

Procedure Type: Tissue Collection for Genotyping

Procedure Title: Genotyping via Dried Blood Spot 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. For smaller sample requirements, you may be able to use hair, buccal epithelial cells from mouth swabs, a dried blood spot, or an ear punch (which also serves as a method of identification).

Note: Can be performed on an awake, properly restrained pre-weanling mouse ≤ 21 days of age (optimal age for sampling is between 8-15 days of age). If performing on an adult mouse, you can use a rodent restrainer.

Procedure Description Tab:

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Procedural Steps for collection of dried blood spot via tail nick:

1. Manually restrain mouse.
2. Moisten site with alcohol.
3. Using a sterile blade or hypodermic needle, nick the tail vein on the ventral surface.
4. Gently squeeze a drop of blood from the nick onto filter paper (e.g., Whatman GFrC). A spot greater than 2 mm in diameter provides sufficient DNA for one PCR run.
5. Return pup to its cage. Be sure to remove any blood from tail and possibly rub the pup with dirty bedding or nestlet material before returning to dam to discourage cannibalism.
6. Note: Disinfect blade between animals. Blades should be replaced 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 ear punching are not expected, excessive bleeding, hematoma formation, tissue trauma, or 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 blood collection 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 the animal will be euthanized immediately.

Peri procedure Care/Analgesics tab:

Not applicable.

Other Agents Utilized tab:

Not applicable.

Reference:

Campbell D.B., Hess E.J. 1997. Rapid genotyping of mutant mice using dried blood spots for polymerase chain reaction (PCR) analysis. Brain Res Protoc 1:117-123.

Updated/ACUC approved:

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