

PHCL 800A - Research**Dr. I.G. Sipes & Faculty**

3, 4 or 6 wks; maximum length of 6 wks; offered year round

Directly supervised/Non-patient care.

Maximum enrollment varies

Prerequisites: Consent of Instructor and Coordinator, Dr. J. Palmer (626 4491)

Goals/Format: This course consists of full-time and part-time involvement in a particular research project. Areas represented by the faculty are as follows:

David S. Alberts, MD; Phase I and clinical pharmacokinetics of cancer chemotherapeutic and cancer prevention agents; drug interactions; clinical pharmacology; in vitro drug assay and biomarker studies in tumor cells; cancer chemopreventive agent pharmacology; and drug development trials. William T. Bellamy, Ph.D.; Cancer pharmacology with an emphasis on tumor angiogenesis as well as the mechanisms responsible for drug resistance; in vitro and in vivo reversal of drug resistance; in situ hybridization. John W. Bloom, MD; Molecular mechanisms of glucocorticoid action in the lung; mechanisms of eosinophil apoptosis; effects of genetic polymorphisms on gene expression in asthma. G. Timothy Bowden, Ph.D.; Molecular aspects of chemical and physical carcinogenesis; mechanisms of oncogene activation and signal transduction pathways. Margaret M. Briehl, Ph.D.; Relationship between oxidative stress, apoptosis, and the development of cancer. Janis M. Burt, Ph.D.; Mechanisms controlling intercellular signaling via gap junctions in the cardiovascular system; role of gap junctions in growth control, response to injury, cardiac arrhythmias and vascular disease. Qin M. Chen, Ph.D.; Molecular mechanisms of oxidative injury and adaptation, stress signal transduction pathways, stress gene expression, senescence, apoptosis and cardiac hypertrophy. Thomas P. Davis, Ph.D.; Neuropharmacology; molecular regulation of growth factor processing and metabolism; biotech approaches to targeting the blood-brain barrier for new drug development; effects of hypoxia, aglycemia, stroke, peripheral pain, and nicotine on endothelial cell permeability, resistance and cytoarchitecture. Robert T. Dorr, Ph.D.; Toxicology systems and mechanisms of action of cytotoxic anticancer agents; pharmacology of cancer chemopreventive agents. Timothy C. Fagan, M.D.; Cardiovascular effects of antihypertensive drugs; effects of age and gender on drug metabolism; new drug development. Edward D. French, Ph.D.; Neuropharmacology of drugs of abuse, using electrophysiological and behavioral endpoints; application to models of schizophrenia. Bernard W. Futscher, Ph.D.; Functional genomics; molecular biology of cancer; cancer pharmacology. A. Jay Gandolfi, Ph.D.; Bioactivation of xenobiotics: in vitro toxicology systems; renal/hepatic toxicology; toxicity of halogenated hydrocarbons, and metals; mechanisms cell injury. Marilyn J. Halonen, Ph.D.; Immunopharmacology; alterations in cytokine regulation of IgE levels; cell biology of naturally occurring polymorphisms in cytokine genes related to asthma or allergy in humans; immune response development in infancy in relation to respiratory viruses and allergens. David G. Johnson, MD; Endocrine pharmacology; pharmacology and physiology of pancreatic function; peptide hormones; clinical pharmacology. Josephine Y. Lai, Ph.D.; Molecular mechanisms of neuropathic pain; opioid receptor pharmacology; gene targeting; drug discovery. R. Clark Lantz, Ph.D.; Pulmonary toxicology of air pollutants, especially metals; effects of air pollutants on neonatal lung growth and development. Douglas F. Larson, Ph.D.; Immunopharmacology; pharmacology and design of selective immunosuppressive therapies for solid organ transplantation and autoimmune diseases. Carl R. Lupica, Ph.D.; Neurophysiology; neuroanatomy/brain circuitry; neuropharmacology; drug abuse/motivation/reward/reinforcement. Ronald M. Lynch, Ph.D.; Hypertension, diabetes, and obesity; endocrine pharmacology and metabolism; excitability in cells of the pancreas hypothalamic neurons and the vasculature; microscopic spectroscopy and imaging. T. Philip Malan, Jr., M.D./Ph.D.; Neuropharmacology; pharmacology and molecular biology of neuropathic pain. Paul F. McDonagh, Ph.D.; Cardiac protection; blood-blood vessel interactions in the etiology of ischemia-reperfusion injury. Mark A. Nelson, Ph.D.; Molecular mechanisms of carcinogenesis, biochemical and molecular pharmacology of anti-cancer drugs. Claire M. Payne, Ph.D.; Mechanisms of cell death induced by pharmacologic/toxicologic agents. Frank Porreca, Ph.D.; Neurobiology of pain. Garth Powis, D.Phil.; Intracellular signaling pathways that mediate the effects of growth factors and oncogenes in cancer cells. William R. Roeske, MD; Cardiovascular pharmacology; regulation, characterization, and identification of autonomic receptors; neuropharmacology of drugs of abuse. I. Glenn Sipes, Ph.D.; Mechanism of tissue injury induced by drugs or other xenobiotics; mechanisms by which one chemical modulates the toxicity of another; carcinogenesis, human metabolism of environmental pollutants. Robert S. Sloviter, Ph.D.; Neuropharmacology, neurotoxicology, neuroanatomy, and neurophysiology of epilepsy and other neurological disorders; mechanisms of neuronal death; anticonvulsant drug mechanisms. W. Daniel Stamer, Ph.D.; Molecular and cellular mechanisms that underlie the regulation of aqueous humor outflow in the human eye; including receptor activation; second messenger signaling, ion and water transport, and secretory function. Todd Vanderah, Ph.D.; Mechanisms and pharmacology of acute and chronic models of pain; endogenous opioid systems; sensory neural systems; opioid tolerance; antinociceptive synergy between cannabinoids and opioids. Mark L. Witten, Ph.D.; Acute and chronic exposure to environmental toxins and their effect on the pulmonary system including host cellular defense system. Henry I. Yamamura, Ph.D.; Neuropharmacology; mechanism of psychotropic drugs in the CNS; molecular biology of neurotransmitter and drug receptors; second messenger coupling with receptors. Andrea J. Yool, Ph.D.; Viral-mediated gene therapy for ion channel disorders in CNS and skeletal muscle; Molecular mechanisms of ion channel function in Aquaporins.

Evaluation Methods: Students will be evaluated according to their laboratory performance.

PHCL 815A - Clinical Pharmacology

Drs. J. Palmer (626 4491, palmerjo@u.arizona.edu) Coordinator; M. Katz, UMC Internal Medicine, (694 6871, pager #1828, katz@pharmacy.arizona.edu); V. Elsberry, UMC Pediatrics, (694 7730, pager #1826, elsberry@pharmacy.arizona.edu); W. Jones, VAH Internal Medicine (792 1450, have operator page #1886)

3 wks *only*; offered year round

Directly supervised/Patient care or non-patient care.

Maximum enrollment of 2 (UMC = 1 student; VAH = 1 student)

Prerequisites: Pharmacology 801, consent of instructor

Goals: Upon completion of this elective the student should be able to:

1. Demonstrate a consistent approach to qualitative and quantitative decision-making therapeutics
2. Distinguish drug-related events from spontaneous alterations in disease
3. Demonstrate general knowledge about objective therapeutics
4. Demonstrate an ability to review therapeutic literature

Format: Students will participate in the day-to-day activities of the Section of Clinical Pharmacology in the Department of Medicine. Students may elect to work at either AHSC or VAH. Students will participate in the consultative activities of the section by working with clinical pharmacology fellows and attending physicians in the preparation of therapeutic consultations which involve review of clinical records, patient examinations, review of the pertinent literature and preparation of written consultation reports. Students will be required to become familiar with the operation of the Arizona Poison and Drug Information Center through observation of center activities. Students will also be required to attend Clinical Pharmacology rounds on alternate Wednesdays, 12:00 Noon.

Evaluation Methods: Student achievement of the goals of this elective will be determined through individual discussions with the students, evaluation of consultations prepared by the students and an oral presentation to the faculty on a subject of the student's choice.

PHCL 899 - Independent Study

Dr. I.G. Sipes & Faculty

3 or 6 wks; maximum length of 18 wks; offered year round

Directly supervised/Patient care or non-patient care.

Maximum enrollment varies

Prerequisites: Medical students only

Goals: The goal of this elective is to allow the student to work with a particular faculty member in pursuit of a particular field of study in pharmacology.

Format: As arranged between student and instructor.

Evaluation Methods: As arranged.