

Quick Reference Summary Sheet

TECH 06b – Blood Collection from the Lateral or Medial Saphenous Veins in the Adult Rat SOP

Procedure:

1. Gather all supplies needed.
2. Weigh animal. Calculate maximum volume that can be collected based on planned collection frequency.

Figure 1 Medial Saphenous Vein



Figure 2 – Lateral Saphenous Vein



Species: Rat	Needle Gauge	Single blood sample		Multiple blood samples	
		Maximum % Blood Volume Removed	Required recovery period before additional blood sampling	Maximum % Blood Volume removed in 24 hour period	Required recovery period before additional blood sampling
Total Blood Volume 65ml/kg (60-70ml/kg)	23-25g	7.5%	1 week	1%	24 hours
		10%	2 weeks	7.5%	1 week
		15- 20%	4 weeks	10-15%	2 weeks
				20%	4 weeks

The total blood volume assumes that the mouse is a healthy adult that is normally hydrated and non-obese. When collecting multiple blood samples, a smaller volume of blood is taken at each sampling to allow time for hematological parameters to return to normal.

3. Restrain rat to access the medial or lateral saphenous veins. Hold skin to keep leg extended and occlude the vein. (See Figures 1 and 2).
 - a. Can also restrain the rat by wrapping in a towel (“burrito wrap”) as per SOP.
4. Safely remove fur over the saphenous vein using fur clippers.
5. Locate the saphenous vein (See Figures 3 and 4).
6. Swab area with alcohol on cotton-tipped applicator and apply a thin layer of Vaseline®.
7. Puncture the vessel perpendicular (90 degrees) to the skin with a new sterile 23-25 G needle (see Figure 5).
 - a. Begin proximal (closest) to the body if multiple sampling is planned.
 - b. Do not insert needle past bevel of the needle (1-2 mm deep).
8. Collect the blood into the desired collection tube
 - a. Do not collect more than the maximum calculated volume.
 - b. Include any blood not collected for sample, in total volume (any extra bleeding, i.e. on gauze)
9. Apply direct pressure over puncture site for 60 seconds with a dry gauze.
 - a. If still bleeding, repeat until bleeding has stopped.
10. Once bleeding has stopped (hemostasis), place the rat back in its cage and monitor for 5-10 minutes to ensure bleeding doesn't resume.
11. For repeat samples, a new puncture site can be made distal to the previous site (towards the foot) or the other vein (lateral or medial saphenous) can be used.
12. Note procedure and date on cage card/monitoring records.

Figure 3 Medial Saphenous Vein



Figure 4 Lateral Saphenous Vein



Figure 5



Potential Complications:

- Local reaction:
 - Bleeding, bruising, skin lesions, limping.
- Systemic reaction:
 - Pain, anemia (pale extremities), overheating, unable to breathe in restraint.