TAIL CLIPPING OF RODENTS

I. Purpose/Scope

This procedure applies to colony breeders, researchers, and technicians who collect tissue samples from mice for transgene identification. PCR techniques may require less tissue and allow use of auricular flap tissue obtained during the ear punch identification procedure. Southern Blot testing may require more material and need tissue from the tail. Ideally, mice should be 10-21 days old. At this age, the tail tissue is soft (vertebra are not yet calcified) and the yield of DNA is highest.

II. Standard Techniques

Ear Punching: Ear punching does not require anesthesia in mice through 21 days of age. Several tissue samples approximately 0.5 mm in diameter can be obtained.

Tail snipping: Anesthesia is not required in mice through 21 days of age if less than 1 cm of skin is taken (skin can be pushed down toward the tip of the tail so that the vertebrae are avoided). Innervation of the tip of the tail is minimal at this age.

Tail samples greater than 1 cm in length will probably damage the coccygeal vertebrae and will require anesthesia in mice of any age. Anesthesia is required for any tail snipping if animals are greater than 21 days old.

III. Procedure

Gloves should be worn when handling laboratory mice. Prepare the mice by sexing and weaning from the cage. Determine the ID numbers for the mice and record on their cage cards and on the tail snip/ear punch vials. Record the procedure in the Breeding Book for the group – include the date/day, parents, generation, ID# with sex and coat color. Place warmed towel on the counter to prevent loss of body heat if mice are to be anesthetized.

For mice 10-21 days old, a local anesthetic is not required but encouraged. For mice greater than 21 days of age, the use of a local (Emla cream) or general anesthetic (e.g. isoflurane or other suitable pharmaceutical grade anesthetic) is required prior to collection of tissue. Gently, but securely, restrain the mouse between thumb and forefinger. Swab tail with alcohol (povidone iodine or chlorhexidine solutions may interfere with the DNA identification tests). Push skin toward the tip of tail. Snip skin sample with sterile scissors or #15 scalpel blade. Apply gentle compression with sterile gauze until hemostasis occurs. When hemostasis has been achieved, the gauze will be removed and a small portion of triple antibiotic ointment will be applied to the amputation site as a prophylactic measure. Replace the mouse in the cage. Observe mouse for bleeding or abnormal behavior. Check tail daily to ensure tip is healing. The tail snip is placed in the labeled vial. The scissor blades or scalpel blade are wiped with an alcohol-soaked gauze sponge to remove any tissue and blood.

The instruments and equipment are washed in suitable surgical scrub (not alcohol, e.g. Nolvsan) and then autoclaved. The countertop is cleaned using the disinfectant spray provided in the room. All paper waste is placed in the room trash can.

IV. Procedure for Identifying Individual Mice with Ear Punches

Select the mice for identification. Determine the location and number of punches necessary to correspond to the numerical identification required. Scruff the mouse and restrain so that the ears are easily accessible. Place the ear margin in the ear punch so that the hole side of the punch is under the pinna in the desired location. Squeeze the punch closed quickly and firmly. The punches can be either notches or holes based on the number needed. The tissue removed in this process may be collected for DNA analysis. To prevent rusting and to sanitize between animals, the punch is then thoroughly cleaned with alcohol and dried before using.