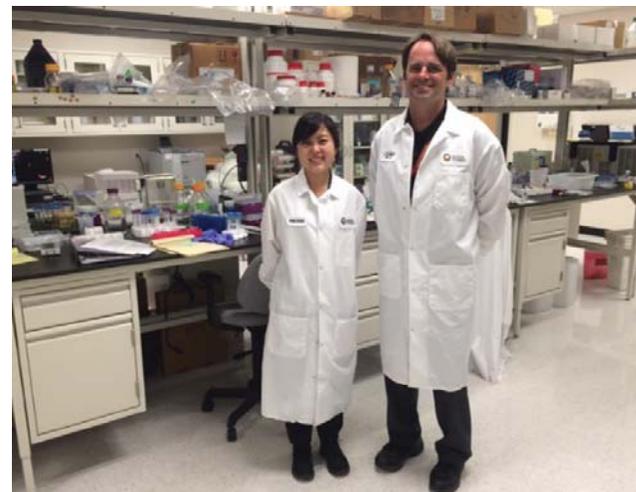




# CALIFORNIA NORTHSTATE UNIVERSITY COLLEGE OF PHARMACY RESEARCH: 2016

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## RESEARCH AT CALIFORNIA NORTHSTATE UNIVERSITY COLLEGE OF PHARMACY

California Northstate University College of Pharmacy (CNUCOP) is dedicated to advancing the science and art of pharmacy. Faculty research and scholarship initiatives are a critical component of the CNUCOP mission.

### Research Facilities

Our 2000 square feet research facility at the Elk Grove campus (see the picture on page 3) contains laboratory space and equipment for faculty members in the Department of Pharmaceutical and Biomedical Sciences to conduct *in vitro* research studies.



Through agreements with other local institutions (UC Davis Cancer Center and Antibodies Incorporated), CNUCOP also provides basic science faculty members with the capacity to perform *in vivo* research studies. An aerial picture of the Antibodies Inc. facility is shown here.



### **Ongoing Research Projects at CNUCOP**

Research projects being conducted by some Pharmaceutical and Biomedical Sciences faculty are highlighted below.

#### Natural Products Research (Dr. Tibebe Woldemariam)

This research area involves the evaluation of selected plant extracts for anti-cancer and anti-inflammatory activities. A recent area of interest, involves the characterization of silymarin extracts in macrophage and colonic epithelial cell lines.

#### Cancer Research (Dr. Ruth Vinall)

This research focuses on prostate and bladder cancer research. Specifically, in determining mechanisms of chemoresistance and identifying biomarkers that can predict patient's response to chemotherapy. A primary focus is miRNA research.

#### Inflammatory Bowel Disease Research (Dr. Leo Fitzpatrick)

This research involves collaboration with Visionary Pharmaceuticals (San Diego, CA) to discover/develop drugs for Inflammatory Bowel Disease (IBD) and IBD-associated cancer. Another project involves discovering natural products, as potential adjunct therapies for IBD.

### Drug Solubility Approaches (Dr. Eman Atef)

This research focuses on improving the solubility of poorly soluble small molecules using solid and lipid dosage forms. A recent publication focused on *Effects of Polymers on Indomethacin Precipitation in Solution*.

### Other Basic Science Research

Other areas of ongoing research include: sphingolipid signaling pathway in cardiac fibrosis and remodeling (Dr. James Jin), transdermal and unguinal drug delivery (Dr. Rania Elkeeb), and cell signaling pathways (Dr. John Cusick).

In addition to basic science research, CNUCOP faculty members (Clinical Sciences Department, Pharmaceutical and Biomedical Sciences Department and Experiential Education) are engaged in clinical research projects, as well as projects related to teaching scholarship. Some of these research/scholarship areas are highlighted below.

### Team Based Learning Scholarship (Dr. Parto Khansari, Dr. Suzanne Clark)

A recent paper has been published entitled: *Innovative Approach to Enhance Learning and Teaching by Incorporating Team-Exams into Team-Based-Learning* (Parto Khansari, lead author).

### Clinical Science Research (Dr. Eugene Kreys, Dr. Tiffany Jade-Kreys, Dr. Lingyun Liu)

A recent publication was entitled: *Impact of Cancer Supportive Care Pathways Compliance on ED Visits and Hospitalizations* (Eugene Kreys, lead author). Another publication was entitled: *A literature review of quetiapine for generalized anxiety disorder* (Tiffany Jade-Kreys, lead author). Finally, a paper has been published, which was entitled: *Antidepressant Use and Functional Limitations in U.S. Older Adults* (Lingyun Lu, co-author).

**Dr. Eugene Kreys** has extensive experience assessing the effects of medication adherence on clinical outcomes and the impact evidence-based interventions on public health.

**Dr. Olivia Phung's** research expertise lies in conducting systematic reviews and meta-analyses (including Bayesian mixed-treatment comparison), with emphasis in the treatment of diabetes and other aspects of the metabolic syndrome.

**Dr. Tony Eid** is interested in cardiovascular risk reduction/preventive cardiology.

Other **Clinical Science** (Diana Cao, Jennifer Graham, Karen Hassell, Sukhvir Kaur, Sam Rasty, Hieu Tran and Jennifer West) and **Experiential Education** (Martha Pauli, Joe Hubbard, and Welly

Mente) faculty members also have research interests.

Further pertinent information on **Faculty Research and Scholarship interests, as well as publications** can be found within the research section of the **CNUCOP website**. The website link is attached here: <http://pharmacy.cnsu.edu/>

### **CNUCOP Seed Grant Process**

The purpose of the internal Seed Grant Award program is to provide funds to CNUCOP faculty members for scholarly activities that will generate a research publication(s) and/or preliminary data for external funding. There were **two 2016 COP Seed Grant winners**: 1) **Dr. Lingyun Lu**, who earned a grant award for her proposal entitled “Bleeding Risk of Novel Oral Anticoagulants in Patients with Afib and Heart failure.” 2) **Dr. Tibebe Woldemariam** and colleagues (Mr. George Talbott, Dr. Leo Fitzpatrick), who also earned a grant award for their proposal entitled “Natural Products as a Source of Anti-Inflammatory Agents for Treating Inflammatory Bowel Disease.”

### **Student Research at CNUCOP**

The CNUCOP administration encourages student research with faculty mentors. In 2016, CNUCOP initiated an inaugural Student Summer Research Fellowship Program. On April 14, two inaugural

summer research fellowships were awarded to current CNUCOP pharmacy students.

The selection of summer fellowship awardees was made by members of the research committee at CNUCOP. The fellowship award winners were chosen based on the student’s academic record, personal statement in the fellowship application, letter of recommendation, as well as overall motivation and interest in research/scholarship related to their future career paths.

The first recipient was a P1 student: **Michael Yadao**. His summer research mentor was **Dr. Eugene Kreys**. For his summer project, Michael evaluated the trends in the incidence of hospitalizations as a result of certain chemotherapy-induced adverse effects among cancer patients. In addition, trends in the length of stay and mortality among these patients and patient-related risk factors that may increase the incidence of hospitalizations were also determined.

Our second recipient was a P2 Student: **Pachai Moua**. Her research mentor was **Dr. John Cusick**. Their pictures are shown on page 2 of our research booklet. Pachai investigated the expression and physiological role of the RELT family of TNFRs (Tumor Necrosis Factor Receptors). She also characterized the interaction of RELT with other proteins and pathways. Additionally, Pachai has been investigating whether RELT protein is associated with inflammatory disease.

### **Key Research Personnel (CNUCOP)**

Under the guidance of Dean Hieu Tran (CNUCOP) and Dr. Philip Mack (VP of Research at CNU), key research personnel at CNUCOP include **Dr. Leo Fitzpatrick, Mr. George Talbott Mr. Brandon Dunmore and Dr. Tibebe Woldemariam**. Dr. Fitzpatrick has served as the Assistant Dean of Research at CNUCOP since July of 2015. He is also the current grant signing officer for CNUCOP. Mr. Talbott has a M.S. Degree and supervises the Elk-Grove campus research laboratory. Mr. Dunmore also has received a Master's degree, and is involved in safety training for laboratory personnel and applicable pharmacy students. Dr. Woldemariam is the current chair of the research committee at CNUCOP. Dr. Fitzpatrick's biographical sketch and photograph are shown below.

#### Leo R. Fitzpatrick Ph.D. (Assistant Dean for Research)

Dr. Fitzpatrick has approximately 30 years of relevant biological and drug discovery research experience.



Dr. Fitzpatrick received a Ph.D. in Physiology from George Washington University. He began his scientific career by doing a post-doctoral fellowship (1984-1986) at the University of Texas Medical School (Houston). From 1986 to 2003, Dr. Fitzpatrick was involved in drug discovery and development at three pharmaceutical companies. Subsequently, Dr. Fitzpatrick began a 10 year (2003-2013) faculty position at the Penn State College of Medicine (Hershey, PA). While at Penn State, he continued ongoing research related to IBD, infectious colitis and arthritis. His research collaborations resulted in the funding of 15 academic-related grants and contracts with pharmaceutical/biotechnology companies. Dr. Fitzpatrick has served on the editorial board of *World Journal of Gastrointestinal PathoPhysiology* and *Pharmacy & Pharmacology International Journal*, as well as a reviewer for several scientific journals including *InflammoPharmacology*, *JPET*, and *Inflammatory Bowel Diseases*. Dr. Fitzpatrick has published 53 original research articles, as well as approximately 70 conference-related abstracts.

**Further Information:** Please direct any future inquiries related to the contents of this booklet and/or ongoing research initiatives at CNUCOP to:  
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