreated animal which may occur as a result of this procedure.

While negative clinical effects from toe clipping are not expected, gait alteration, inability to reach feed, cannibalism of neonates, tissue trauma, and infection may occur.

Describe post procedure monitoring that will be performed.

Hemostasis will be verified before returning any animal to their home cage. Mice will be examined immediately following toe clipping and the following day, for general appearance and activity level, as well as potential adverse events listed above.

What criteria will be used to determine if animals exhibiting clinical or behavioral changes should be euthanized?

If any abnormal signs are noted, an OLAC veterinarian will be contacted or the animal will be euthanized immediately.

Updated/ACUC approved:
Dec. 2021