



1. PURPOSE

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

2. RESPONSIBILITY

Principal investigator (PI) and their research staff.

3. GENERAL CONSIDERATIONS

- 3.1. Guinea pigs do not feast before anesthesia due to their inability to vomit.
 - 3.2. Guinea pigs 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 during the anesthesia. Keep the animals warm by providing a heat source until the animal has recovered from anesthesia.
 - 3.4. **Never leave an anesthetized animal unattended.** Monitor anesthetized animals until they fully recover, are sternal, and ambulate.
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4. MATERIALS

- 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 animals.
- 4.2. Ophthalmic ointment (natural tears)
- 4.3. Gas anesthesia machine
- 4.4. The induction chamber is constructed of a see-through material (glass, polycarbonate, etc.)
- 4.5. Anesthesia nosecone or mask
- 4.6. 14" venflon for orotracheal intubation
- 4.7. Veterinary ophthalmoscope with long narrow adaptor for a light source and guide for intubation
- 4.8. Isoflurane
- 4.9. Ketamine (100 mg/mL) *Controlled Drug
- 4.10. Xylazine (20 mg/mL)

5. PROCEDURE

5.1. Isoflurane anesthesia:

5.1.1 Induction:

- 5.1.1.1. Give injectable anesthetic cocktail IM, or IP (see section 5.2 below) and wait 5 minutes.
- 5.1.1.2. Adjust the oxygen flowmeter to 0.8 to 1.5L/min.
- 5.1.1.3. Place the orotracheal tube or face mask.
- 5.1.1.4. Adjust the isoflurane vaporizer to 1.5%

5.1.2 Maintenance:

- 5.1.2.1 Use the mask connected to the Bain circuit.
- 5.1.2.2 Adjust the flowmeter to 0.4 to 0.8 L/min.
- 5.1.2.3 Adjust the isoflurane vaporizer to 1.5 to 2.5%.
- 5.1.2.4 Apply ophthalmic ointment (natural tears) to both eyes to prevent dryness and damage to the cornea. Reapply as needed.
- 5.1.2.5 Continuously monitor the animal during anesthesia and adjust the level of isoflurane as needed according to monitored parameters:
 - 5.1.2.5.1 Presence of reflexes/response to stimuli (pedal withdrawal reflex).
 - 5.1.2.5.2 Respiratory rate and breathing pattern
 - 5.1.2.5.3 Mucous membrane color surrounding the nose and mouth (should remain pink).

5.1.3 Recovery:

- 5.1.3.1. Turn off the isoflurane vaporizer, flush the system and keep the animal on oxygen.
- 5.1.3.2. Transfer the animal to its cage once it begins to move and allow it to recover fully (sternal position).
- 5.1.3.3. Provide supplemental heat during the recovery period.

5.2. Ketamine/Xylazine anesthesia:

- 5.2.1 The injectable anesthetic dose can vary with the sex, age, strain, and body condition of the animal.
- 5.2.2 Recommended anesthetic dose: ketamine 35 mg/kg, xylazine 5 mg/kg.
- 5.2.9 The duration of injectable anesthesia is approximately 30 minutes.
- 5.2.10 After 30 minutes, a half dose may be administered as needed.
- 5.2.11 Provide supplemental heat and monitor until recovery (sternal position).