



A. PURPOSE

To provide investigators with guidance on the IACUC's requirements for identification of rodents and suitable non-invasive identification options.

B. GUIDELINES

Methods of invasive identification or use of anesthesia or analgesia administration must be described in the approved protocol prior to use. Non-invasive identification methods do not require prior IACUC approval.

Non-Invasive Methods

Non-invasive methods may be used as the sole method of identification, or in conjunction with an invasive method, depending on the needs of the study.

Examples of non-invasive methods include but are not limited to the use of: Cage cards, detailed drawings, photographic/video-graphic records, indelible marker, nontoxic ink or dye.

Invasive Methods

Metal ear tags

1. Metal ear tags are inexpensive and do not require general anesthesia for application, however, the animal must be securely restrained. This method is not ideal for rodents undergoing MRI and/or CT imaging. If the rodent has a metal tags in place, they must be removed prior to imaging.
2. Use of topical anesthesia (e.g. EMLA cream) is recommended and must be listed in the approved protocol if used.

Ear Notching & Ear Punching

1. Ear notching or punching is an inexpensive and permanent method of identification that does not require general anesthesia, however the animal must be securely restrained during this procedure.
2. Use of topical anesthesia (e.g. EMLA cream) is recommended and must be listed in the approved protocol if used.
3. Ear notch or punch remnants usually provide enough DNA for genotyping and can be used as both a method of identification and biopsy, but this should be described on the protocol.

Tattoos

1. Tattoos are an effective method of permanent identification and are most commonly applied either to the tail or foot pad.
2. Appropriate anesthesia is recommended when tattooing animals with more than a colored dot. UAC veterinary staff should be consulted for assistance with selection of anesthetic agents. Anesthetics must be described in the approved protocol.
3. Follow manufacturer's guidelines for procedures and recommended age for both electric and micro tattooing. Needles must be sterile, sharp and replaced at the frequency recommended by manufacturer.



4. Tattooing may require special training. For information on training, please contact UAC-VeterinaryServices@email.arizona.edu

Toe Clipping

1. Toe clipping is the removal of the distal portion of the toe, corresponding to a predetermined numbering code, as a means of permanent identification of small rodents and/or for a source of tissue for genotyping. When performed in very young rodents (up to 7 days of age), toe clipping is considered to cause minimal pain and/or distress.
2. To perform toe clipping, the following procedures are required:
 - a. Topical anesthetics or analgesics may be applied. Researchers should consult with a UAC veterinarian prior to toe clipping for advice on the need for topical anesthetics or analgesics. Anesthetics and analgesics must be described in the approved protocol.
 - b. Toe clipping must be performed **within the first seven days** after birth.
 - c. As toe clipping can alter the gait or weight-bearing ability of a rodent's hind limbs, toe clipping is limited to one digit per extremity.
 - d. Instruments used for toe clipping must be sterilized before use and cleaned and disinfected between animals.
 - e. After removing the digit, gentle pressure should be applied until hemostasis occurs.
3. In animals **over seven days of age**, there is significantly more pain caused by this procedure and its use in these animals will only be approved by the IACUC if:
 - a. Appropriate anesthesia and/or analgesia is part of the procedure. UAC veterinary staff should be consulted for assistance with selection of agents.
 - b. The PI provides rigorous scientific justification as to why other, less painful means of identification in small rodents (ear-notching, ear tags, microchips, tattooing, permanent markers, etc.) are not feasible.

Electronic Transponders

1. Electronic transponders are an effective method of automated identification of individual animals.
2. Local anesthesia is recommended when implanting the transponder subcutaneously. Some transponders need to be placed intra-peritoneally which requires general anesthesia, surgery and appropriate post-operative analgesia.
3. UAC veterinary staff should be consulted for assistance with selection of anesthetic agents. Anesthetics must be described in the approved protocol.

C. REFERENCES, MATERIALS, AND/OR ADDITIONAL INFORMATION

1. Castelhana-Carlos MJ, Sousa N, Ohi F, Baumans V. (2010). Identification methods in newborn C57BL/6 mice: a developmental and behavioral evaluation. *Laboratory Animals*, 44:88-103.
2. Schaefer D, Asner I, Seifert B, Bürki K, Cinelli P. (2010). Analysis of physiological and behavioral parameters in mice after toe clipping as newborns. *Laboratory Animals*, 44:7-13.
3. JOVE [Rodent Identification I](#) and [Rodent Identification II](#)
4. [Guide for the Care and Use of Laboratory Animals p. 75](#)