



Curtin University Standard Operating Procedure

RABBIT BLOOD SAMPLING

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Aim/Purpose: To safely and humanely collect blood samples from rabbits in the Building 300 Facility.

All employees have a duty of care (see Occupational Health and Safety) to ensure their own health and safety, and that of their fellow workers at all times.

ALL ANIMALS MUST BE HANDLED HUMANELY i.e. carefully and kindly.

Guidelines for Blood Collection in Rabbits

General Comments:

Total blood volume = 6% of lean body weight

Maximum blood collection = 1% of body weight every two (2) weeks

Examples: 2 kg rabbit = 20 ml. 4 kg rabbit = 40 ml

Rabbits may follow the above bleeding schedule as long as packed cell volume (PCV) and total plasma proteins (TPP) are monitored. The occurrence of anaemia, hypoproteinemia, or unthriftiness require appropriate supplementation and a rest from further bleeds. The duration of this rest will be determined by the attending veterinarian. Animals should be weighed and logged weekly if on a long term bleeding schedule. Topical irritants, such as xylene, should not be applied to skin for blood collection purposes.



Options for Collection Site	Advantages	Disadvantages
Marginal Ear Vein	Anaesthesia not required Vein is easily accessed	Only small to moderate blood collected. Secure restraint required Special equipment recommended Topical anaesthetic recommended
Central Ear Artery	Large samples can be collected	Topical anaesthesia is strongly advised (due to the possibility of arterial spasm) Special equipment recommended Training required
Lateral Saphenous Vein	Anaesthesia not required	Training required Special collection set required Small to moderate sample sizes
Cephalic Vein	• Anaesthesia not required	Small sample sizes Training recommended Some specialized equipment needed
Jugular Vein	Large samples can be collected	Anaesthesia is required Training required Requires more skill
Anterior Vena Cava	Large samples can be collected	Anaesthesia is required Requires more skill Risk of cardiac tamponade
Cardiac Puncture	Maximum quantity of blood	Requires deep anaesthesia Non-survival procedure only

Required Materials:

- Syringes and Needles- including butterfly needles
- Scalpel
- Alcohol swabs
- Blood collection tubes
- Clippers
- Restraints
- Tourniquet if required
- Sedative if required.
- EMLA cream (2.5% lignocaine cream) to provide local anaesthesia.



Technique Example: Marginal Ear Vein:

1. EMLA cream may be applied at least 30mins prior to the sampling if required to provide local anaesthesia to the area.
2. Can try to warm the ear to dilate the vessels prior to blood collection.
3. Place the rabbit in a rabbit restrainer.
4. Using clippers, remove the hair from the ear.
5. Place a finger, loosely fitting paper clip, or other form of light tourniquet at the base of the ear. This will expose and elevate the vein.
6. Swab the area with 70% alcohol to sterilise the ear and help visualise the vein.
7. Use a 25-gauge, 5/8-inch or 22-gauge, 1-inch needle or a small scalpel. Small quantities can be collected from the hub of a 25-gauge needle directly into a microhaematocrit tube. The larger needle is attached to a syringe and blood is collected slowly into the syringe to avoid collapsing the vein. If blood does not flow readily, there may be a clot formation in the needle or too much negative pressure applied to the syringe. Release the negative pressure and slowly rotate the needle.
8. A small nick in the ear vein with the ear held downwards, may provide a better sample than a needle. The blood is collected directly into a microhaematocrit tube.
9. Repeat these steps as needed until the desired quantity of blood has been collected.
10. Apply pressure to the ear for a minute to promote clotting

A tranquilizer, such as Acepromazine, works very well as a vasodilator as well as providing a tranquilizing effect. Administer Acepromazine 0.25 to 0.5 mg/kg SQ or IM. The best results are obtained when administered 10-15 minutes prior to blood collection.

Technique Example: Central Artery

1. Place the rabbit in a rabbit restrainer.
2. Using clippers, remove the hair from the ear. A 1 to 1-1/2-inch needle ranging in size from 22-gauge to 20-gauge is recommended for blood collection. Some investigators prefer to break off the hub of the needle and use the needle shaft for collection or to use a vacutainer needle.
3. Extend the ear away from the rabbit's head to provide a flat surface and insert the needle into the artery.
4. Once blood begins to flow, lower the ear and position the receptacle under the needle for blood collection. Occasionally, the artery may constrict during the collection process, shutting off the flow of blood. Hold the needle securely in place until the rabbit relaxes, usually within one minute. Gentle massage of the artery at the base of the ear may enhance blood flow. Clot formation in the needle can also prevent blood flow. If no blood flows, remove the needle and repeat the procedure using a new needle. Insert the new needle into the artery proximal to the previous site (closer to the base of the ear).



Technique Example: Saphenous Vein

1. An attendant restrains the rabbit, exposing the rear leg to the person drawing the specimen.
2. Hair is clipped from the lateral saphenous vein on the lower rear limb.
3. The vein is occluded by the attendant and the researcher cleans and dries the skin over the vein with alcohol and sterile gauze.
4. Using a scalp vein set primed with sodium heparin, a 21-24 gauge needle is inserted into the occluded vessel and blood is aspirated into the connected 3 ml syringe prefilled with 1 ml of air. The syringe may be gently rocked while the blood is collected to avoid clotting.
5. Pressure is placed on the venepuncture site for about 20 seconds after withdrawing the needle.

References

University of Toledo; Department of Laboratory Animal Resources : Guidelines for Blood Collection: Rodents and Rabbits