

**Retro-Orbital Blood
Collection in Rodents
IACUC Standard Procedure
Effective Date: November 2023**

Description of procedure:

This procedure is to be performed by or under close supervision of experienced personnel.

This technique may yield a large sample volume so will not be appropriate for frequent small blood volume collection. If repeated sampling is required with this method, blood collection should not be more frequent than every 2 weeks and alternate eyes used for sampling. The maximum number of blood collections per animal is two per eye.

For information regarding maximum blood collection volume please refer to the [UCSF Blood Collection Guidelines](#).

Supplies:

- Isoflurane anesthesia system
- Micro-hematocrit capillary tubes
- Blood collection tubes
- Gauze sponges
- Triple antibiotic ophthalmic ointment
- Ophthalmic proparacaine (recommended)

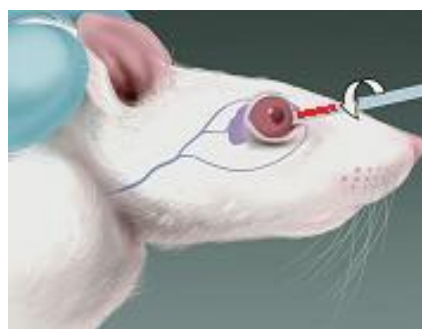
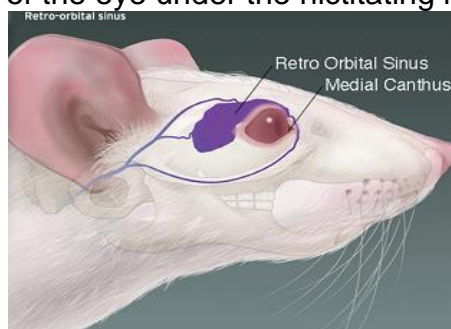
Procedure Steps:

Animals must be fully anesthetized. A drop of proparacaine topical ophthalmic anesthetic in each eye is recommended to minimize discomfort. Standard heparinized or non-heparinized micro-hematocrit capillary tubes can be used.

The animal is removed from the nose cone (if isoflurane is used) and placed in lateral recumbency,



The loose skin of the neck and head is tightened with the thumb and index finger causing the eye to protrude. The tip of the capillary tube is placed at the medial canthus of the eye under the nictitating membrane,



With a gentle thrust and rotation motion past the eyeball, the tube will enter the slightly resistant sinus membrane. The eyeball itself remains uninjured. As soon as the sinus is punctured, blood enters the tubing by capillary action. When the desired amount of blood is collected, the tube is withdrawn, and slight pressure is applied with a clean gauze pad on the eye to ensure hemostasis. Take care not to scratch the cornea with the gauze pad.

It is recommended that a small amount of triple antibiotic ophthalmic ointment be applied to the eye after the technique. Once complete, recover the animal according to the IACUC Anesthesia Guidelines.

To become proficient at this technique, additional hands-on training outside the scope of this text is required.

Personnel interested in learning the above technique should contact the IACUC Training and Compliance staff by email at trainerIACUC@ucsf.edu

Agents: This procedure requires anesthesia. All agents administered to animals should be listed in the “Agents” section of the IACUC protocol.

Potential adverse effects to be considered: Injury to the eye leading to blindness, ocular ulcerations, puncture wounds, loss of vitreous humor, keratitis, infection, excessive bleeding, transient pain.

Literature search words required: Literature search was performed for refinement of this Standard Procedure on 8-31-2023.

Key Words	Search Site	Years Covered
Blood collection in rodents	Pubmed	2000-2023
Retro-orbital blood collection	Pubmed	2000-2023