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

BLOOD COLLECTION IN MICE USING THE SUBMANDIBULAR VEIN

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 pouch. 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.

2. Quickly insert a Medipoint Goldenrod Lancet (available in three sizes with size selected based on the size of the mouse) or a syringe needle (typically a 22g, but use a 25g for juvenile mice) into the bundle of vessels located at the back of the cheek pouch and then quickly withdraw the lancet or needle. The Medipoint Lancet provides better control of insertion depth and thus is recommended over syringe needles.

3. Once the blood begins to drip (virtually instantaneously), collect it in a small blood collection vial.

4. Once sufficient blood is collected (although see limits described below in #7), 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.

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

7. The maximum blood volume that can be collected during a single draw is 1% of body mass (assuming 1ml of blood weighs 1g). 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 250ul). 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.

Reference:

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