# *Recommended Methods of Rodent Identification*

Individual animal identification is important for animal colony management (genotype identification, to track breeding crosses, etc.), for animal health / medical records, and for research data. There are several methods available for identifying rodents, including ear notches, ear punches, ear tags, tattoos of the toes/feet or tail, and subcutaneous transponders. Toe-clipping should be used only when no other individual identification method is feasible, and a strong justification is required. Each method of identification used must be described in the animal use protocol.

Please consult a Veterinary Resources Veterinarian as necessary to identify the most appropriate method of identification to ensure animal welfare while accomplishing your research objectives. Training is available upon request. Please visit the VR Animal Use Training website to register.

| **Identification Method** | **Anesthesia Required?** | **Description** | **Notes / Considerations** |
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| Indelible (permanent) marker | No | Animal is restrained (*indicate method*) and marker is applied to the tail or hair. Markings are re-applied as needed. | ➢ This method can be used to write on the tail or hair coat, can be used in all ages.<br>➢ These markings will be removed during the grooming process and need to be re-applied every 2-3 days. |
| Ear Punch/Notch | No | Animal is grasped at the scruff so that the ears are easily accessible. The skin of the ear is disinfected with (*state skin disinfectant used; see p.3*). Using a commercially available instrument (thumb punch, scissor punch, or lever punch), the punch is positioned to make a hole away from the edge of the ear. Pressure is applied to close the instrument quickly and firmly to punch through the skin. The instrument is released without pulling or twisting. Pressure with sterile gauze will be applied to achieve hemostasis if bleeding occurs. The same instrument may be used on the edge of the ear to create a notch. A combination of punches and notches are made in the ear pinna according to a numbering system. The instrument is disinfected with 70% alcohol and allowed to dry between animals. | ➢ Sharp commercial punch devices should be used.<br>➢ Simple, inexpensive, easy to read, can be done at 2 weeks of age or older without anesthesia<br>➢ Tissue can be used for genotyping.<br>➢ Do not punch too close to the head where the cartilage is thicker and more blood vessels are present, because it is painful.<br>➢ Punch instruments may get out of alignment causing pain and tissue damage by poor cutting action. If any drag or catching is noticed, the punch must be discarded and replaced.<br>➢ Using 70% alcohol to clean the instrument will prevent cross contamination of DNA between animals. |

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|---|---|---|---|
| Ear Tag | No | Animal is grasped at the scruff so that the ears are easily accessible. The skin of the ear is disinfected with (*state skin disinfectant used; see p.3*). The ear tag (metal numbered tag or plastic tag with characters or bar codes) is positioned in the middle lower concha of the ear. The ear tag is loaded into the applier and the applier is squeezed to pierce the ear and lock the tag together. Tags are placed so they don't cause a bend in the ear, interfere with the animal's mobility or get caught on the wire bars. Pressure with a sterile gauze will be applied to achieve hemostasis if bleeding occurs. | ➢ Ear tags can be placed starting at ~2 weeks of age.<br>➢ Allows for an extensive numbering system.<br>➢ Numbers are very small and can be difficult to read.<br>➢ Some animals have tissue reactions to the metal resulting in crusting and thickening of the cartilage.<br>➢ Cannot be used in small neonates. |
| Toe / Tail Tattoo | No | The animal is grasped at the scruff or is restrained (*indicate method*). The toe / tail is disinfected with (*state skin disinfectant used; see p.3*), and a sterile needle (25-27G) is dipped in tattoo ink then used to puncture the skin leaving small dot(s) of ink. The needle can be loose or inserted into a commercial micro-tattoo device. Excess ink is removed with sterile gauze and pressure is applied to achieve hemostasis if bleeding occurs. | ➢ Can be done at any age without anesthesia.<br>➢ Extensive numbering system may be achieved.<br>➢ Identification is permanent.<br>➢ May be technically challenging.<br>➢ Numbering system may be difficult to read.<br>➢ Ink may stain draining lymph node. |
| Subcutaneous transponder (e.g., microchip, RFID transponders) | YES | First the transponder is tested to ensure that the chip reader can recognize it. Animal is anesthetized (*indicate method*). The fur over the scruff is removed (via clipper or depilatory cream) and the skin is cleaned and disinfected with (*state skin disinfectant used; see p.3*). Sterile transponders are inserted into the subcutaneous space with a sterile trocar. The trocar will match the size of the transponder chip according to manufacturer's directions). Veterinary tissue glue is used to close the small incision. Placement is verified by scanning the animal with the chip reader. Animal is returned to cage after anesthetic recovery when ambulating normally. | ➢ Animal must be ≥ PND 21.<br>➢ Extensive numbering system.<br>➢ Permanent identification.<br>➢ Some microchip systems can be re-sterilized and re-used (Kent Scientific).<br>➢ Some microchips are writable and can be assigned an ID of the lab's choosing (Kent Scientific).<br>➢ Microchips can be expensive; chip readers are required (prices vary by manufacturer).<br>➢ Recommendations for age and size depend on manufacturer. |

| Identification Method | Anesthesia Required? | Description | Notes / Considerations |
|---|---|---|---|
| Toe clipping (*strong scientific justification required)* | No | Animal ≤ PND 7 is grasped by the scruff which will make then naturally open their limbs and toes. Skin is disinfected with (*state skin disinfectant used; see below*) to clean the paw. Sterile, sharp iris scissors are used to cut the joint between the middle and distal phalanx. Only the distal phalanx of the digit is removed (never the dew claw), and no more than two toes per extremity are removed. Pressure is applied with sterile gauze to achieve hemostasis if bleeding occurs. KWIK stop with benzocaine may also be applied to achieve hemostasis. Animal is returned to cage after bleeding subsides. | ➢ Animal must be ≤ PND 7.<br>➢ May be difficult to perform due to small size of toes.<br>➢ Remove only the most distal bone of digit.<br>➢ Do not remove the dew claw.<br>➢ Tissue can be used for genotyping.<br>➢ The scissors must be disinfected with 70% alcohol (to denature DNA) between animals if tissue is used for genotyping. |

**Commonly accepted skin disinfectants:**

- Cavicide
- Iodophors (i.e., Betadine, Prepodyne, Wescodyne)
- Chlorhexidine (i.e., Nolvassan, Hibiclens)
- Alcohol (i.e., 70% ethyl alcohol; 85% isopropyl alcohol)

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