

# Submental Blood Collection in Mice

## IACUC Standard Procedure

Effective Date: 1/30/2018

### Description of procedure:

Submental blood collection is an acceptable alternative to the submandibular method. This method allows for maximum allowable sample volume with minimal trauma to the animal. Submental collection may be easier to perform due to the direct visibility of the target vessels, which are located in a sparsely furred region. Multiple samples can be taken daily by alternating sides. This technique must be performed on anesthetized animals. Only trained personnel may perform this procedure.

This technique may yield a large sample volume so will not be appropriate for frequent small blood volume collection. For information regarding maximum blood collection volume please refer to the UCSF Blood Collection Guidelines.

### Supplies necessary:

- Isoflurane anesthesia system
- 4-5 mm lancet or 25-27 gauge needles
- Gauze sponges
- Lubricant
- Blood collection tube

### Procedure:

1. Anesthetize the mouse with isoflurane in an induction chamber.
2. Remove the mouse from the induction chamber and restrain the mouse with the non-dominant hand by grasping the loose skin over the shoulders and behind the ears; the skin should be taut under the chin (submental region), but not so tight as to restrict breathing.
3. A 4-5mm lancet or 25-27g needle is used to puncture over the dark area, just medial to the jaw on each side, where the submental veins converge (Image 1). Apply sterile lubricant to the ventral chin to improve visibility of the vessels. If using a needle, only the tip of the needle should enter the vessel to a shallow depth of 1-2 mm.
4. Insert and withdraw the lancet or needle in a smooth, firm motion. Blood will flow immediately.
5. Collect sample with a pipette or other collection tube, until the target volume is reached.
6. Bleeding typically stops automatically when the mouse is released and the head position goes back to normal. Manual pressure can be applied with a gauze sponge if needed.
7. The animal may be returned to their home cage once they have fully recovered from the anesthesia.

To determine the appropriate location of the puncture site, first identify the fur whirl landmark, then measure approximately 0.5 cm superior and lateral towards the jaw (Image 1). Puncture the vein where the submental veins converge (Image 2)



Image 1: Blue dot indicates location of fur whirl landmark. Open circles indicate target location.

Image from [Regan et al. JAALAS. 2016. 55 \(5\): 570-576.](#)

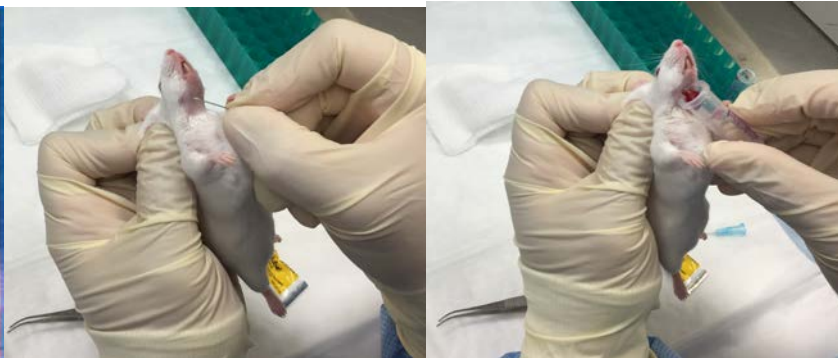


Image 2: Demonstration of submental puncture and blood collection. Images courtesy of Jay Simmons.

**Agents:** This procedure requires gas anesthesia. All agents administered to animals should be listed in the "Agents" section of RIO.

**Adverse effects to be considered:** Hemorrhage from the oral or nasal cavity, hematoma formation