East Tennessee State University
University Committee on Animal Care

Policy for Retro-orbital Bleeding in Mice and Rats

Purpose:

With this technique, a small blood sample is obtained by penetrating the retro-orbital sinus/plexus with a glass capillary. This technique has the potential to cause more than momentary discomfort in the unanesthetized animal due to the location of the collection site, the associated anatomical structures near the site, possibility of movement by the animal during the procedure and the technical skill of the collector. Therefore, the UCAC has adopted the following guidelines for this procedure.

Guidelines:

Retro-orbital bleeding in mice and rats should only be performed in an anesthetized animal.

There may be times when it is justified to bleed a mouse without anesthesia; however, the potential for damage to the eye or the health of the animals is of significant concern to the UCAC. Upon written request and assurances by the PI the UCAC may approve highly skilled and experienced individuals to perform this technique without anesthesia, following observation and assessment of the skills by an UCAC designee and the Attending Veterinarian. A topical ophthalmic anesthetic must be used if the UCAC has approved an exemption from the use of a general anesthetic.

Due to the nature and anatomy of rat tissues (retro-orbital plexus rather than the sinus in the mouse), retro-orbital bleeding may never be performed in an unanesthetized rat.

Total blood volume of a rodent is about 6.0 ml/100 g body weight. No more than 10% of the total volume should be collected at one time: e.g., a 30g mouse has 1.8 ml total volume of blood, so no more than 0.18 ml should be taken during one collection, or during one week.

Each orbit should not be used more often than once a week. If higher volumes and/or frequencies of collection are required due to the experimental design, this must be approved by the UCAC in advance.

It is best to alternate eyes in successive bleedings. If an eye is damaged (abscess or ruptured), no attempt should be made to take another blood sample from this eye. In the event that one eye is damaged, the second eye can be bled. If the second eye becomes damaged, bleeding via the retro-orbital route must cease.

Care must be taken to ensure adequate hemostasis following the procedure.

Approved by the ETSU University Committee on Animal Care: May 21, 2004