

Toe Clipping in Mice

Marcel Perret-Gentil, DVM, MS
University Veterinarian & Director
Laboratory Animal Resources Center
The University of Texas at San Antonio
marcel.perret@utsa.edu

Uses

- Genotyping
- Mouse identification

Guide p. 75 on Toe Clipping

As a method of **identification** of small rodents, toe-clipping should be **used only when no other** individual identification method is **feasible**. It **may be the preferred method for neonatal mice up to 7 days** of age as it appears to have **few adverse effects on behavior and well-being at this age** (Castelhano-Carlos et al. 2010; Schaefer et al. 2010), **especially if toe clipping and genotyping can be combined**. Under all circumstances aseptic practices should be followed. Use of **anesthesia or analgesia should be commensurate with the age** of the animals (Hankenson et al. 2008)

UTD Policy

- Up to P7 – No anesthesia/analgesia required
- P7-12 – Anesthesia required
- P13+ prohibited
- For ID purposes – justification required
- Aseptic technique – alcohol minimum
- Bleeding control – required
- As it has potential for pain/distress justification required

P = Postnatal day

Alternatives

	ID	Genotyping
Toe clipping	X	X
Tail clipping		X
Ear punch	X	X
Tattooing	X	
Metal ear tag	X	
Microchip	X	
Toe nail clipping	X	
Blood sampling		X
Dye on skin/hair clip	X	
Saliva/epithelial cells		X
Rectal scrapings/feces		X
Hair follicles		X

Technique

- Up to P7: Anesthesia/analgesia not required
- P8+: Anesthesia/analgesia required
- Use sharp scissors
- Wipe toes and scissors with alcohol
- Remove most distal phalanx
- Apply gauze

Anesthesia

- Gas - isoflurane
- Topical
- Local with lidocaine with epinephrine
- Local hypothermia

Isoflurane

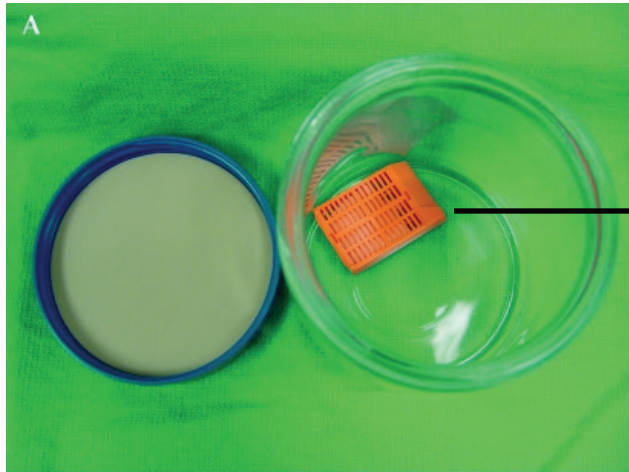
- Vaporizer induction chamber
- Open drop technique

Isoflurane - Vaporizer

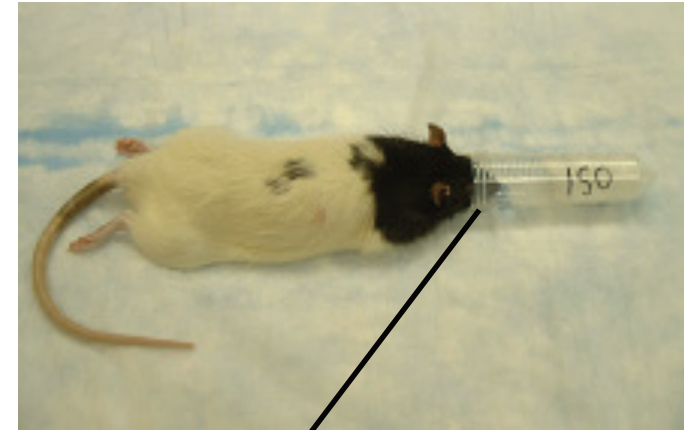
- Induction chamber
 - 3-5% isoflurane
 - 0.5 L/min oxygen



Isoflurane - Open Drop



Pathology cassette with isoflurane soaked material



Centrifuge tube
Depth of anesthesia can be controlled by moving the nose cone closer or farther away from the nostrils



Wire or plastic grate

Absorbent material Isoflurane soaked

Open Drop

- Scavenging required (e.g., fume hood)
- Used for short term anesthesia (vs. calibrated vaporizer)
- Prolonged use results in deaths



Topical Anesthesia

- Cetacaine
 - Benzocaine, Butamben & Tetracaine
- Ethyl chloride
 - Topical anesthetic skin refrigerant
 - Flammable



Local Anesthesia

- Infiltration: Lidocaine 2% with Epinephrine 1:100,000
- Epinephrine?
 - Prolongs anesthetic effect of lidocaine
 - Vasoconstriction facilitates hemostasis
- Helpful for clipping older mice (with justification)



Bleeding Control

- Kwik Stop

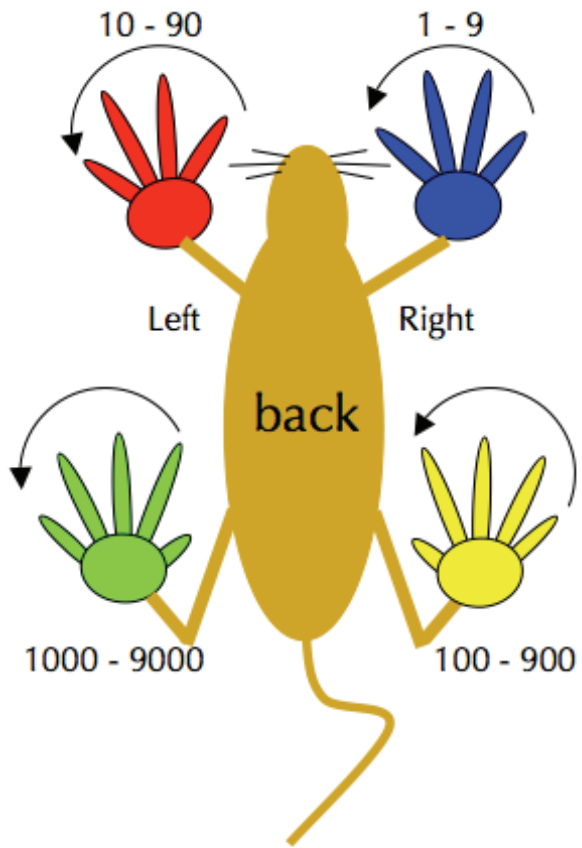


- Silver Nitrate

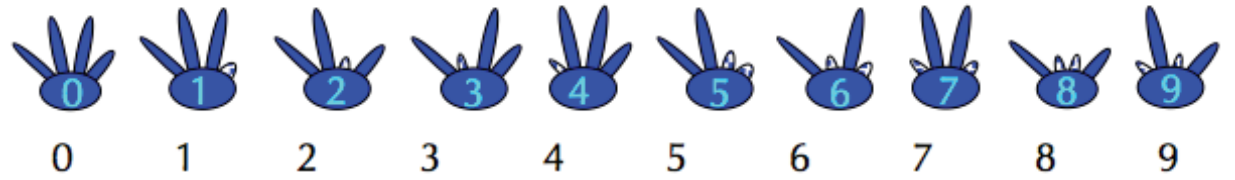


- Gauze

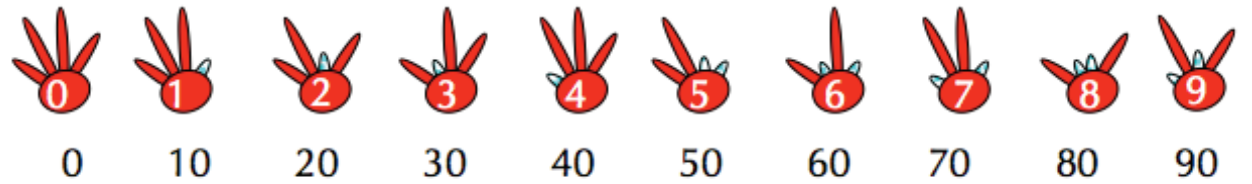




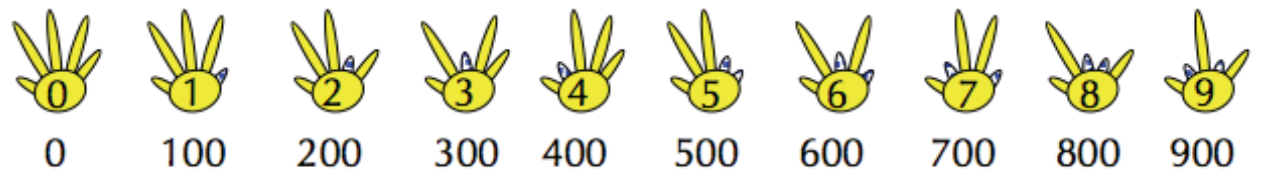
Right front foot



Left front foot



Right rear foot



Left rear foot

