RESEARCH AND INNOVATION
ANIMAL RESOURCES AND CARE
VIRGINIA TECH

Standard Operating Procedure:
Subcutaneous Injections in the Guinea Pig

These SOPs were developed by the Office of the University Veterinarian and reviewed by Virginia Tech IACUC to provide a reference and guidance to investigators during protocol preparation and IACUC reviewers during protocol review. They can be used as referenced descriptions for procedures on IACUC protocols.

However, it is the sole responsibility of the Principal Investigator to ensure that the referenced SOPs adequately cover and accurately represent procedures to be undertaken in any research project. Any modification to procedure as described in the SOP must be outlined in each IACUC protocol application (e.g. if the Principal Investigator plans to use a needle size that is not referenced in the SOP, simply state that alteration in the IACUC protocol itself).

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I. Procedure Summary and Goal

Describes procedure for the administration of fluids or compounds subcutaneously (the space between the skin and underlying muscle).

Considerations

a. Useful for large volumes of fluids. Warm fluids to body temperature prior to use.

b. Several sites can be used for multiple injections, though the loose skin around the neck and shoulder area is most common.

c. Please refer to the Guidelines for Injections in Rodents and Rabbits, Virginia Tech Office of the University Veterinarian for recommended volumes and needles sizes.

II. Personal Protective Equipment (PPE) and Hygiene

a. Ensure appropriate PPE is used to protect technician from accidental exposure to blood and other body fluids, such as:

   i. Gloves

   ii. Eye protection

   iii. Mask

   iv. Other PPE as required by protocol/facility

b. Hands should be washed and/or gloves changed between animals.

c. Promptly dispose of used sharps in the provided leak-proof, puncture resistant sharps container.

III. Supply List

a. Needles (23 to 25 gauge; ⅝ - 1 inch)

b. Prefilled syringes; warm fluids to body temperature prior to use.

c. Gauze pads

IV. Detailed Procedure

a. Frequency

   i. Fluids can be administered as often as required, utilizing different locations, depending upon absorption rate of fluids.

b. Anesthesia

   i. No anesthesia required.

c. Procedure

   i. Manually restrain the animal.

ii. Pull a tent of skin taut to separate the epidermal/dermal layers from the musculature of the animal, creating a subcutaneous space.

iii. With the needle pointing away from you, insert at a 45° angle in the subcutaneous space, being careful to not push through the other side.

iv. Aspirate the syringe prior to administration. If blood or any other material is drawn back into the chamber, then withdraw needle and repeat placement.

1. Inject into the site; a small bleb (formation of small fluid pocket) in the subcutaneous space may be noted dependent upon volume of fluids administered.

2. Remove needle when complete, and apply small amount of pressure to the site to prevent backflow of the material.

3. Dispose of the needle into approved sharps container.

V. Variations

None

VI. Potential Adverse Effects, Mitigation, or Treatment

a. Hematoma/bruising at injection site

b. Pain or redness at injection site

c. Abscess

i. Contact veterinary personnel for treatment options

d. Induration at injection site

e. Hypersensitivity to injected substance

i. If you notice a rash or hives, fever, difficulty breathing, vomiting, facial swelling, contact veterinary personnel immediately

VII. References

American Association of Laboratory Animal Science. Laboratory Animal Technician Training Manual. (Memphis, TN: Drumwright and Co, 2007)

Charles River Insourcing Solutions. Biomethodology in the Laboratory Mouse

Charles River SOP 2405-3 – Dosing of Rodents – TGS and Discovery Services

Hawk, C.T., Leary, S.T., and Morris, T.H. Formulary for Laboratory Animals (3rd ed.). (Ames, Iowa: Blackwell Publishing, 2005) http://www.research.usf.edu/cm/docs/Formulary_for_Lab_Animals_3rd_ed.pdf

Turner, P.V., Brabb, T., Pekow, C., and Vasbinder, M. Administration of Substances to Laboratory Animals: Routes of Administration and Factors to Consider. J Am Assoc Lab Anim Sci.; 50(5): 600–613. (2011 September) http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3189662/