SIU SOUTHERN ILLINOIS UNIVERSITY CARBONDALE

Institutional Animal Care & Use Committee

IACUC Policy #:	**570**
Policy Title:	***Use of Pharmaceutical and Non-Pharmaceutical Grade Drugs***
Date Approved:	**November 17, 2021**
Date Reviewed:	

Purpose:

This policy establishes the hierarchy of use of pharmaceutical and non-pharmaceutical grade drugs for use in vertebrate animals.

Definitions:

Pharmaceutical grade: a drug for which is approved by the Food and Drug Administration (FDA) with an established level of purity, with defined bioavailability, defined routes, and defined half-life of elimination.

The FDA-approved drugs for veterinary use are listed in the Green Book Approved Animal Drug Products (Green Book) | FDA and drugs approved for human use are listed in the Orange Book Approved Drug Products with Therapeutic Equivalence Evaluations | Orange Book | FDA

I**mportant note: if you purchase a pharmaceutical grade compound, but then you must dilute it or compound it with other constituents, this new formulation is NO LONGER pharmaceutical grade.**

USP/NF: the United States Pharmacopoeia (USP) National Formulary (NF) is the official public standards-setting authority for prescription and non-prescription drugs in the U.S. These drugs typically have the letters USP/NF after the drug listing. If these drugs are approved by the FDA and listed in the Green Book or Orange Book, they are pharmaceutical grade. However, if they are NOT listed in the Green Book or Orange Book, then they are NOT pharmaceutical grade. Thus, a USP/NF grade chemical may or may not be pharmaceutical grade.

Non-pharmaceutical grade substance: A chemical not formulated for use in animals or humans. These may be identified as USP/NF grade but not listed in the Green or Orange Books; they also may be listed as analytical grade, reagent grade, USP purity grade, or analytical standards.

Policy:

In conformance with Federal regulations by the National Institutes of Health Office of Laboratory Animal Welfare (OLAW) and the United States Department of Agriculture Animal and Plant Health Inspection Service (USDA APHIS), and the best practices as defined by the Association of Assessment and Accreditation of Laboratory Animal Care

(AAALAC) International, pharmaceutical grade substances must be used, when available, for all vertebrate animal procedures.

The hierarchy for selection of drug substances is

1. FDA-approved pharmaceutical substances for veterinary or human use (listed in the Green Book or the Orange Book)

2. FDA-approved pharmaceutical substances for veterinary or human use, used to compound a needed dosage form (drugs listed in the Green or Orange Books, but diluted or compounded with other substances)

3. USP/NF grade substances used in a needed dosage form (includes compounded products from any source)

4. Analytical grade chemical used to compound a needed dosage

5. Other grades and sources of substances

Use of any non-pharmaceutical grade substance – including any pharmaceutical substance diluted or compounded with anything else – must follow accepted procedures to ensure purity, sterility, stability, pH, establish storage date/expiry date, and eliminate pyrogenicity.

Use of non-pharmaceutical grade drugs must be justified, reviewed, and approved by the IACUC.

Justification for use of non-pharmaceutical substances can include:

1. No equivalent veterinary or human drug is available for experimental use; thus, a pharmaceutical grade compound must be diluted or compounded for use (preferred) or a non-pharmaceutical grade substance must be diluted or compounded for use (second choice).

2. An equivalent veterinary or human drug IS available, but a lesser-grade substance is required to compare or replicate methods from previous studies.

2. An equivalent veterinary or human drug is available for experimental use, but it contains preservatives or inactive ingredients which may confound the research goals of the study.

Provisions for ensuring sterility and stability:

All compounds must be prepared in a sterile manner

Solutions derived from non-sterile components must be filtered (0.22µ or finer) into sterile, sealed containers.

The final product must be labeled with the following information: compound name, concentration (mg/ml), total volume in vial (ml), preparation date, initials of person compounding the substance, and date of expiration.

Determining date of expiration: all reconstituted/compounded substances will be discarded based upon the component with the shortest expiration date, or based on manufacturer's recommendations, or within 30 days, whichever occurs first.

All compounded substances must be stored in appropriate conditions of temperature and light, based on agent-specific stability, compatibility, and manufacturer's recommendations.

Sterile supplies must be used for administration of parenteral agents: intravenous, subcutaneous, intramuscular, retro-orbital, intraperitoneal, or intracranial.

Note: pyrogens, such as endotoxins, may cause fever when injected. All pharmaceutical agents are tested for pyrogens. When compounding non-pharmaceutical grade substances, be aware that sterility does not assure that pyrogens are not present, and that filtering does not remove pyrogens. It is not practical to test small batches of substances for pyrogens. Thus, pyrogenicity may be a potential experimental variable when using non-pharmaceutical grade compounds.

I. References

1. NIH OLAW regulations: The Guide for the Care and Use of Laboratory Animals, 8th edition: https://grants.nih.gov/grants/olaw/guide-for-the-care-and-use-of-laboratory-animals.pdf

2. USDA APHIS regulations: Guide for the Care and Use of Agricultural Animals in Research and Teaching: https://www.aaalac.org/pub/?id=E900BDB6-CCCF-AB13-89B6-DA98A4B52218