IACUC Policy 21: Use of Non-Pharmaceutical Grade Compounds

1. Background
   For teaching or research that involve animals, investigators are expected to use pharmaceutical-grade compounds and vehicles whenever they are available, even for acute and/or terminal procedures. A pharmaceutical-grade substance is any active or inactive drug, biologic, reagent, etc., manufactured under Good Manufacturing Practices (GMP) which is approved, conditionally approved, or indexed by the Food and Drug Administration (FDA) or for which a chemical purity standard has been written or established by a recognized compendia (e.g., United States Pharmacopeia-National Formulary [USP-NF], British Pharmacopeia [BP])

   Issues such as sterility, pyrogenicity, stability, pharmacokinetics, and quality control have usually been addressed during the course of producing pharmaceutical-grade drugs. The same cannot be for substances produced in the research laboratory. The use of non-pharmaceutical-grade chemical compounds in experimental animals is acceptable if particular conditions are met.

2. Procedure to obtain IACUC Approval
   Non-pharmaceutical-grade chemical compounds (including, but not limited to, expired pharmaceutical drugs) is acceptable in research or teaching when animal use is required, if reviewed and approved by the IACUC prior to the first use of the compound. The following circumstances must be presented for consideration by the IACUC:
   
   A. Scientific necessity
   B. Lack of availability of an acceptable veterinary or human pharmaceutical-grade compound

   Per OLAW¹, IACUC considerations for the use of non-pharmaceutical-grade chemicals may include:
   • grade
   • purity
   • sterility
   • acid-base balance
   • pyrogenicity (endotoxins)
   • osmolality
   • stability
   • site and route of administration
   • compatibility of components
   • side effects and adverse reactions
   • storage
   • pharmacokinetics

   Note: Cost savings alone do not adequately justify the use of non-pharmaceutical-grade compounds in animals.

   In preparing proposals that will incorporate the use of non-pharmaceutical-grade chemical compounds, investigators should address the quality of the preparations (i.e., issues of purity, stability, and sterility (to include endotoxins). Investigators should explain to what extent purity and sterility will be maintained in the preparation and administration of the compound, especially when administered parenterally. In addition, the methods and routes of administration of the compound must be described. Information about stability and pharmacokinetics should be given when available.

References
1. OLAW FAQs Section F.4
2. Animal Care Policy Manual, Policy #3 Veterinary Care
3. NIH Policy & Compliance. OLAW FAQs about the PHS Policy on Humane Care and Use of Laboratory Animals