

CARDIAC BLOOD COLLECTION AND ADMINISTRATIONS IN MICE IN-PERSON TRAINING

UNIVERSITY OF SOUTH FLORIDA
COMPARATIVE MEDICINE

Attendee Name: _____
Print Sign Date

Discuss/Review:

- _____ **Collection** directly from the heart (i.e., cardiac) is a **terminal** procedure used to collect final large volume.
- _____ Blood **must collected** only when mice are deeply anesthetized (injectable or isoflurane), or **immediately following** euthanasia with CO₂.
- _____ Up to 1ml of blood can be collected.
- _____ Cardiac Injection also **requires anesthesia** (Isoflurane is recommended); this injection route is typically done as a one-time administration and is not repeated.
- _____ Up to 0.2ml volume may be delivered to heart.
- _____ Both techniques require care and consideration regarding excessive movement of the needle tip so as not to cause ripping of the muscle that could result in prevention of full volume collection or administration.

Demonstrate/Assess:

Cardiac Blood Collection

- _____ The mouse must be **anesthetized or euthanized** immediately prior to collection.
- _____ The entire ventral surface is saturated with alcohol or Oxivir to assist with visualization of landmarks (e.g., xiphoid process).
- _____ The xiphoid "groove" is located by lightly running the needle across/down the ventral surface & letting it 'drop' into the notch just to the right side as the technician is looking at the animal.
- _____ A **25g needle** and 1cc syringe combination is inserted into the chest at the xiphoid process at **~45° angle.**
- _____ Once the needle has been introduced it is advanced while keeping **constant slight negative aspiration** pressure.
- _____ If the needle is positioned correctly, blood will flow with very little pressure being applied to the plunger.
- _____ Hemolysis of samples is often seen when too much aspiration **force** has been exerted during the collection process or when **blood clots** are forced through the needle into collection tubes. Care should be taken to avoid both.

Cardiac Administration

- _____ The mouse must be isoflurane **anesthetized** and placed in dorsal recumbency.
- _____ The thumb is placed just under the animal's **left elbow** and the index finger on the opposite side of the chest.
- _____ Care is taken to keep the fingers neutral and not to apply pressure/squeeze.
- _____ The intended **injection site** is saturated with chlorhexidine/alcohol based skin sanitizer.
- _____ A **25g or smaller needle** and 1cc syringe combination is inserted just behind the elbow atop the tech's thumb, parallel to the table-top.
- _____ Once the needle has been introduced and slowly advanced while keeping **constant** negative aspiration pressure until blood is seen. Blood will flow with very little/no aspiration pressure needed if positioned correctly within the targeted **left ventricle.**
- _____ Partial injection is made, then paused and blood drawn back into the syringe. This **mixes the cells** and prevents possible complications from **clumping**, as well as, confirms placement within the left ventricle has been maintained throughout the injection.

Training & assessment provided by: _____
Print Sign Date

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