

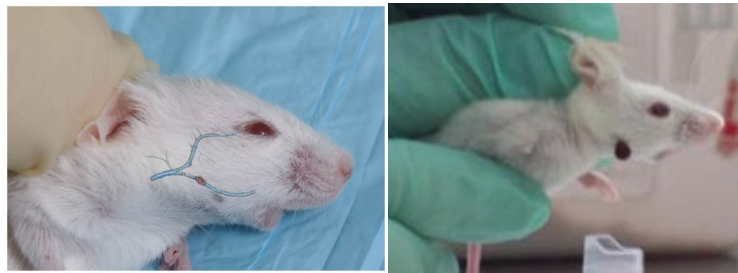
**Arizona State University
Institutional Animal Care and Use Committee
STANDARD INSTITUTIONAL GUIDELINE**

BLOOD COLLECTION IN MICE USING THE SUBMANDIBULAR VEIN

Description of procedure:

Submandibular bleeding is an easy way to obtain 0.05-0.3 ml of blood without the use of anesthesia. Either a Medipoint Goldenrod Lancet (available in three sizes with size selection based on the size of the mouse, or a syringe needle (typically 22 gauge, but use 25 gauge for juvenile mice) can be used. The Medipoint Lancet provides better control of insertion depth and thus is recommended over syringe needles. The maximum blood volume that can be collected during a single draw is 1% of body mass (assuming 1 ml of blood weighs 1 g). For serial sampling, the cumulative amount of blood drawn cannot exceed a volume equivalent to 1.5% of body mass over a one-month period (i.e., a 25 gram mouse may contribute a total of 375 ul of blood over a 30 day period (if split up into several smaller draws) or a total draw (if taken all at once) of 250 ul). This greater percent volume (relative to a single collection) is obtainable because of the regeneration of red blood cells over time. Thus, in experiments requiring serial blood sampling, the maximum volume of each blood draw is limited by the number of blood draws over the course of a month (i.e., 1.5% divided by the number of blood draws in a month). This approach allows for infrequent collection of relatively large samples or frequent collection of small samples. When the procedure is being performed, any blood loss (i.e., drops not collected) must be accounted for in calculation of the total allowable blood volume.

1. Restrain mouse by gripping the skin over the back of the neck and hold the animal upright to provide a good view of the cheek. Ideally, the mouse's head should be in straight line with the mouse's back (see picture). Having the head bent interferes with blood collection.



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2. Quickly insert a Lancet or a syringe needle (into the bundle of vessels located at the back of the cheek (just behind the point at which the upper and lower jawbones meet) and then quickly withdraw the lancet or needle.
3. Once the blood begins to drip (virtually instantaneously), collect it in a small blood collection vial.
4. Once sufficient blood is collected (within the described limits), apply pressure to the site of puncture with a clean gauze pad to stop any continuing blood flow.
5. Return animal to its cage and it will typically self-groom to clean any remnant blood from the fur. Observe the animal after it is returned to the cage for any additional bleeding.

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6. If desired, serial blood samples can be obtained by using the same site or the alternate cheek.

Reference:

Golde, W. T., Gollobin, P., and Rodriguez, L. L. 2005. A rapid, simple, and humane method for submandibular bleeding of mice using a lancet. *Lab Animal* 34: 39-43.