



# STANDARD OPERATING PROCEDURE #110

## MOUSE ANESTHESIA

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### 1. PURPOSE

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This Standard Operating Procedure (SOP) describes methods for anesthetizing mice.

### 2. RESPONSIBILITY

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Principal Investigators (PIs) and their research staff, veterinary care staff.

### 3. INTRODUCTION

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- 3.1. Mice are not routinely fasted prior to anesthesia due to their inability to vomit.
- 3.2. Rodents can be anesthetized with either inhalant gas or injectable drugs. The use of inhalant gas is the preferred method of anesthesia, whenever possible.
- 3.3. Heat loss is rapid in anesthetized rodents. Keep animals warm by covering them and providing a heat source until the animal has recovered from anesthesia. Care should be taken to not overheat or burn the animal; do not place animals directly in contact with the heat source, use a drape or other material as a barrier.
- 3.4. Never leave an anesthetized animal unattended. Continuously monitor anesthetized animals until fully recovered; sternal and moving in the cage.

### 4. MATERIALS

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- 4.1. Material or equipment to provide or conserve body heat: heating disc, warming pad or warm-water circulating pad. Do not use electric heating pads unless specifically designed for use with laboratory rodents.
- 4.2. Ophthalmic ointment (natural tears)
- 4.3. Gas anesthesia machine (calibrated within the last 12 months) with adequate gas scavenging system or filter
- 4.4. Induction chamber constructed of a see-through material (glass, polycarbonate, etc.)
- 4.5. Rodent anesthesia nosecone or mask
- 4.6. Isoflurane
- 4.7. Ketamine (100 mg/mL) \*Controlled Drug
- 4.8. Xylazine (20 mg/mL)
- 4.9. Acepromazine (10 mg/mL)
- 4.10. Atipamezole (5 mg/ml)
- 4.11. 2,2,2-Tribromoethanol (Avertin)
- 4.12. Tertiary amyl alcohol
- 4.13. Sterile isotonic saline (0.9% saline) or sterile water for injection
- 4.14. Crushed ice or ice pack

### 5. PROCEDURES

5.1.2. Maintenance:

- 5.1.2.4. Remove the animal from the induction chamber and use a nosecone or mask connected to the Bain circuit.
- 5.1.2.5. Adjust the flowmeter to 0.4 to 0.8 L/min.
- 5.1.2.6. Adjust the isoflurane vaporizer to 2 to 2.5%.
- 5.1.2.7.

5.2.14.2. Prepare a 1:10 atipamezole solution in sterile isotonic saline or sterile water for injection. The final concentration of the mixture is 0.5 mg/mL.

5.2.14.3. Administer 0.02-0.04 mL/10g body weight subcutaneously or intraperitoneally.

Provide

- 5.4.5.4. Store protected from light (wrapped in foil or in an amber container) at 4°C.
- 5.4.5.5. Label as "Avertin 20 mg/mL" and indicate expiration date (maximum 4 months)
- 5.4.6. Inject 0.1-0.25 mL of working solution/10g body weight, intraperitoneally.
- 5.4.7. Apply ophthalmic ointment (natural tears) to both eyes to prevent dryness and damage to the cornea. Reapply as needed.
- 5.4.8. Duration of anesthesia is approximately 20 minutes.
- 5.4.9. Provide supplemental heat and monitor until recovery (sternal position).

## 6. PROCEDURES FOR NEONATAL MICE

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### 6.1. Hypothermia:

- 6.1.1. Use only in animals less than 7 days of age.
- 6.1.2. Provides immobilization and mild analgesia for short, minor procedures.
- 6.1.3. Protect pup in a glove or paper-lined tube to avoid damage to the skin.

#### 6.1.4. Induction:

- 6.1.4.6. Immerse pup in ice water or crushed ice for 3 to 4 minutes.

#### 6.1.5. Maintenance:

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## SOP REVISION HISTORY

DATE	NEW VERSION
2016.01.15	Addition of Rodent Procedure Log (annex)
2016.03.16	



Investigator:	Protocol:
Procedure:	Performed by:

Instructions: Complete this log for rodent procedures requiring anesthesia, analgesia, or procedure care (ex. surgeries, experimental infection). Keep the log in the housing room while active and in your files for 3 years for future review by the Quality Assistant and/or the EAGS. All cages should be identified with a Post-Procedure cage card.

### ANALGESIA

carprofen: mouse: 20 mg/kg, rat: 510 mg/kg, SC, every 24 hrs  
 buprenorphine: mouse: 0.1 mg/kg SC or IP every 6 hrs;  
 rat: 0.05 mg/kg, SC or IP, every 12 hrs

### ANESTHESIA

isoflurane 22.5%

ketamine/xylaz(-)Tv178<</MCID 42 >>BDC Q Bz(-)Tv178<</MCID 42 >>86r 853b49.6 19.56 re W n BT /TT2 1 Tf -0.003 Tc 0w2\_\_\_o5

### OTHER AGENTS ADMINISTERED

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# Rodent Procedure Log