

**Submandibular Blood
Collection in Mice
IACUC Standard Procedure
Effective Date: May 2022**

SUBMANDIBULAR BLOOD COLLECTION IN MICE

Description of procedure:

Blood collection from the submandibular (facial) vein is the blood collection technique that allows for maximum allowable sample volume with minimal trauma to the animal. Multiple samples can be taken daily by alternating sides. This technique can be performed on conscious animals if appropriate justification is provided. 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
- 25 gauge needles or 4mm lancet
- Gauze sponges
- 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 over the mandible
3. Puncture the vein with a 25 gauge needle or lancet slightly behind the mandible, but in front of the ear canal (see picture below). A swift lancing motion is used to puncture the vessel. Only the tip of the needle should enter the vessel to a shallow depth of 1-2 mm. Blood will flow immediately.
4. Collect sample with a pipette or other collection tube.
5. When the sample has been collected apply gentle pressure to the blood collection site with a gauze sponge until bleeding has stopped.
6. 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, measure a straight line from the bottom of the mandible to the caudal portion of the ear (image 1) and from the top of the eye to the point of the shoulder (image 2). Puncture the vein where these two lines intersect (image 3).



Image 1



Image 2

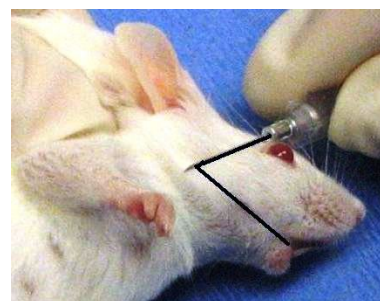
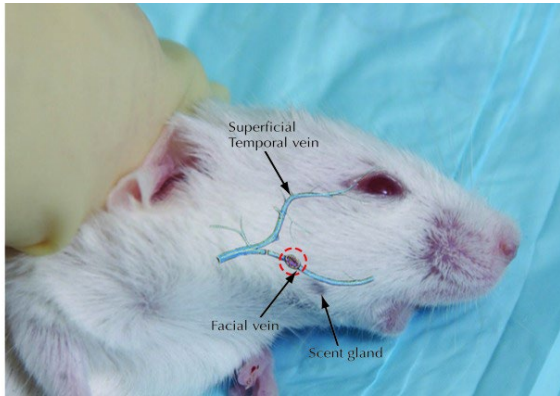


Image 3



Vasculature and demonstration of blood collection. Images supplied by:
www.medipoint.com

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 ear canal or nasal cavity, hematoma formation, head tilt

References:

A rapid, simple, and humane method for submandibular bleeding of mice using a lancet.
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Jo EJ, Bae E, Yoon JH, Kim JY, Han JS. Comparison of murine retroorbital plexus and facial vein blood collection to mitigate animal ethics issues. *Lab Anim Res*. 2021 May 6;37(1):12. doi: 10.1186/s42826-021-00090-4. PMID: 33958002; PMCID: PMC8101209.

Francisco CC, Howarth GS, Whittaker AL. Effects on animal wellbeing and sample quality of 2 techniques for collecting blood from the facial vein of mice. *J Am Assoc Lab Anim Sci*. 2015 Jan;54(1):76-80. PMID: 25651095; PMCID: PMC4311747.