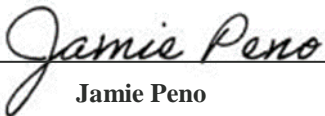
 <div style="display: inline-block; vertical-align: middle;"> <b>DIVISION OF RESEARCH &amp; INNOVATION</b>  <small>Research Integrity &amp; Compliance</small> </div>		<b>Institutional Animal Care and Use Committee</b>  <b>Standard Operating Procedures</b>	
<b>Title: Use of Non-Pharmaceutical Grade Compounds in Animals</b>			
<b>Effective Date:</b>	December 22, 2020	<b>Document Number:</b>	IACUC-SOP-02-19.00
<b>Approval/Date:</b>  <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">   <hr style="width: 200px; margin: 0 auto;"/> <b>Jamie Peno</b>              Director, Research Integrity and Compliance           </div> <div style="text-align: center;"> <hr style="width: 100px; margin: 0 auto;"/>             12/22/2020  <b>Date</b> </div> </div>			
<b>REVISION HISTORY</b>			
<b>Date</b>	<b>Section</b>	<b>Author</b>	

## PURPOSE

It is important to use pharmaceutical grade substances, when available, to avoid toxicity or side effects that may affect the health and well-being of research animals, which in turn could interfere with research findings. According to the Guide for the Care and Use of Laboratory Animals, 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. The need for occasional use of non-pharmaceutical-grade chemicals or substances to meet scientific and research goals is understood by regulating bodies and must be described and justified in an approved animal use protocol evaluated by the IACUC.

## SCOPE

It is the responsibility of the IACUC to evaluate the potential adverse consequences of NPGSs to the test system and experimental goals.

It is the responsibility of the Principal Investigator to disclose any use of NPGSs needed for the study and to provide appropriate justification for such as well as gain approval for their use in an animal use protocol.

It is the responsibility of the Principal Investigator to follow the guidelines outlined by this procedure and to ensure staff are trained in the proper use of the approved NPGSs.

## DEFINITIONS AND ABBREVIATIONS

UNT- University of North Texas, Denton

IACUC- Institutional Animal Care and Use Committee

NPGS(s)- Non-Pharmaceutical Grade Substance(s)

USP- United States Pharmacopeia  
USP-NF- United States Pharmacopeia National Formulary  
SOP/SOP's- Standard Operating Procedure(s)  
AUP- Animal Use Protocol  
PI- Principal Investigator  
AV- Attending Veterinarian

## **PROCEDURES**

- I. Pharmaceutical- Grade Substances and Medications**
  - A.** All routine care medications and anesthetics/analgesics/euthanasia agents must be pharmaceutical grade.
  - B.** Should be in a form that is packaged, labeled, and licensed for animal or human clinical use.
    - 1. Indicates compliance with US Pharmacopeia (USP) standards of strength, quality, and purity and requires the use of official USP reference standards (for production).
    - 2. Production standards for each drug are listed in the USP-NF (national formulary).
  - C.** Are expected to be used whenever they are available.
  - D.** Should also be used in acute/ terminal procedures.
- II. Non-Pharmaceutical Grade Substances and Medications**
  - A.** Chemical grade or NPGSs often contain inorganic and organic impurities, and/or water and are not produced according to USP-NF standards and are considered appropriate for laboratory (in vitro) use only.
  - B.** Experimental compounds do not need to be pharmaceutical grade when used in research paradigms as opposed to being used as therapeutic agents.
  - C.** All NPGSs should be of the highest purity possible and provided that stability of the drug is maintained in formulation procedures.
  - D.** All injected compounds and diluents must be sterile when used for survival animal procedures.
  - E.** All formulations of NPGSs should not use expired compounds or fluids unless expressly approved. (See Procedure 02.04 Use of Expired Materials in Research)
  - F.** All relevant animal welfare and scientific issues including safety, efficacy, and the inadvertent introduction and new variables when using non-pharmaceutical grade compounds should be considered. IACUC may consider factors such as:
    - 1. Grade
    - 2. Purity
    - 3. Sterility
    - 4. pH
    - 5. Pyrogenicity
    - 6. Osmolality
    - 7. Stability
    - 8. Site and route of administration
    - 9. Formulation
    - 10. Dosages
    - 11. Compatibility and the pharmacokinetics of the chemical or substance to be administered.
  - G.** Investigators are encouraged to contact a veterinarian regarding the preparation of the protocol before submission to the IACUC, but in some instances, a pharmacologist or toxicologist consult may be warranted.
  - H.** Exceptions to these guidelines must be justified and submitted to the IACUC for review and may be granted for reasons such as scientific necessity or non-availability of an

acceptable veterinary or human pharmaceutical-grade product.

**III.** Non-pharmaceutical grade substances may only be used when they are found acceptable by the IACUC and listed in an approved AUP with appropriate justification.

**A.** To be approved by the IACUC justification must show:

1. There is scientific necessity.
2. There are no equivalent pharmaceutical grade compounds available.
3. There is a schedule of monitoring that allows the detection of adverse events related to the use of non-pharmaceutical grade compounds.
4. Issues related to quality assurance such as proper preparation, storage, and shelf life have been addressed.

**REFERENCES**

1. The Guide for the Care and Use of Laboratory Animals.
2. Animal Welfare Act
3. IACUC Procedure 02-04 Use of Expired Materials in Research Animals

**APPENDICES**

IACUC Standard Operating Procedures