Standard Operating Procedures for Distal toe clipping

Developed by laboratory of Dr. Grant McGregor (Associate Professor and Scientific Director of Transgenic Mouse Facility, UCI)

Different investigators use various methods to identify their mice. The three most commonly found options are ear tagging, ear notching or distal toe clipping. We use distal toe clipping. The rational for this is that toes can be clipped anytime from P7 until around 13 days of age without the use of anesthetic (note - we NEVER cut distal toes without anesthetic after the eyes have opened). The nervous system has not fully developed in mice of this age so that this is a relatively painless procedure. The same applies when biopsying a small (<0.5cm) piece of tail. A toe-clipping chart indicates the numbering system for identification of the mice (see below). Note: thumbs are never clipped as it is too difficult to tell if they've been cut, plus mice use them for gripping wire bars and food. This system obviates the need to purchase ear clips that can be ripped (or fall) out. In addition, if the transgenic strain you are using can be genotyped using PCR, then the toe biopsy alone provides ample DNA with which to carry out an assay.

Procedures

1. Inspect the litter size and sex of the pups and record in the ID-notebook (aka tailing record notebook). Pups should be P7-P11 (if they are small inbred line, can be biopsied in this way up to P13).
2. Prepare the tubes to collect the clipped tissue.
3. Clean the surface of the changing hood with Virkon solution followed by 70% ethanol. Clean the scissors with 70% ethanol.
4. Do not blow the air of the hood. (the air flow will blow away or vacuum the clipped tissue)
5. Spread the clean paper towel on the surface of the working space.
6. Put the litter together at one place on the paper towel. They tend to snuggle with each other and this avoids the pups from crawling around while clipping is being done.
7. Gently scruff a pup at its neck. They should naturally open their arms and paws.
8. According to the numbering system attached below, aim the scissors at the toe, just under the nail bed.
9. Give a clean cut with one snip.
10. If you need more tissue material for the genotyping, cut one toe of the hind limb. Avoid clipping the thumbs.
11. Put the pup back into the cage with their mom.
12. Pick up clipped toe with the scissors or clean forceps and place it into the ID'ed tube.
13. After each clipping, make sure there are no extra clipped tissues left on the working surface. The sticky end of post-it paper is handy to collect all extra tissues from the surface.
14. Check pups at least once a day for 3 days after toe clipping.
15. Genotype them as soon as possible so that we can select pups by the time of weaning age.

Reference:

Bonaparte, B. et al (2013) FELASA guidelines for the refinement of methods for genotyping genetically modified rodents. *Laboratory Animals* **47** (3) p134-145.

Special Equipment needed:

For Right-handed people:
Item: Hardened Fine Iris Scissors, Straight, 8.5 cm
Cat #: 14090-09
Price: $ 90.25 ea

For Left-handed people:
Item: Left-Handed Iris Scissors, Straight, 10.5 cm
Cat # 14160-10
Price: $ 116.25 ea