POLICY

Pharmaceutical-grade compounds are to be used whenever they are available, even in acute procedures. The use of non-pharmaceutical grade compounds in laboratory animals under certain circumstances may be a necessary and acceptable component of biomedical research.

In the event that a non-pharmaceutical grade compound has to be used due to (1) scientific necessity and/or (2) non-availability of a veterinary or human pharmaceutical grade compound, specific review and approval by the IACUC is required. Cost savings alone is not an adequate justification for using non-pharmaceutical grade compounds.

In addition to the justification of the use of the compound, the method of preparation of the drug and storage conditions must be described in the IACUC protocol. In particular, a detailed description of the methods used to ensure sterility of the drug must be included (e.g., sterile 0.22 micron filter, sterile diluents, storage in sterile vials with rubber septum to maintain sterility).

Definitions:
• Pharmaceutical grade compound: A drug, biologic, reagent etc. which is approved by the Food and Drug Administration (FDA) or for which a chemical purity standard has been written/established by United States Pharmacopeia (USP), National Formulary (NF), or British Pharmacopeia (BP).

REGULATION

Reference 9CFR Animal Health and Husbandry Standards, 3.110 Veterinary Care, USDA Animal Care Resource Guide Policies, March 25, 2011, Policy #3 Veterinary Care:
Investigators are expected to use pharmaceutical-grade medications whenever they are available, even in acute procedures. Non-pharmaceutical-grade chemical compounds should only be used in regulated animals after specific review and approval by the IACUC for reasons such as scientific necessity or non-availability of an acceptable veterinary or human pharmaceutical-grade product. Cost savings is not a justification for using non-pharmaceutical grade compounds in regulated animals.

Guide for the Care of and Use of Laboratory Animals, ILAR, NAS, Eighth Edition 2011, pg 31: The use of pharmaceutical-grade chemicals and other substances ensures that toxic or unwanted side effects are not introduced into studies conducted with experimental animals. They should therefore be used, when available, for all animal-related procedures (USDA 1997b). The use of non-pharmaceutical-grade chemicals or substances should be described and justified in the animal use protocol and be approved by the IACUC (Wolff et al. 2003).
PROCEDURE

1.0 The following questions should be considered when deciding what formulation of compound to use:

- Is an FDA-approved compound/drug available for clinic use (human or veterinary)?
  - Yes
  - Is/Are clinical formulation(s) appropriate for experimental use?
    - Yes
    - Clinical formulation must be used.
    - No
    - Can the clinical formulation(s) be compounded into one appropriate for experimental use?
      - Yes
      - Compound/drug should be compounded from pharmaceutical-grade products. Scientific justification must be provided in the IACUC Application.
      - No
      - Compound/drug should be compounded from the highest grade of non-pharmaceutical product. Scientific justification must be provided in the IACUC Application.

2.0 When developing and reviewing a proposal to use non-pharmaceutical grade compounds and/or investigational drugs where the grade and formulation is not known the Investigator and the IACUC should consider the following:

2.1 Animal welfare and scientific issues related to the use of the compounds.
2.2 Potential for contamination, safety, efficacy, and the introduction of research variables.

3.0 For all compound use, the Investigator and the IACUC should consider the following:

3.1 The grade/purity being proposed.
3.2 The formulation of the final product.
3.3 Issues related to sterility, pyrogenicity, stability, pH, osmolality, site/route of administration, pharmacokinetics, physiological compatibility, and quality control.