

	<b>Flinders University</b> <b>Safe Work Method Statement</b> <b>Rabbit – Injection Techniques</b> <b>18/06/19</b>			
				<b>College of Medicine and Public Health Animal Facility</b>
<b>SWMS Number</b>	<b>RA Number</b>		<b>RA Score</b>	
SWMS- 4.1	RA 4.1		Medium	
<b>Contact Person</b>	<b>SWMS prepared by</b>	<b>AWC Approval Date</b>	<b>Review Date</b>	
Roxanne Collingwood	Roxanne Collingwood	18/06/2019	June 2021	

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**Legislation**

- *Australian Code for the Care and Use of Animals for Scientific Purposes 8<sup>th</sup> Ed.*
- *Animal Welfare Act 1985*
- *Animal Welfare Regulations 2012*

- [Gene Technology Act 2000](#) (the Act)
- [Gene Technology Regulations 2001](#)
- [Work Health and Safety Regulations 2012](#)

#### University Policy

- Work Health and Safety Policy 2013
- Responsible Conduct of Research Policy 2016
- NHMRC Guidelines

#### Local Policy

Use of the College of Medicine and Public Health Animal Facilities by all staff and researchers of the College of Medicine and Public Health, Flinders University, is subject to awareness of, and adherence to the following:

#### Research Involving Animals:

- The University holds a licence for the use of animals for teaching and research purposes. To satisfy the requirements of the licence, anyone wishing to undertake teaching and research using animals must submit a proposal to the Animal Welfare Committee (via the Animal Ethics Review Sub- Committee. No work with animals may commence until written approval has been received from the Animal Welfare Committee. Standardised application forms for Research and Teaching can be found on the Flinders University website listed below. It is your responsibility to regularly check this site for updates to guidelines, forms etc

[http://www.flinders.edu.au/research/researcher-support/ebi/animal-ethics/animal-ethics\\_home.cfm](http://www.flinders.edu.au/research/researcher-support/ebi/animal-ethics/animal-ethics_home.cfm)

- **All staff and students involved in animal research must complete Animal Ethics Online Training (AEOT) and must also regularly attend Animal Researcher Information Sessions (ARIS).**

#### Safe Work Method Statement

Refer to Risk assessments, Safe Work method Statements for chemicals, processes and plant equipment where appropriate. All projects must have an accompanying Risk Assessment signed by the Animal Facility Manager

- RA 4.0 Rabbit- Sexing, Handling and Restraint
- SWMS 4.0 Rabbit- Sexing, Handling and Restraint
- SWMS 4.4 Rabbit Anaesthesia and Analgesia
- RA 4.4 Rabbit Anaesthesia and Analgesia
- SWMS 4.7 Rabbit Humane Euthanasia
- RA 4.7 Rabbit Humane Euthanasia

#### Personal Protective Equipment Required

- **Gloves – to be worn throughout entire procedure**
- **Gown**
- **Mask**
- **Hair Net**
- **Shoe Covers**

#### Hazards and Controls

- **Animal bites- training, demonstrate competency, adhere to SWMS.**
- **Animal Scratches- training, demonstrate competency, adhere to SWMS.**

- **Animal Allergies-** wear PPE when handling or handling dirty cages to stop the potential development.
- **Needle Stick-** Do NOT recap needles, put straight into sharps container.

### Before Work Commences

#### **Ensure that you are aware of the locations of the following:**

- **Spill Kit**
- **Fire Extinguisher**
- **Eye Wash**
- **Exits**

**Risk Assessment and SDS (Safety Data Sheet)** - Ensure that you have read and understood for all the substances being used.

#### **Equipment**

- **Ensure that you have read and understood the Risk Assessment and Safe Work Method Statement**
- **Obtain training before using any equipment**

### General Information

- **All procedures are to be performed by trained competent staff.**
- **Training is available from senior animal house staff or Animal Welfare Officer.**
- **Evidence of training is available in the “Training Needs Analysis”.**

### NHMRC Volume and Needle Size Recommendations

Route	Needle Gauge (G) x Length (mm)	Volume	Comments
Subcutaneous	21-25G x 25-38mm	2-5ml	Volume depends on the looseness of skin. Distension of skin is painful, so minimise this by using multiple sites (up to 4 per session).
Intramuscular	25-30G x 13-25mm	1ml / site	Volume refer to aqueous solutions that are rapidly absorbed. Halve volume/site for oily solutions.
Intraperitoneal	21-26G x 25-28mm	Maximum bolus volume is 1% of animal's body weight	Volume refer to aqueous solutions that are rapidly absorbed. Reduce the volume for oily solutions.
Intravenous	21-26G x 13-25mm	Maximum bolus volume is 1% of animal's body weight	Volume refer to aqueous solutions. Bolus injection should be given slowly, over 1 minute. Greater volumes can be administered if much slower infusion rates are used.
Intradermal	25-30G x 13mm	0.05 - 0.1ml	The volume depend on the thickness of the skin. The maximum number of sites is 6.

### Subcutaneous Injection

- Needle size 21 – 25G x 25-38mm and an appropriate needle size, draw up the required dose, and expel any air bubbles.
- Anesthesia is not required. This technique requires only one technician.
- The injections are usually made under the skin overlying the neck, back and sides.
  1. Restrain rabbit as per “SWMS 4.0 rabbit- Sexing, Handling and Restraint”.
  2. Tent the skin between your thumb and forefinger.
  3. Insert the needle through the skin.
  4. Gently draw back on the plunger. If blood is not observed in the hub of the needle, inject the desired dose.
  5. Withdraw the needle. Briefly apply pressure to the needle entry site.

### Intradermal Injection

- Needle size 25 – 30G x 13mm, maximum number of sites is 6, depends on the thickness of the skin maximum volume is 0.05ml/site.
- This technique requires two technicians, one to restrain the animal the other to carry out the injection. Light anesthesia is required if one technician is administering the injection.
- Sites commonly used include the skin over the back and abdomen.
  1. Shave the area to be injected.
  2. With the bevel of the needle up, insert the needle almost parallel with the surface of the skin.
  3. Insert the needle into the skin approximately 2-3mm, inject desired dose (Note: There is considerable resistance to the passage of the needle when it is being inserted into the dermis compared to a subcutaneous injection).
  4. A bleb in the skin (*as seen in the photo below*) will indicate a successful intradermal injection.



**Intradermal Injection**

### Intramuscular Injection

- Needle size 25 – 30G x 13mm, maximum volume 1.0ml per site.
- Anesthesia is not required but can be used.
- Intramuscular injection are injected into the Quadriceps muscles of the hind limb, care must be taken if injection into the biceps femoris as the sciatic nerve runs the length of the femur.
  1. Restrain the rabbit and palpate the muscle and femur with the fingertips.
  2. Insert the needle anterior to the femur, halfway between the hip and the knee, and parallel to the femur.
  3. The needle is first directed slightly downward to enter the group of muscles, then parallel to the femur to maintain the depth while avoiding complete penetration of the muscle or touching the femur itself with the needle.
    - Care must be taken not to inject too deeply as it is possible to inject the sciatic nerve which runs down behind the femur.
  4. Gently draw back on the plunger, to ensure that no blood is drawn up into the syringe, then inject the desired dose.



### Intravenous Injection - Marginal Ear Vein

- Needle size 21 – 26G x 13-25mm, maximum bolus volume 1% of animal's body weight.
- Anesthesia is not required, although light sedation 0.1ml/kg sc ACP10 (Acepromazine 10mg/ml) is recommended.
  1. Carefully remove hair from the vein with a scalpel blade or clippers, and apply EMLA 5% lignocaine cream to the site at least 10 mins before procedure.
  2. The marginal ear vein can be dilated by one of several ways:

- (i) Occluding the vessel with the thumb and forefinger.
  - (ii) Place the ear under a heat lamp for 3-5 minutes.
3. The vein is immediately below the skin and must be entered at a very shallow angle- insert the needle bevel up almost parallel to the vein. The ear should be held taught and bent down while the vein is being entered at the point of the bend.
  4. After completion of the injection, pressure should be applied to the site until bleeding ceases.



#### SWMS Review

This SWMS currently applies to the animals housed in the College of Medicine and Public Health Animal Facility. This SWMS will be reviewed 3 yearly, but also updated more frequently as policies, techniques and animal care requirements change.

Position	Name	Contact Details
Manager Animal Facility	Roxanne Collingwood	8204 4380 <a href="mailto:roxanne.collingwood@flinders.edu.au">roxanne.collingwood@flinders.edu.au</a>
Animal Welfare Officer	Dr Lewis Vaughan	0450 424 143 <a href="mailto:awo@flinders.edu.au">awo@flinders.edu.au</a>

#### **Useful References**

<http://www.nhmrc.gov.au>

<http://www.ogtr.gov.au/internet/ogtr/publishing.nsf/Content/home-1>

<http://www.adelaide.edu.au/ANZCCART/>

[http://www.flinders.edu.au/research/researcher-support/ebi/animal-ethics/animal-ethics\\_home.cfm](http://www.flinders.edu.au/research/researcher-support/ebi/animal-ethics/animal-ethics_home.cfm)

Any questions regarding the above guidelines and any technical advice/ assistance required can be directed to Animal Facility Manager.