

University of Notre Dame Institutional Animal Care and Use Committee Policy for Rodent Tail Biopsy

Rationale

The purpose of this policy is to describe the requirements and limitations for protocols that request rodent tail biopsy procedures and to provide consistency in the procedure for IACUC review. Tail biopsy is a common practice for genotyping of rodents when DNA collection must be done. When performed correctly tail biopsy is safe and humane. The recommended age for tail biopsy is between 8 and 21 days of age due to the ossification of vertebrae between 2-3 weeks of age. Thus tail biopsy is best performed in animals less than 3 weeks of age. The PHS Policy requires minimization of pain and distress regardless of the procedure being performed.

Therefore the following limitations and restrictions are in place:

1. Tail biopsy is limited to a maximum of 2 (two) times because the tail is used for temperature regulation and balance in rodents.
2. The minimum amount of tissue must be collected. The maximum allowable amount is a total of 5 mm (0.5 cm) unless specific approval is granted from the IACUC with scientific justification.
3. Rodents under 14 days of age may undergo the procedure without anesthesia. Any animal 14 days or older requires anesthesia for the procedure.
4. Tail biopsy procedures must be included in animal protocols and approved by the IACUC.

Equipment for Tail Biopsy (14 days and older)

Hot Bead Sterilizer	3-4 Paper Towels
Sharp-Blunt Scissors	Isoflurane Anesthetic
ID equipment	Anesthetic Jar
250 ml Glass beaker	Ruler
DNAway or Eliminase	
PPE: Nitrile gloves, particulate filter mask, lab coat	

Equipment for Tail Biopsy (under 14 days)

#11 scalpel blades	Ruler
Cautery Pen	ID equipment
3-4 Paper Towels	
DNAway or Eliminase	
PPE: Nitrile gloves, particulate filter mask, lab coat	

Preparation (14 days and older)

1. Before starting the tail snip procedure, REMOVE the lid and turn on the Hot Bead Sterilizer.
2. Allow the temperature to reach 250°C.
3. If the mice are 21 days old, sex and wean the litter.
4. Place the stacked paper towels on the counter to prevent loss of body heat from the anesthetized mice.
5. Locate the ruler next to the paper towels.
6. Charge the anesthetic chamber

Procedure (14 days and older)

1. Identify the animal using ear punch, tattoo of tail/foot, or place an ear tag.
2. Place the animal into the anesthetic jar.
3. Place the scissors into the hot bead sterilizer. DO NOT insert the scissor blades too deeply into the beads to avoid over heating the handles.
4. Remove the anesthetized mouse from the jar and place on the paper towels.
5. Grasp the tail securely and remove the scissors from the sterilizer.
6. Cut a 2 - 5 mm length from the end of the tail.
7. Cauterize the tail using the flat of the scissor blade.
8. Check for any hemorrhage before returning the animal to the cage.
9. The tail snip is placed in the labeled vial or tray for PCR genotyping.
10. Wipe scissor blades with an alcohol soaked gauze sponge to remove any tissue and blood.
11. Soak scissor blades in DNA away™ or Eliminase™ in a 250 ml glass beaker for 5 minutes.
12. Return scissors to the sterilizer before taking the next tail sample.
13. This procedure is repeated until all tail snips have been collected.
14. Double check the mice for bleeding before returning the cages to the animal room.

Preparation (under 14 days)

1. Place the stacked paper towels on the counter to prevent loss of body heat from the neonates.

2. Assemble equipment for cautery and identification.
3. Place the ruler next to the paper towels. Open the scalpel blade. Use a new blade for each animal.

Procedure (under 14 days)

1. Identify the animal using a tattoo on the tail/foot.
2. Place the animal on the paper towels.
3. Stabilize the tail and push down while drawing the scalpel blade across the tail.
4. Take the minimum amount of tissue required for genotyping.
5. Grasp the tail, blot any blood, and depress the button for the cautery.
6. When the cautery tip glows orange, touch it to the cut surface of the tail for an instant.
7. Inspect the tail for hemostasis.
8. Return the animal to the nursery cage.
9. Use a new scalpel blade for each pup.

Clean-up

1. Turn off the sterilizer.
2. Wash instruments and equipment in disinfectant solution. Instrument scrub brushes are above the sinks.
3. Ear punches/ear tag applicators are washed then rinsed with alcohol and towel dried to prevent rusting.
4. Instruments are replaced in the instrument drawer when dry.
5. The anesthetic jar lid is removed and anesthetic vapors evaporated prior to washing.
6. Discard used DNA away™ or Eliminase™ and wash the beaker.
7. Clean the counter top using the disinfectant spray provided in the room.
8. All paper waste is placed in the room trash can with an autoclave bag liner.

Precautions

1. Open all isoflurane under the hood.
2. Dispose of used blades in the sharps container. DO NOT attempt to clean the scalpel blades.
3. The hot bead sterilizer will effectively sterilize instruments with 15 -30 seconds contact time. Instruments left in the sterilizer for longer will become very hot and can cause thermal injury.

References

Fletcher, A., Stewart, K., Prendergast, S., Suckow, M., Evaluation of the Effect of Early Age Anesthesia for Genotyping of Mice on Body Weight, JAALAS, Volume 52, no. 6. AALAS National Meeting Abstracts.