Department of Pharmacology & Toxicology

2012 Annual Report
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MISSION

The Department of Pharmacology and Toxicology is committed to academic excellence and to the attainment of regional, national, and international recognition for the quality of its educational, research, and service activities. Guided by the University of Louisville Strategic Plan (The 2020 Plan) to continue our path to national prominence, the mission of the Department of Pharmacology and Toxicology focuses on five broad objectives:

- **Provide instruction in pharmacology and toxicology of the highest quality for the education and preparation of medical, dental, nursing, and other health care professional students.** Emphasis is placed on the fundamental principles necessary for life-long learning and the essential knowledge required for rational, effective, and safe use of drug therapy.

- **Advance biomedical knowledge through high quality research and other scholarly activities, particularly in pharmacology and toxicology and other areas of focus within the University of Louisville 2020 Plan.**

- **Provide high quality research and educational experiences in pharmacology and toxicology for the education and training of future biomedical scientists who will provide and advance biomedical education, research, and service.**

- **Provide instruction of the highest quality in pharmacology and toxicology that is appropriate for students at the undergraduate, graduate, and postgraduate levels.**

- **Provide high quality service to the School of Medicine, the Health Sciences Center, the University, the people of Louisville and the surrounding region, the Commonwealth of Kentucky, professional organizations, the nation, and the world.**
FACULTY PROMOTIONS

Kenneth E. Palmer, Ph.D. was promoted to professor with tenure.

Research Interests
  • Development of vaccines and antiviral proteins to prevent and treat viral diseases that predispose people to development of cancer.

NEW FACULTY APPOINTMENTS (Primary appointments)

Juliane I. Arteel, PhD (Juliane Beier in professional publications)
Assistant Professor of Pharmacology & Toxicology

Research Interests
  • Interactions of diet and environmental toxins in the production of non-alcoholic fatty liver disease
Brian P. Ceresa, PhD
Associate Professor of Pharmacology & Toxicology

Research Interests
- Membrane trafficking and signaling of the epidermal growth factor receptor (EGFR). The EGFR is overexpressed and hyperactivated in many cancers. Our goal is to better understand how signaling by this receptor is regulated with the goal of attenuating its signaling in cancer.

NEW FACULTY APPOINTMENTS (Associate appointments)

Guy N. Brock, PhD
Associate Professor of Bioinformatics and Biostatistics

Research Interests
- Methodological research in statistical bioinformatics and statistical genetics, with emphasis on cluster validation, missing value imputation, and classification for high-throughput data. Main areas of clinical and collaborative research include transplantation, liver disease, community acquired pneumonia, genetic variants related to breast and prostate cancer, and the molecular determinants of developmental defects during the neural tube and secondary palate formation.
Wenke Feng, PhD  
Assistant Professor of Medicine (Division of Gastroenterology, Hepatology, and Nutrition)  

Research Interests  

- Mechanisms of alcoholic liver disease  
- Mechanisms of nonalcoholic steatohepatitis  
- Tissue hypoxia and diabetic complications

Swati Joshi-Barve, PhD  
Assistant Professor of Medicine (Division of Gastroenterology, Hepatology, and Nutrition)  

Research Interests  

- Mechanisms of Steatohepatitis (nonalcoholic and alcoholic fatty liver disease)  
- Mechanisms of Alcohol-induced Immune Dysfunction  
- Mechanisms of Hepatocellular Carcinoma
Lacey R. McNally, PhD
Assistant Professor of Medicine (Division of Hematology and Oncology)

Research Interests
- Metastasis suppressors, such as KISS1, as a method for preventing and treating metastatic pancreatic and ovarian cancers
- Mechanisms of chemotherapy resistance and alternative treatment for macro-metastasis and recurrence in ovarian and prostate cancers
- Mechanisms involved in organ specific metastasis of pancreatic, prostate, and breast cancers

Timothy E. O’Toole, PhD
Assistant Professor of Medicine (Division of Cardiovascular Medicine)

Research Interests
- Function and regulation of the endothelium in various disease states. Role of miRNA in endothelial regulation towards understanding how diabetic conditions and pollutant exposure affects endothelial miRNA content and the consequent changes in protein expression levels and cellular function.
NEW FACULTY APPOINTMENTS (Adjunct appointments)

James A. Blank, Adjunct Associate Professor of Pharmacology and Toxicology; PhD, Pharmacology and Toxicology, University of Louisville School of Medicine (1985).

Adrian J. Fretland, Adjunct Assistant Professor of Pharmacology and Toxicology; PhD, Pharmacology and Toxicology, University of Louisville School of Medicine (2000).

Kristin J. Metry-Baldauf, Adjunct Assistant Professor of Pharmacology and Toxicology; PhD, Pharmacology and Toxicology, University of Louisville School of Medicine (2007).

Eric M. Vela, Adjunct Assistant Professor of Pharmacology and Toxicology; PhD, Virology and Gene Therapy, University of Texas Health Sciences Center at Houston (2005).

APPOINTMENTS (administration)

J. Christopher States was appointed Interim Associate Dean for Research in the School of Medicine.

FACULTY TRANSFER

Dr. Jian Cai transferred his primary appointment as Assistant Professor from the Department of Pharmacology and Toxicology to the Department of Medicine (Division of Nephrology) with an associate appointment in the Department of Pharmacology and Toxicology.

FACULTY DEATHS

Scharff, Thomas G., Professor Emeritus; Ph.D., University of Rochester (1956).

FACULTY RETIREMENTS

W. Glenn McGregor, MD
Professor Glen McGregor retired and was appointed Adjunct Professor.
FACULTY RESIGNATIONS

Richard E. Goldstein, MD, PhD
Professor of Surgery and Professor of Pharmacology and Toxicology
vonRoenn Family Chair in Surgical Endocrinology

FACULTY HONORS

- **Juliane Arteel** received a perfect score (10) on her NIH K01 research grant application (Craig McClain, mentor)

- **Juliane Arteel** received the President’s Choice Award, AASLD 63rd annual meeting, Boston, MA

- **Juliane Arteel** received a Travel Award, to the 7th International Symposium on ALPD, Beijing, China

- **Ramesh Gupta** received the 2012 Distinguished Faculty Award in Research – Basic and Applied Sciences, University of Louisville

- **Ramesh Gupta** received special recognition and welcome by the House of Representatives of the Commonwealth of Kentucky

- **Ramesh Gupta** was recognized by the the Office of the President for his patent on polymeric uterine cervical implants

- **Kenneth Palmer** was promoted to professor with tenure.

- Distinguished university scholar appointments were renewed for **David Hein** and **Chris States**.
Akshata Moghe (Shirish Barve, mentor) received the Guy Stevenson Award presented to a doctoral degree recipient who excels in scholarship, leadership, and other areas within his or her discipline. The recipient carries the graduate school banner at commencement ceremonies and addresses the assembly during the Doctoral Hooding and Graduation Ceremony.

Lori M. Millner (David Hein, mentor) received the KC Huang Outstanding Graduate Student Award.

Robin Schmidt (Gavin Arteel, mentor) was selected as presidential poster of distinction, AASLD annual meeting, Boston, MA

Dominique Jones (La Creis Kidd, mentor) received a three year Southern Regional Education Board Doctoral Scholars Award.

Amanda Lasnik (Ken Palmer, mentor) was awarded a full cost scholarship for attending the International Microbicides Conference in Sydney, Australia. Elaina Chambers (Shirish Barve, mentor) was awarded a travel award and a student achievement award from the SOT Biotechnology Specialty Section. Akshata Moghe, Madhuvanti Patil (Shirish Barve, mentor) and Carmine Leggett (David Hein, mentor) received travel awards from ASPET to attend the annual Experimental Biology meeting in San Diego.

Colins Eno (Chi Li, mentor) was selected and received a travel award to present his research at the Seventh Annual NIH National Graduate Student Research Conference.

Doug Safari (Chris States, mentor) received the 1st place undergraduate award at the Cancer Education Research Program, at Research!Louisville
FACULTY WITH PRIMARY APPOINTMENTS

Gavin E. Arteel, PhD
Professor and Associate Chair for Research
Ph.D., Toxicology, University of North Carolina-Chapel Hill (1997).
Research Interests: Mechanisms of oxidative stress; mechanisms of alcohol-induced hepatitis, pancreatitis, and hepatocellular carcinoma.

Juliane I. Arteel, PhD (Juliane Beier in professional publications)
Assistant Professor of Pharmacology & Toxicology
Ph.D., Biochemistry and Molecular Biology, Heinrich-Heine-Universität (2005)
Research Interests: Interactions of diet and environmental toxins in the production of non-alcoholic fatty liver disease.
Frederick W. Benz, PhD
Professor
Ph.D., Pharmacology, University of Iowa (1970).

Research Interests: Biochemical pharmacology and toxicology; biochemical mechanisms of drug action and toxicity.

Brian P. Ceresa, PhD
Associate Professor of Pharmacology & Toxicology
PhD, Pharmacology, Vanderbilt University (1995)

Research Interests: Membrane trafficking and signaling of the epidermal growth factor receptor (EGFR). The EGFR is overexpressed and hyperactivated in many cancers. Our goal is to better understand how signaling by this receptor is regulated with the goal of attenuating its signaling in cancer.
Theresa S. Chen, PhD
Professor
Ph.D., Pharmacology, University of Louisville (1971).

**Research Interests:** Biochemical toxicology; role of glutathione in aging toxicology; general and specific toxicity of environmental pollutants.

Keith R. Davis, PhD
Professor
Ph.D., Molecular, Cellular and Developmental Biology, University of Colorado (1985)

**Research Interests:** Development of plant-made pharmaceuticals, activation of gene expression by oxidative stress, and the role of innate immunity in cancer initiation and progression.
**Ramesh C. Gupta, PhD**
Professor and Agnes Brown Duggan Chair of Oncological Research
Ph.D. Analytical/Physical Chemistry, University of Roorkee (1972)

**Research Interests:** Development and identification of intermediate biomarkers to investigate etiology and prevention of human cancers resulting from both environmental and endogenous exposures.

**David W. Hein, PhD**
Professor and Peter K. Knoefel Chair of Pharmacology and Toxicology
Ph.D., Pharmacology, University of Michigan (1982).

**Research Interests:** Molecular pharmacogenetics; molecular epidemiology; functional genomics; genetic predisposition to chemical carcinogenesis and drug toxicity; molecular genetics; environmental toxicology.
Harrell E. Hurst, PhD  
Professor  
Ph.D., Toxicology, University of Kentucky (1978).

**Research Interests:** Analytical toxicology and kinetics with emphasis on qualitative and quantitative techniques, including gas chromatography, high pressure liquid chromatography and GC/mass spectrometry.

Y. James Kang, PhD  
Professor  
Ph.D., Cell Biology and Zoology, Iowa State University (1989).

**Research Interests:** Molecular and cardiac toxicology. Transgenic and knock-out animal models to study oxidative injury and antioxidant systems in the heart. Biological functions and toxicological significance of metallothionein and glutathione in vivo.
La Creis R. Kidd, PhD, MPH  
Associate Professor and Our Highest Potential Endowed Chair in Cancer Research  
Ph.D., Toxicology, Massachusetts Institute of Technology (1997).  

Research Interests: Gene-gene and gene-environmental interactions; polymorphic xenobiotic metabolizing enzymes and prostate cancer susceptibility; cancer health disparities.

Igor S. Lukashevich, MD, PhD, DSc  
Professor of Pharmacology & Toxicology  
M.D., Minsk Medical Institute, Belaris (1973);  
Ph.D., Institute of Virology, Academy of Medical Science, Moscow Russia (1976);  
D.Sc., Institute of Virology, Academy of Medical Science, Moscow Russia (1987)

Research Interests: Novel vaccine technologies (virus-like-particle vectors; reassortant vaccines, infectious DNA vaccination); molecular biology and pathogenesis of viral hemorrhagic fevers.
Nobuyuki Matoba, PhD
Assistant Professor
Ph.D., Applied Life Sciences, Kyoto University, Japan (2001).

Research Interests: Development of vaccines and antivirals, mucosal immune response to foreign substances, and plant biotechnology for human health.

Steven R. Myers, PhD
Associate Professor
Ph.D., Pharmacology, University of Kentucky (1986).

Research Interests: Drug metabolism, metabolism of xenobiotics and chemical carcinogens; use of hemoglobin as biomarker in exposure to xenobiotics.
Donald E. Nerland, PhD
Professor
Ph.D., Medicinal Chemistry, University of Kansas (1974).

**Research Interests:** Biochemical toxicology; metabolism of drugs and environmental pollutants.

Kenneth E. Palmer, PhD
Professor
Ph.D., Microbiology, University of Cape Town (1997)

**Research Interests:** Development of vaccines and antiviral proteins to prevent and treat viral diseases that predispose people to development of cancer.
William M. Pierce Jr, PhD
Professor and Executive Vice President for Research and Innovation
Ph.D., Pharmacology and Toxicology, University of Louisville (1981).

**Research Interests:** Mechanisms of bone formation and resorption; design of novel drugs for management of osteoporosis; biomolecular mass spectrometry; proteomics in structural biology.

Peter P. Rowell, PhD
Professor and Vice Chair for Graduate Education
Ph.D., Pharmacology and Therapeutics, University of Florida (1975).

**Research Interests:** Neuropharmacology; effect of drugs on brain neurotransmitters and receptors.
Uma Sankar, PhD  
Assistant Professor  
Ph.D., Molecular, Cellular, and Developmental Biology, Ohio State University (2003).  

**Research Interests:** Role of calcium/calmodulin-dependent protein kinase signaling in hematopoietic stem cell biology and cancer.

Zhao-Hui (Joe) Song, PhD  
Professor  
Ph.D., Pharmacology, University of Minnesota (1992).  

**Research Interests:** Molecular pharmacology; cloning and functional characterization of novel G protein-coupled receptors; molecular mechanisms of action and structure-function relationships of cannabinoid (marijuana) receptors.
J. Christopher States, PhD
Professor and Graduate Director: Recruitment and Admissions
Ph.D., Molecular Biology and Pathology, Albany Medical College/Union University (1980).

Research Interests: Molecular biology and molecular genetics of DNA damage and repair in humans; mechanisms of chemoresistance; arsenic toxicity and cell cycle disruption.

Walter M. Williams, MD, PhD
Professor
Ph.D., Pharmacology, University of Louisville (1970); M.D., University of Louisville (1974).

Research Interests: Studies of drug elimination (metabolism and excretion).
FACULTY WITH JOINT APPOINTMENTS

George R. Aronoff, MD
Professor of Medicine and Professor of Pharmacology and Toxicology
M.D., Indiana University (1975).

Research Interests: Effects of uremia on drug disposition in humans; drug nephrotoxicity and renal drug metabolism, artificial intelligence.

Shirish Barve, PhD
Professor of Medicine and Professor of Pharmacology and Toxicology
Ph.D., Molecular Pathogenesis, University of Kentucky (1990).

Research Interests: Effects of alcohol on molecular mechanisms of cytokine action, gene expression and liver injury.
Aruni Bhatnagar, PhD
Professor of Medicine and Professor of Pharmacology and Toxicology
Ph.D., Chemistry, University of Kanpur (1985).

Research Interests: Cardiovascular toxicology; oxidative mechanisms of cardiovascular disease; lipid peroxidation in atherosclerosis; gene expression; secondary complications of diabetes.

Haribabu Bodduluri, PhD
Professor of Microbiology & Immunology and Professor of Pharmacology & Toxicology

Research Interests: Signal transduction and chemoreceptors. Role of leukotriene receptors in inflammation and host response.
Jason A. Chesney, MD, PhD
Associate Professor of Medicine and Associate Professor of Pharmacology and Toxicology
Ph.D., Biomedical Sciences/Immunology, University of Minnesota (1997)
M.D., University of Minnesota (1998).

Research Interests: Novel regulators of cancer cell metabolism; identification of emerging viruses and the development of immune-based therapies against widely metastatic cancers.

Albert R. Cunningham, PhD
Associate Professor of Medicine and Associate Professor of Pharmacology and Toxicology
Ph.D., Environmental and Occupational Health, University of Pittsburgh (1998)

Research Interests: Structure-Activity Relationship Modeling: Carcinogens, Chemotherapeutics, and Molecular Targets.
John W. Eaton, PhD
James Graham Brown Professor of Medicine and Professor of Pharmacology & Toxicology
Ph.D., Biological Anthropology and Human Genetics, University of Michigan (1969).

Research Interests: Biological oxidation/reduction reactions with special emphasis on inflammatory diseases and neoplasia.

Paul N. Epstein, PhD
Professor of Pediatrics and Professor of Pharmacology and Toxicology
Carol B. McFerran Chair in Pediatric Diabetes Research
Ph.D., Pharmacology, Baylor College of Medicine (1981).

Research Interests: Molecular mechanisms of diabetogenesis. The use of transgenic animals to study genetics and molecular mechanisms in vivo.
Richard E. Goldstein, MD, PhD
Professor of Surgery and Professor of Pharmacology and Toxicology
vonRoenn Family Chair in Surgical Endocrinology
M.D., Thomas Jefferson University (1982)
Ph.D., Molecular Physiology and Biophysics, Vanderbilt University School of Medicine (1994).

**Research Interests:** Surgical endocrinology; surgical oncology.

Evelyne Gozal, PhD
Associate Professor of Pediatrics and Associate Professor of Pharmacology and Toxicology
Ph.D., Toxicology, University of Southern California (1997).

**Research Interests:** Signal transduction pathways involved in neuronal cell survival and neuronal cell death during hypoxia; cellular mechanisms underlying brain adaptation to chronic and intermittent hypoxia; identification of the kinases and transcription factors activated by hypoxia, leading to gene induction and to adaptation to oxygen deprivation.
Theo Hagg, MD, PhD
Professor & Endowed Chair of Neurological Surgery and Professor of Pharmacology & Toxicology
M.D., University of Leiden (1985)
Ph.D., Neurosciences, University of California-San Diego (1998)

Research Interests: Neurotrophic factor receptors and endogenous stem cells as drug targets to develop repair strategies for neurological disorders, including spinal cord injury.

Michal Hetman, MD, PhD
Associate Professor of Neurological Surgery and Pharmacology and Toxicology
Endowed Professor of Molecular Signaling
M.D., Warsaw Medical School (1994)
Ph.D., Experimental and Clinical Medicine, Polish Academy of Sciences (1997)

Research Interests: Role of signaling kinases in neuronal repair and demise.
Brad B. Keller, MD
Professor of Pediatrics, Pharmacology and Toxicology, and Bioengineering Kosair Charities Chair and Chief, Division of Pediatric Heart Research
M.D., Pennsylvania State University (1985)

Research Interests: Cardiovascular bioengineering: Development of 3D tissues for heart repair and regeneration

Chi Li, PhD
Assistant Professor of Medicine and Assistant Professor of Pharmacology and Toxicology
Ph.D, Molecular Biology, Columbia University (1998)

Research Interests: Mechanisms of apoptotic pathways initiated from different intracellular organelles. Molecular and cellular mechanisms that affect inflammation and immunity.
Craig J. McClain, MD  
Professor of Medicine and Professor of Pharmacology and Toxicology  
M.D., University of Tennessee-Memphis (1972)  

Research Interests: Role of cytokines in liver injury and other forms of hepatotoxicity, interactions with nutrition and toxicology.

Kelly M. McMasters, MD, PhD  
Sam and Lolita Weakley Endowed Professor of Surgical Oncology  
Professor of Pharmacology and Toxicology  
Ph.D., Cell and Developmental Biology, Rutgers University (1988)  
M.D., University of Medicine and Dentistry of New Jersey (1989)  

Donald M. Miller, MD, PhD
James Graham Brown Professor of Medicine Professor of Pharmacology and Toxicology
M.D., Duke University (1973); Ph.D., Biochemistry, Duke University (1973)

Research Interests: Molecular and clinical oncology; modulation of oncogene expression; triplex DNA based gene therapy; treatment of melanoma.

M. Michele Pisano, PhD
Professor of Molecular, Cellular and Craniofacial Biology
Professor of Pharmacology and Toxicology
Ph.D., Anatomy, Thomas Jefferson University (1985)

Research Interests: Molecular developmental toxicology; gene-environment interactions in normal and abnormal embryonic development; growth factor directed cellular signal transduction in embryonic cell growth and differentiation.
George C. Rodgers, MD, PhD
Professor of Pediatrics and Professor of Pharmacology and Toxicology
Humana Chair of International Pediatrics
Ph.D., Organic Chemistry, Yale University (1964); M.D., State University of New York (1975).

Research Interests: Toxicokinetics in drug overdoses and pharmacokinetics in pediatric disease states.

Jesse Roman, MD
Professor and Chair of Medicine and Professor of Pharmacology and Toxicology
M.D., University of Puerto Rico School of Medicine (1983)

Research Interests: Extracellular matrices and integrin receptors in lung development, injury, and repair; Role of nicotinic acetylcholine receptors and control of matrix expression in lung; Lung tissue remodeling in tobacco- and ethanol-related lung disorders; Control of lung carcinoma growth by extracellular matrices
Janice E. Sullivan, MD
Professor of Pediatrics and Professor of Pharmacology and Toxicology
M.D., University of Minnesota (1988)

Research Interests: Clinical pharmacology with a focus on developmental pharmacokinetics and pharmacodynamics.

Brian (Binks) W. Wattenberg, PhD
Associate Professor of Medicine and Associate Professor of Pharmacology & Toxicology
Ph.D., Biological Chemistry, Washington University (1981)

Research Interests: Sphingosine-kinase and lipid signaling. Trafficking of tail-anchored proteins.
**Hong Ye, PhD**  
Associate Professor of Medicine and Associate Professor of Pharmacology and Toxicology  
Ph.D., Biophysics, Keele University (1998)

**Research Interests:** Research to understand the structure and mechanism of tumorigenesis, with focus on Notch signaling pathway and chromosome DNA damage. X-ray crystallography, in combination with other biochemical and biophysics methods to understand the function of various molecular complexes.

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**Wolfgang Zacharias, PhD**  
Professor of Medicine and Professor of Pharmacology and Toxicology  
Ph.D., Biochemistry, Philipps-University, Marburg, Germany (1980)

**Research Interests:** Ribozymes for gene therapy in rheumatoid arthritis; involvement and roles of cathepsins in oral cancers; gene expression profiling with DNA microarray chip technology.
V. FACULTY WITH ASSOCIATE APPOINTMENTS

Levi J. Beverly, PhD
Assistant Professor of Medicine (Division of Hematology and Oncology)

Research Interests: Regulation of anti-apoptotic proteins in cancer progression and treatment

Michael E. Brier, PhD
Professor of Medicine
Ph.D., Industrial and Physical Pharmacy, Purdue University (1986).

Research Interests: Clinical pharmacokinetics/dynamics; Drug dosing in renal failure
Guy N. Brock, PhD  
Associate Professor of Bioinformatics and Biostatistics  
PhD. Statistics, University of New Mexico (2003)

Research Interests: Methodological research in statistical bioinformatics and statistical genetics, with emphasis on cluster validation, missing value imputation, and classification for high-throughput data. Main areas of clinical and collaborative research include transplantation, liver disease, community acquired pneumonia, genetic variants related to breast and prostate cancer, and the molecular determinants of developmental defects during the neural tube and secondary palate formation.

Jian Cai, PhD
Assistant Professor
Ph.D., Pharmacology and Toxicology, University of Louisville (1999).

Research Interests: Application of mass spectrometry in biomedical research. Drug and metabolite identification and quantification. Protein identification and post-translational modification. Hemoglobin adducts as biomarkers of chemical exposure and pathogenesis.
Lu Cai, MD, PhD
Associate Professor of Pediatrics and Radiation Oncology
Ph.D., Radiation Biology/Oncology, Norman Bethune University of Medical Sciences (1987)

Research Interests: Diabetic cardiomyopathy and nephropathy

Matthew C. Cave, MD
Assistant Professor of Medicine (Division of Gastroenterology, Hepatology, and Nutrition)
M.D., University of Kentucky (2001)

Research Interests: Steatohepatitis and liver cancer related to environmental and occupational chemical exposures; Complementary and alternative medicine in liver disease; Alcoholic and nonalcoholic fatty liver disease; Treatment of Hepatitis C.
Daniel J. Conklin, PhD
Associate Professor of Medicine (Cardiology)
Ph.D., University of Notre Dame (1995).

**Research Interests:** Environmental cardiology; cardiovascular toxicology

Teresa Whei-Mei Fan, PhD
Professor of Chemistry
Ph.D., Biochemistry, University of California-Davis (1983)

**Research Interests:** Metabolomics, proteomics, ecotoxicology, contaminant bioavailability, transport, biotransformation, and bioremediation
Wenke Feng, PhD
Assistant Professor of Medicine (Division of Gastroenterology, Hepatology, and Nutrition)
Ph.D, Biochem/Biotech, University for Bodenkultur, Vienna, Austria (1998)

Research Interests

- Mechanisms of alcoholic liver disease
- Mechanisms of nonalcoholic steatohepatitis
- Tissue hypoxia and diabetic complications

Hermann B. Frieboes, PhD
Assistant Professor of Bioengineering

Research Interests: 1) Develop and apply realistic, predictive biocomputational models integrated with clinical and laboratory data to study cancer growth and treatment; 2) Design of patient-specific therapies; and 3) Design of multiscale biocomputational models to describe the complex interaction between cancer treatment and the immune system.
Yiru Guo, PhD
Associate Professor of Medicine (Division of Cardiovascular Medicine)

Research Interests: Cardio-thoracic and vascular surgery, physiology, and pharmacology. Research focuses on: (i) elucidating the mechanisms of ischemic- pharmacologic- and exercise-induced preconditioning by using the ischemia/reperfusion model in genetically engineered animals, (ii) studying protection of ischemic myocardium by using gene and/or cell therapy, and (iii) elucidating adaptations to ischemia/reperfusion injury in the aging heart.

Ben Jenson, MD
Professor and Senior Scientist, James Graham Brown Cancer Center
M.D., Baylor College of Medicine (1966)

Research Interests: Translational immunology: humoral responses to prevent infection by papillomavirus.
Steven P. Jones, PhD  
Associate Professor of Medicine (Division of Cardiovascular Medicine)  

**Research Interests:** Metabolic signaling in the cardiovascular system

Colleen B. Jonsson, PhD  
Professor of Microbiology and Immunology  

**Research Interests:** Molecular virology of emerging negative-strand RNA viruses; natural history, ecology, evolution and treatment.
Swati Joshi-Barve, PhD
Assistant Professor of Medicine (Division of Gastroenterology, Hepatology, and Nutrition)
Ph.D., Biochemistry, University of Kentucky (1992)

**Research Interests**

- Mechanisms of Steatohepatitis (nonalcoholic and alcoholic fatty liver disease)
- Mechanisms of Alcohol-induced Immune Dysfunction
- Mechanisms of Hepatocellular Carcinoma

Lacey R. McNally, PhD
Assistant Professor of Medicine (Division of Hematology and Oncology)
PhD, Veterinary Medical Science, Louisiana State University (2004)

**Research Interests**

- Metastasis suppressors, such as KISS1, as a method for preventing and treating metastatic pancreatic and ovarian cancers
- Mechanisms of chemotherapy resistance and alternative treatment for macro-metastasis and recurrence in ovarian and prostate cancers
- Mechanisms involved in organ specific metastasis of pancreatic, prostate, and breast cancers
Chin K. Ng, PhD
Associate Professor of Radiology and Associate Professor of Pharmacology and Toxicology
Ph.D., Medical Physics, University of Wisconsin (1989)

Research Interests: Development, evaluation, and kinetic studies of radiopharmaceuticals; the use of molecular imaging for biomedical research.

Timothy E. O’Toole, PhD
Assistant Professor of Medicine (Division of Cardiovascular Medicine)
PhD., Biological Chemistry, University of Michigan (1987)

Research Interests
- Function and regulation of the endothelium in various disease states. Role of miRNA in endothelial regulation towards understanding how diabetic conditions and pollutant exposure affects endothelial miRNA content and the consequent changes in protein expression levels and cellular function.
David A. Scott, PhD
Associate Professor of Periodontics, Endodontics & Dental Hygiene
Ph.D., Microbiology and Immunology, McGill University (1997)

Research Interests: Tobacco-induced alterations to microbial-associated molecular patterns of Porphyromonas gingivalis; Tobacco-induced alterations to innate-pathogen interactions; Tobacco alkaloid amplification of endogenous anti-inflammatory pathways; Identification of gingivitis- and periodontitis-specific infrared molecular signatures

David J. Tollerud, MD
Professor and Chair of Environmental and Occupational Health Sciences
M.D., Mayo Medical School (1978); M.P.H., Harvard Medical School (1990)

Research Interests: Occupational and environmental health; Occupational toxicology; molecular epidemiology.
Walter H. Watson, PhD
Assistant Professor of Medicine (Division of Gastroenterology, Hepatology and Nutrition)

Research Interests:

Oxidative stress and redox signaling; Mechanistic toxicology; Alcoholic and nonalcoholic fatty liver disease.

Faculty with Emeritus Appointments

- **Carr, Laurence A.**, Professor Emeritus; Ph.D., Michigan State University (1969).
- **Dagirmanjian, Rose**, Professor Emerita; Ph.D., University of Rochester (1960).
- **Darby, Thomas D.**, Adjunct Professor Emeritus; Ph.D., Medical College of South Carolina (1957).
- **Jarboe, Charles H.**, Professor Emeritus; Ph.D., University of Louisville (1956).
- **Waddell, William J.**, Professor and Chair Emeritus; M.D., University of North Carolina (1955).

Faculty with Adjunct Appointments

- **James A. Blank**, Adjunct Associate Professor of Pharmacology and Toxicology; PhD, Pharmacology and Toxicology, University of Louisville School of Medicine (1985).
- **Adrian J. Fretland**, Adjunct Assistant Professor of Pharmacology and Toxicology; PhD, Pharmacology and Toxicology, University of Louisville School of Medicine (2000).
- **John C. Lipscomb**, Adjunct Associate Professor of Pharmacology and Toxicology; PhD, Pharmacology and Toxicology, University of Arkansas for Medical Sciences (1991).
- **W. Glenn McGregor**, Adjunct Professor of Pharmacology and Toxicology, MD, University of Michigan (1976)

- **Kristin J. Metry-Baldauf**, Adjunct Assistant Professor of Pharmacology and Toxicology; PhD, Pharmacology and Toxicology, University of Louisville School of Medicine (2007).

- **Eric M. Vela**, Adjunct Assistant Professor of Pharmacology and Toxicology; PhD, Virology and Gene Therapy, University of Texas Health Sciences Center at Houston (2005)

- **Yang Wang**, Adjunct Associate Professor of Pharmacology and Toxicology; MD., Jiangxi Medical College (1982); PhD, Physiology, University of Toronto (1993)

### Office Staff

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<tr>
<th>Name</th>
<th>Position</th>
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<tbody>
<tr>
<td>Carpenter, Sharon</td>
<td>Administrative Assistant</td>
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<tr>
<td>Greca, Edie</td>
<td>Unit Business Manager</td>
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<tr>
<td>McClain, Marion</td>
<td>Research Facilitator (Primary appointment in Department of Medicine; Part time in Department of Pharmacology and Toxicology)</td>
</tr>
<tr>
<td>Rubin-Teitel, Heddy</td>
<td>Administrative Assistant</td>
</tr>
<tr>
<td>Tatum, Shiloh</td>
<td>Unit Business Manager (Primary appointment in Department of Medicine; Part time in Pharmacology and Toxicology)</td>
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### Graduate Students

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<tr>
<td>Adcock, Scott</td>
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<td>Al-Eryani, Laila</td>
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<td>Baldauf, Keegan</td>
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<td>Barton, Chris</td>
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<td>Belhoff, Alex</td>
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<td>Carlisle, Samantha</td>
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<td>Chambers, Elana</td>
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<td>Chen, Wei Yang (Jeremy)</td>
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</table>
Cheng, Pei-Hsin (Penny)
Donde, Hridgandh
England, Christopher
Eno, Colins
Fioret, Daniel
Greenwell, Caleb
Hallgren, Justin
Holz, Gretchen
Jackson, Nicole
Jones, Dominique
Kumar, Pritesh
Lasnik, Amanda
Leggett, Carmine
Massey, Veronica
McAllister, Ryan
Moghe, Akshata
Patil, Madhuvanti
Pritchard, Zachary
Schmidt, Robin
Shidal, Christopher
Skibba, Melissa
Stepp, Marcus
Vicary, Glenn
Wahlang, Banrida
Wechman, Stephen
Wu, Huihui

**2012 Graduates**

<table>
<thead>
<tr>
<th>Graduate</th>
<th>Degree</th>
<th>Mentor</th>
<th>Dissertation/Thesis Title</th>
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<tbody>
<tr>
<td>Veronica Massey</td>
<td>M.S.</td>
<td>Gavin E. Arteel, Ph.D.</td>
<td>Integrin inhibitor cyclorgdfv blunts enhanced LPS-induced liver injury caused by ethanol in mice</td>
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<tr>
<td>Name</td>
<td>Degree</td>
<td>Advisors</td>
<td>Research Area</td>
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<td>Keegan J. Baldauf</td>
<td>M.S.</td>
<td>Gavin E. Arteel, Ph.D.</td>
<td>Acetaldehyde dehydrogenase 2 (ALDH2) activation protects hepatocytes from mitochondrial damage and death caused by 4-hydroxynonenal</td>
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<td>Madhuvanti Patil</td>
<td>Ph.D.</td>
<td>Shirish Barve, Ph.D.</td>
<td>The role of the transmethylation pathway in the regulation of cell death in leukemic CD4+ T cells</td>
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<td>Colins O. Eno</td>
<td>Ph.D.</td>
<td>Chi Li, Ph.D.</td>
<td>The role of endogenous Bcl-xL in regulation of apoptotic signaling pathways</td>
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<tr>
<td>Akshata Moghe</td>
<td>Ph.D.</td>
<td>Shirish Barve, Ph.D.</td>
<td>Role of chromatin remodeling in curcumin-mediated regulation of gene expression in hepatocellular carcinoma</td>
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<td>Carmine S. Leggett</td>
<td>Ph.D.</td>
<td>David W. Hein, Ph.D.</td>
<td>Role of human arylamine N-acetyltransferase in carcinogen metabolism and human breast cancer progression</td>
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<tr>
<td>Name</td>
<td>Degree</td>
<td>Advisor</td>
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<td>Daniel Fioret</td>
<td>M.S.</td>
<td>Jesse Roman, M.D.</td>
<td>Idiopathic pulmonary fibrosis: Diagnosis, management, and the search for a cure</td>
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<td>Tareq Al-Maqtari</td>
<td>M.S.</td>
<td>Uma Sankar, Ph.D.</td>
<td>Approaches in the treatment of Parkinson's disease: A focus on stem cell-based therapies</td>
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<td>Banrida Wahlang</td>
<td>M.S.</td>
<td>Matthew Cave, M.D.</td>
<td>Polychlorinated biphenyl 153 exacerbates nonalcoholic fatty liver disease in C57BL/6 mice</td>
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<td>Huihui Wu</td>
<td>M.S.</td>
<td>Al Cunningham, Ph.D.</td>
<td>Structure-activity relationship model for estrogen receptor ligands</td>
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<td>Elaina Marie Chambers</td>
<td>Ph.D.</td>
<td>Shirish Barve, Ph.D.</td>
<td>The role of phosphodiesterase 4 in diabetic inflammation</td>
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</table>
2012 Entering Class of Graduate Students

Laila Al-Eryani
B.Sc., Pharmacy, Sana’a University, Sana’a, Yemen

April Aloway
B.S., Chemistry, St. Xavier University, Chicago M.S., Biology, Roosevelt University, Chicago

Samantha Carlisle
B.S., Chemistry, conc. Biology, University of Louisville

Gretchen Holz
B.A., English & Gender Studies, Indiana University
Nicole Jackson  
B.A., Chemistry, Cheyney University of Pennsylvania

Zachary Pritchard  
B.S., Environmental Science and Ecology, Sierra Nevada College

Melissa Skibba  
B.S., Chemistry, conc. forensic science; Carroll University

Postdoctoral Fellows

Farrukh Aqil  
Juliane Arteel  
Katie Bourcy  
Bharat Kumar Devapatla  
Krystal Teasley Hamorsky  
Junichi Inaba  
Calvin Kouokam  
Akhilesh Kumar  
Radha Munagala  
Wendy Spencer  
Saleha Vuyyuri  
Tiffany Grooms-Williams
Pharmacology and Toxicology Publications
Faculty with Primary Appointments and Students (students highlighted)


5. Arteel GE. Beyond reasonable doubt: who is the culprit in lipotoxicity in NAFLD/NASH?. Hepatology, 55:2030-2032, 2012


52. Moktar A, Ravoori S, Vadhanam MV, Pan J, Rai SN, Jenson AB, Parker LP & Gupta RC. Vaginal cells of smokers are more resistant to human papillomavirus infection than that of non-smokers. Experimental & Molecular Pathology. 93(3) 422-427, 2012.

53. Muenyi CS, Pinhas AR., Fan TW, Brock GN, Helm CW, States JC. Sodium arsenite ± hyperthermia sensitizes p53 expressing human ovarian cancer cells to cisplatin by modulating


Pharmacology and Toxicology Abstracts
Faculty with Primary Appointments and Students (Students highlighted)

Arteel:
National/International

Local/Regional


**Beier:**

**National/International**


**Local/Regional**


**Benz:**


Cai:

Ceresa:
1. Peterson, J.L., Phelps, E.D., Ceresa, B.P. The Molecular Mechanism behind Betacellulin Induced Corneal Epithelial Wound Healing, Federation of the American Society of Experimental Biology, April 2012
3. Peterson, J.L., Phelps, E.D., Ceresa, B.P. The Molecular Mechanism behind Betacellulin Induced Corneal Epithelial Wound Healing, Research! Louisville, Sept 2012

Chen:
1. Song M et al., Chronic alcohol drinking exacerbates liver injury in high fructose diet fed mice. *Digestive Disease Week* 2012 (Control ID: 1299458)
2. Song :M et al., Low fructose beverage consumption impairs copper status and causes liver injury and fat accumulation in marginal copper deficient rats. *Hepatology* 2012(ID # 1420694)
3. Song et al., Kupffer cells depletion eliminates high fructose induced fatty liver in marginal copper deficient rats. *Hepatology* 2012
5. Oz H and Chen, T. Green tea polyphenols and sulfasalazine hve parallel anti-inflammatory properties in colitis models. *Digestive Disease Week* 2012 (ID 1594836)

Gupta:


7. Sharma R, Bansal AK, Gupta RC, Singh IP. Stability Studies of anthocyanins in crude extract of fruit pulp of *Eugenia jambolana* (‘Jamun’). H. Color’ Therapy – Berry anthocyanidins as potential drug for cancer treatment, 3rd Annual Conference of Natural Products, S.A.S. Nagar, NIPER, November 22-24, India.

**Hein:**


**Hurst:**


**Kidd:**

**National:**


**Local:**

1. Divine Anene, **Dominique Jones**, **April Aloway**, Praise Anene, **Diana Avila**, Leila Gobejishvili, Shirish Barve, Lacey McNally and **LaCreis Kidd**. Are Cell Adhesion Associated Micro-RNAs Linked With Metastatic Prostate Cancer? The Kentucky Honors Roundtable, Murray State University, Murray, Kentucky, October 27, 2012. *(Outcome for NCI R25 Cancer Education Grant)*

2. **Dominique Jones**, Divine Anene, **April Aloway**, Praise Anene, **Diana Avila**, Leila Gobejishvili, Shirish Barve, Lacey McNally and **LaCreis Kidd**. Potential micro-RNA Biomarkers Associated with Cell Migration and Metastasis. James Graham Brown Cancer
3. Christina Hickey, David W. Hein, La Creis R. Kidd. Examination of combined effects of well-done red meat, smoking, and rapid N-acetyltransferase 1 and 2 on breast cancer susceptibility, James Graham Brown Cancer Center Retreat, Louisville, Kentucky, October 3, 2012. (Outcome for NCI R25 Cancer Education Grant)


5. April Aloway, Dominique Jones, Divine Anene, Praise Anene, Diana Avila, Leila Gobejishvili, Shirsh Barve, Lacey McNally and LaCreis Kidd. Cell Survival miRNAs (29a, 29c, and 221) and Pre-metastatic Prostate Cancer? Research Louisville!, Louisville, Kentucky, August 24, 2012. (Outcome for NCI R25 Cancer Education Grant)


7. Christina Hickey, David W. Hein La Creis R. Kidd. Examination of combined effects of well-done red meat, smoking, and rapid N-acetyltransferase 1 and 2 on breast cancer susceptibility, Research Louisville!, Louisville, Kentucky, August 24, 2012. (Outcome for NCI R25 Cancer Education Grant)

Lukashevich:


Matoba:


5. Grooms-Williams T*, Hamorsky KT, Bennett L, Husk A, Matoba N. “Synergistic activity profile of the broadly HIV neutralizing monoclonal antibody VRC01 in combination with other HIV inhibitors” James Graham Brown Cancer Center Retreat, October 2012, Louisville, KY.

6. Speer D*, Husk A, Matoba N. “Plant-based Production of Bi-specific HIV Inhibitor as Topical Microbicide” 2012 Kentucky Academy of Science Undergraduate Poster Presentation, October 19 – 20, 2012, Richmond, KY. – Mr. Speer, an undergraduate intern in my lab, received a Third Place award in the Molecular and Cellular Biology category.

7. Husk A*, Speer D, Matoba N. “Plant-based Production of Bi-specific HIV Inhibitor as Topical Microbicide” James Graham Brown Cancer Center Retreat, October 2012, Louisville, KY. – Mr. Husk, a research technologist in my lab, received a Second Place award.


Nerland:


Palmer:


**Sankar:**


2. Wilkerson DC, Cates J, Cary R and Sankar U. “Regulation of the Mitochondrial Fission GTPase Drp1 by the Sulfhydryl Oxidase GFER”. Research! Louisville, September 2012, Louisville, KY.


5. Wilkerson DC, Cates J, Cary R and Sankar U. “Regulation of the Mitochondrial Fission GTPase Drp1 by the Sulfhydryl Oxidase GFER”. 11\textsuperscript{th} Annual Brown Cancer Center Retreat, October 26, 2012, The Olmstead, Louisville, KY.


Won First Place in the Roving Award Category.

Song:


States:
1. States JC, France CA, Taylor BF, Tent JO. Targeting the anaphase promoting complex/cyclosome to inhibit cell cycle and to induce apoptosis. Abstract 2049, The Toxicologist CD—An official journal of the Society of Toxicology, Volume 126, Issue 1, March 2012


### Active Grants/contracts and other research activities

#### Faculty with Primary Appointments

**Arteel:**

<table>
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<tr>
<th>Agency/Number</th>
<th>Title</th>
<th>Role</th>
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<tr>
<td>RC2 AA019385</td>
<td>Biomarkers for Steatohepatitis</td>
<td>Co-I</td>
<td>McClain</td>
<td>09/30/09-08/31/12</td>
<td>$1,536,994</td>
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<td>R01 AA010154</td>
<td>TNFα and recovery from alcoholic liver injury</td>
<td>Subcon. PI</td>
<td>Diehl (Duke)</td>
<td>09/01/09-07/31/12</td>
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<td>T32 ES011564</td>
<td>UofL Environmental Health Sciences Training Program</td>
<td>Mentor</td>
<td>Hein</td>
<td>07/01/09-06/30/14</td>
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<td>P01 AA017103</td>
<td>Alcohol liver disease and alcohol-nutrient interactions</td>
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<td>McClain</td>
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<td>R01 AA003624</td>
<td>Control of drug and ethanol metabolism</td>
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<td>Arteel</td>
<td>05/02/06-10/30/12</td>
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<td>U01 AA021901</td>
<td>Novel therapies in alcoholic hepatitis University of Louisville</td>
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<td>R21 ES021311</td>
<td>Effect of dietary fat on the hepatotoxicity of environmental arsenic</td>
<td>Co-I</td>
<td>Watson</td>
<td>05/25/12–04/30/14</td>
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<td>UofL IRIG CEG</td>
<td>Role of ECM and inflammatory remodeling in alcohol-induced liver and lung damage</td>
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<td>Biomarkers of Exposure and Mechanism of Action of Toxic Industrial Chemicals (TICs)</td>
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<tr>
<td>R01 EY013813-</td>
<td>TNF-alpha in Cell Death &amp; Neuroprotection in</td>
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<td>8/07-7/12</td>
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<td>NIH/NIGMS R01GM092874</td>
<td>Endocytic Regulation of EGFR Signaling</td>
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<td>Modulation of EGFR Signaling to Promote Corneal Wound Healing</td>
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<td>DoD/USAMRMC W81XWH-09-2-0022</td>
<td>Development of Novel Vaccines and Therapeutics Using Plant-Based Expression Systems</td>
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<td>Donald Wilkerson</td>
<td>03/15/09 - 03/14/12 Currently in 1 yr no-cost extension</td>
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<td>Owensboro Grain</td>
<td>Development of Lunasin as a Chemoprevention Agent</td>
<td>PI</td>
<td>Keith Davis</td>
<td>05/01/2010 - 10/31/2013</td>
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<td>DoD/USAMRMC W81XWH-10-2-0082-CLIN 1</td>
<td>Plant-Based Expression Systems for New Vaccines and Therapeutics</td>
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<td>Donald Wilkerson</td>
<td>08/23/2010 - 08/22/2013</td>
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<td>Kentucky soybean</td>
<td>Continued Development of the Soybean-Derived Peptide Lunasin as an Anticancer Agent</td>
<td>PI</td>
<td>Keith Davis</td>
<td>7/1/2011 - 6/30/2012</td>
<td>$78,059</td>
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<td>DoD/USAMRMC W81XWH-10-2-0082-CLIN 2</td>
<td>Plant-Based Expression Systems for New Vaccines and Therapeutics</td>
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<td>9/30/2011 -10/29/2015</td>
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<td>Kentucky soybean Promotion Board</td>
<td>Continued Development of the Soybean-Derived Peptide Lunasin as an Anticancer Agent</td>
<td>PI</td>
<td>Keith Davis</td>
<td>7/1/2012 - 6/30/2013</td>
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<td>Kentucky Science and Engineering Foundation</td>
<td>Plant-Based Expression of an Alpha-1 Antitrypsin Biosimilar</td>
<td>PI</td>
<td>Keith Davis</td>
<td>7/1/2012 - 6/30/2013</td>
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**Gupta:**

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<td>NCI CA-118114</td>
<td>Breast Cancer Chemoprevention Strategies</td>
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<td>04/07 - 03/13</td>
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<td>NCI CA-125152</td>
<td>Breast Cancer Chemoprevention Potential of Common Spices</td>
<td>PI</td>
<td>Gupta</td>
<td>07/07 - 05/13</td>
<td>$1,406,000</td>
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<td>KY Lung Cancer Res. Board</td>
<td>Activation of the Par-4 Extrinsic Pathway for Suppression of Lung Cancer</td>
<td>PI</td>
<td>Gupta</td>
<td>12/10 - 11/13</td>
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<td>UofL CEG</td>
<td>Prevention &amp; Treatment Strategies for Lung Cancer Recurrence &amp; Metastasis</td>
<td>PI</td>
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<td>02/12 - 01/13</td>
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<td>R43-CA-162417</td>
<td>Sustained, Target Delivery for Treatment of Cervical Pathologies</td>
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<td>07/12 - 12/13</td>
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<td>NIH/NIEHS (T32-ES011564)</td>
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<td>NCI R25CA011564</td>
<td>University of Louisville Cancer Education Program</td>
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<td>NIEHS T35ES014559</td>
<td>Summer Environmental Health Sciences Training Program</td>
<td>Mentor</td>
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<td>04/01/2011 – 03/31/2016</td>
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<td>NIH (P30-</td>
<td>Center for Environmental Genomics and Integrative</td>
<td>Investigat</td>
<td>Ramos</td>
<td>06/04/2007 –</td>
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<td>ES014443)</td>
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<td>03/31/2012</td>
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<td>NCI Contract HHSN261201100383P</td>
<td>Study of Candidate Xenobiotic Metabolism Genes and Renal Cancer</td>
<td>PI</td>
<td>Hein</td>
<td>09/01/2011–08/30/2012</td>
<td>$7,913</td>
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**Hurst:**

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<td>NIH-NHLBI, 2R01 HL063760</td>
<td>Oxidative stress and heart failure by copper restriction</td>
<td>PI</td>
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<td>NIH, NIEHS T32-ES011564</td>
<td>UofL Environmental Health Science Training Program</td>
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<td>$1,999,550</td>
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<tr>
<td>R25-CA134283-01A1</td>
<td>University of Louisville Cancer Education Program</td>
<td>Co-I Cancer Education Coordinator Mentor</td>
<td>Hein</td>
<td>9/14/12-08/31/16</td>
<td>$1,560,990</td>
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### Lukashevich:

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<tr>
<td>NIH/R01 AI093450</td>
<td>Development of New Bivalent Cross-Protective Arenaviral Vaccines</td>
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<td>NIH/R43 AI094863 (SBIR)</td>
<td>Novel DNA-launched Attenuated Vaccine for VEE Virus</td>
<td>Co-PI</td>
<td>P. Pushko</td>
<td>03/01/2012-05/31/2013</td>
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<td>NIH/R43 AI094700 (SBIR)</td>
<td>Trivalent Arenaviral Vaccine Based on Virus-Like Particle Vectors (VLPVs)</td>
<td>Co-PI</td>
<td>P. Pushko</td>
<td>04/01/2012-07/30/2013</td>
<td>$56,213</td>
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<tr>
<td>NIH/R03 AI094159</td>
<td>A Novel DNA-launched Live Attenuated Chikungunya Vaccine</td>
<td>Co-PI</td>
<td>P. Pushko</td>
<td>03/01/2012-08/31/2013</td>
<td>$37,250</td>
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<td>NIH/R43 AI0889231 (SBIR)</td>
<td>Infectious DNA Vaccine for Yellow Fever</td>
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<td>P. Pushko</td>
<td>03/01/2012-10/31/2012</td>
<td>$19,223</td>
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### Matoba:

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<th>Project Period</th>
<th>Budget Award</th>
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<tr>
<td>NIH NIAID Microbicide Innovation Program V /R21/R33 AI088585</td>
<td>Plant-produced Actinohivin as a Candidate HIV Microbicide</td>
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<td>06/10/10 – 06/30/15</td>
<td>$1,175,000 (total direct costs)</td>
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<td>DoD/USAMRMC/ W81XWH-09-2-0022</td>
<td>Development of Novel Vaccines and Therapeutics Using Plant-Based Expression Systems</td>
<td>Member</td>
<td>Wilkerson</td>
<td>03/15/09 – 03/14/13</td>
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<td>DoD/USAMRMC/</td>
<td>Plant-Based Expression Systems for New Vaccines</td>
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<td>Wilkerson</td>
<td>08/23/2010 to</td>
<td>$390,000 (total</td>
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<tr>
<td></td>
<td>and Therapeutics</td>
<td>ct PI</td>
<td></td>
<td>08/22/2013</td>
<td>subproject</td>
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| DoD/USAMRMC/  | Plant-Based Expression Systems for New Vaccines and Therapeutics    | Subproje
| W81XWH-10-2- 0082- CLIN 1 | ct PI | Wilkerson | 9/30/2011 to 10/29/2015 | $1,748,000 (total direct costs) |
|               | UofL Office of the Vice President for Research IRIG                   |       |          |                        |                |
|               | Research Initiation Grant/50721                                      |       |          |                        |                |
|               | Prophylactic potential of plant-produced cholera toxin B subunits in experimental colitis | PI    |          | 06/01/11 – 11/30/12    | $5,000 (total direct costs) |
|               | Brown Cancer Center Helmsley Trust Program /G2142                   |       |          |                        |                |
|               | Immunotherapeutic potential of plant-made CTB against colitis and colon cancer | PI    |          | 07/18/11 – 07/17/13    | $170,000 (total direct costs) |
|               | UofL Office of the Vice President for Research IRIG                   |       |          |                        |                |
|               | Development of a recombinant entry/fusion-bispecific inhibitor toward a topical HIV-1 microbide. | PI    |          | 10/01/11 – 12/31/12    | $15,000 (total direct costs) |

Myers:

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<tr>
<td>Univ. of CA Tobacco-related Disease Research Prog/17RT-0138</td>
<td>Measuring prenatal tobacco exposure in newborn blood spots</td>
<td>Co-PI</td>
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<td>07/01/08 - 06/30/12</td>
<td>$506,927</td>
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### Palmer:

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<tr>
<td>National Institutes of Health/NIAID AI 076169</td>
<td>Antiviral lectins as microbicides</td>
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<td>Palmer</td>
<td>04/15/2008-12/31/2012</td>
<td>$1,760,728</td>
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<td>National Institutes of Health/NIAID AI 076169S1</td>
<td>Administrative supplement: Antiviral lectins as microbicides</td>
<td>PI</td>
<td>Palmer</td>
<td>07/01/2010-12/31/2012</td>
<td>$522,561</td>
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<td>Harry B and Leona M Helmsley Charitable Trust</td>
<td>Pan-oncogenic HPV vaccine</td>
<td>PI</td>
<td>Palmer</td>
<td>08/01/2011-07/31/2012</td>
<td>$340,000</td>
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<td>PI of sub-project</td>
<td>Plant-produced Actinohivin as a Candidate HIV Microbicide</td>
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<td>National Institutes of Health/NIAID R33 AI088585</td>
<td>Plant-produced Actinohivin as a Candidate HIV Microbicide</td>
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<td>06/01/2012-5/31/2015</td>
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<td>DoD/USAMRMC W81XWH-09-2-0022</td>
<td>Development of Novel Vaccines and Therapeutics Using Plant-Based Expression Systems</td>
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<td>Wilkerson</td>
<td>03/15/09- 03/14/12</td>
<td>$1,680,000</td>
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<td>DoD/USAMRMC W81XWH-10-2-0082- CLIN 1</td>
<td>Plant-Based Expression Systems for New Vaccines and Therapeutics</td>
<td>PI of sub-project</td>
<td>Wilkerson</td>
<td>08/23/2010-08/22/2013</td>
<td>$1,751,000</td>
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<td>DoD/USAMRMC</td>
<td>Plant-Based Expression Systems for New Vaccines</td>
<td>PI of sub-project</td>
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<td>Department of Defense CDMRP Discovery Award /PR121604</td>
<td>CaMKK2 Inhibition in Enhancing Bone Fracture Healing</td>
<td>PI</td>
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<td>01/15/2013- 07/14/2015</td>
<td>$187,000 (Total Costs)</td>
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<td>UofL Office of the Exec. VP for Research and Innovation - Competitive Enhancement Grant</td>
<td>Role of Calmodulin-dependent protein kinase kinases in bone remodeling</td>
<td>PI</td>
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<td>09/01/12 – 08/31/13</td>
<td>$15,000</td>
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<td>Brown Cancer Center/ Helmsley Trust Program</td>
<td>Role of Calmodulin-Dependent Protein Kinase Signaling in Hematopoiesis</td>
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<td>06/01/12- 05/31/14</td>
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<td>NIAID/4R33AI088 585-03</td>
<td>Plant-produced Actinohivin as a Candidate HIV Microbicide</td>
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<td>Matoba</td>
<td>06/10/10 – 05/31/12</td>
<td>$275,000 (total direct costs)</td>
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<tr>
<td>IOIC100629X04 Owensboro Grain Company</td>
<td>Development of Lunasin as a Chemoprevention Agent</td>
<td>Co-I</td>
<td>Keith Davis</td>
<td>05/01/2010 to 11/01/2012</td>
<td>$ 316,388</td>
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<tr>
<td>DoD/USAMRMC W81XWH-09-2-0022</td>
<td>Development of Novel Vaccines and Therapeutics Using Plant-Based Expression Systems</td>
<td>Sub-Project PI</td>
<td>Wilkerson</td>
<td>03/15/09 - 03/14/12</td>
<td>$1,680,000</td>
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<tr>
<td>DoD/USAMRMC W81XWH-10-2-0082- CLIN 1</td>
<td>Plant-Based Expression Systems for New Vaccines and Therapeutics Sub-Project: Ca²⁺/Calmodulin dependent protein kinases in early embryonic neuronal development</td>
<td>Sub-Project PI</td>
<td>Wilkerson</td>
<td>08/23/10 – 08/22/13</td>
<td>$1,751,000 Sub-project: $389,505</td>
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</table>
### Plant-Based Expression Systems for New Vaccines and Therapeutics

**Sub-Project:** Ca²⁺/Calmodulin dependent protein kinases in vaccine-related immunogenicity

**Sub-Project PI:** Wilkerson

**Project Period:** 9/30/2011-10/29/2015

**Budget Award:** $1,748,000

**Mentor:** Hein

**Project Period:** 09/14/11 – 08/30/16

**Total Costs:** $1,543,610

### Research Grants Submitted

#### Faculty with Primary Appointments

**Arteel:**

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<tbody>
<tr>
<td>NIAAA</td>
<td>Prenatal alcohol exposure: impact on insulin signaling pathways</td>
<td>Co-I</td>
<td>Neal</td>
<td>07/01/13-06/30/18</td>
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<tr>
<td>NIEHS</td>
<td>Maternal cigarette smoke exposure: impact on offspring gut-liver axis function</td>
<td>Co-I</td>
<td>Neal</td>
<td>07/01/13-06/30/15</td>
<td>$412,500</td>
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<tr>
<td>NIAAA</td>
<td>Prenatal Alcohol Exposure: Impact on Gut Function</td>
<td>Co-I</td>
<td>Neal</td>
<td>07/01/13-06/30/15</td>
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<td>NIEHS</td>
<td>Gut-liver interaction in arsenic-enhanced obesity-induced liver disease</td>
<td>PI</td>
<td>Arteel</td>
<td>07/01/13-03/31/18</td>
<td>$1,875,000</td>
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<tr>
<td>NIAAA</td>
<td>Role of ECM and inflammatory remodeling in alcohol-induced liver and lung damage</td>
<td>PI</td>
<td>Arteel</td>
<td>09/01/12-08/31/17</td>
<td>$1,875,000</td>
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<tr>
<td>NIAAA</td>
<td>Nutrition, Gut Flora/Intestinal Dysfunction in Alcohol-Induced Organ Injury</td>
<td>Pilot Core Director; Project 3 CoPI</td>
<td>McClain</td>
<td>12/01/13-11/30/18</td>
<td>$8,999,998</td>
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**Beier:**

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<tr>
<td>1K01DK096042-01</td>
<td>Enhancement of NAFLD risk by vinyl chloride: interaction of gut-liver-adipose axis</td>
<td>PI</td>
<td>Beier</td>
<td>07/01/12-06/31/17</td>
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<td>1K01DK096042-01 A1</td>
<td>Enhancement of NAFLD risk by vinyl chloride: interaction of gut-liver-adipose axis</td>
<td>PI</td>
<td>Beier</td>
<td>04/01/13-03/31/18</td>
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<tr>
<td>NIH/R01</td>
<td>Primogenesis in Cancer</td>
<td>Co-I</td>
<td>Kang</td>
<td>9/12-8/17</td>
<td>5,547,546</td>
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<tr>
<td>NIH/R01</td>
<td>Primogenesis in Cancer</td>
<td>Co-I</td>
<td>Kang</td>
<td>1/13-12/17</td>
<td>3,576,821</td>
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<tr>
<td>NIH/R01</td>
<td>Prevention &amp; Treatment Strategies for Lung Cancer Recurrence &amp; Metasis</td>
<td>Co-I</td>
<td>Gupta</td>
<td>12/12-11/17</td>
<td>2,693,290</td>
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<td>NIH/R01</td>
<td>Oxidative Stress, Neuroprotection &amp; Immunomodulation in Glaucoma</td>
<td>Co-I</td>
<td>Tezel</td>
<td>4/13-3/18</td>
<td>1,875,000</td>
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<tr>
<td>DOD/prepropos</td>
<td>Novel Small Molecules that Selectively Target SOX9-Expressing Cells.</td>
<td>Co-I</td>
<td>Bates</td>
<td>2/13-1/16</td>
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<tr>
<td>NIH/R01</td>
<td>Strategies for Lung Cancer Prevention and Treatment</td>
<td>Co-I</td>
<td>Gupta</td>
<td>8/13-7/18</td>
<td>3,650,677</td>
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<td>NIH/R21</td>
<td>TLR’s and Immune Regulation in Glaucoma</td>
<td>Co-I</td>
<td>Tezel</td>
<td>7/13-6/15</td>
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<tr>
<td>Kentucky soybean Promotion Board</td>
<td>Continued Development of the Soybean-Derived Peptide Lunasin as an Anticancer Agent</td>
<td>PI</td>
<td>Keith Davis</td>
<td>7/1/2011 to 6/30/2012</td>
<td>$78,559</td>
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<tr>
<td>Kentucky Science and Engineering Foundation</td>
<td>Plant-Based Expression of an Alpha-1 Antitrypsin Biosimilar</td>
<td>PI</td>
<td>Keith Davis</td>
<td>7/1/2012 to 6/30/2013</td>
<td>$50,000</td>
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<tr>
<td>NIH/NCI</td>
<td>Enhancing anti-tumor immunity of NK cells by lunasin for cancer immunotherapy</td>
<td>Co-I</td>
<td>Hua-Chen Chang</td>
<td>7/1/2013 to 6/30/2015</td>
<td>$100,000 direct cost</td>
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### Gupta:

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<tr>
<td>NCI R01-CA-166306</td>
<td>Prevention &amp; Treatment Strategies for Lung Cancer Recurrence &amp; Metastasis</td>
<td>PI</td>
<td>Gupta</td>
<td>04/12 - 03/14</td>
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<td>NIEHS R21-ES-021608</td>
<td>Role of miRNAs in Hormonal Breast Cancer</td>
<td>PI</td>
<td>Gupta</td>
<td>04/12 - 03/14</td>
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<tr>
<td>NIEHS R01-ES-021769</td>
<td>Role of Estrogen in Lung Cancer</td>
<td>PI</td>
<td>Gupta</td>
<td>04/13 - 06/18</td>
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<td>NCI R01-CA-169311</td>
<td>Inhibition of Breast Cancer by Berry Bioactives</td>
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<td>07/12 - 06/17</td>
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<td>NCI R01-CA-169366</td>
<td>Novel Combination Therapy for Management of Ovarian Cancer</td>
<td>Co-I</td>
<td>Kakar</td>
<td>07/12 - 06/17</td>
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<td>NCAAM/NCI R01-AT-007428</td>
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<td>NCI R25CA011564</td>
<td>University of Louisville Cancer Education Program</td>
<td>PI</td>
<td>Hein</td>
<td>09/01/2012-08/31/2013</td>
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<td>NIH,2R01HL0637 60-09</td>
<td>Oxidative stress and heart failure by copper restriction</td>
<td>PI</td>
<td>Kidd</td>
<td>04/01/13-03/31/18</td>
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Kidd:

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<tr>
<td>Expression Analysis &amp; Golden Helix</td>
<td>Epithelial-Mesenchymal Transition miRNAs as predictors of prostate cancer progression and pre-metastasis</td>
<td>PI</td>
<td>Kidd</td>
<td>6/15/2012-5/15/2012</td>
<td>N/A</td>
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<td>NIH R01 OGMB121405</td>
<td>Racial Disparity in Pancreatic Adenocarcinoma</td>
<td>Co-I</td>
<td>McNalley</td>
<td>2013-2018</td>
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<tr>
<td>R43(SBIR)</td>
<td>MOPV-vectored Lassa Fever Vaccine</td>
<td>Co-PI</td>
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**Matoba:**

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<tr>
<td>NIH NIAID/ U19 AI 103458-01</td>
<td>Griffithsin-based microbicides for HIV-1 prevention</td>
<td>Project 2 Co-I; Core A Member; Core B PI</td>
<td>Palmer PD/Matoba Core B PI</td>
<td>1/01/13 – 12/31/17</td>
<td>$9,004,205 (total direct costs) Not funded</td>
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<tr>
<td>The Bill and Melinda Gates Foundation Grand Challenges Explorations Round 9</td>
<td>Engineering Tobacco Plants to Produce Authentic HIV Vaccines</td>
<td>PI</td>
<td>10/01/12 – 04/30/14</td>
<td>$100,000 (total direct costs) Not funded</td>
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<tr>
<td>NIH NIAID Microbicide Innovation Program V R33 transition application</td>
<td>Plant-produced Actinohivin as a Candidate HIV Microbicide</td>
<td>PI</td>
<td>12/01/12 – 11/30/15</td>
<td>$900,000 (total direct costs) Funded</td>
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### Palmer:

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<tbody>
<tr>
<td>National Institutes of Health/NIAID U19 AI-108345</td>
<td>Griffithsin-based microbicides for HIV prevention</td>
<td>Program Director, Principal Investigator of Admin Core, PI of Project 2</td>
<td>Palmer</td>
<td>01/01/2013-12/31/2017</td>
<td>$12,851,971</td>
</tr>
</tbody>
</table>

### Sankar:

<table>
<thead>
<tr>
<th>Agency/Number</th>
<th>Title</th>
<th>Role</th>
<th>PI</th>
<th>Project Period</th>
<th>Budget Request</th>
</tr>
</thead>
<tbody>
<tr>
<td>Department of Defense CDMRP Discovery Award/PR121604</td>
<td>CaMKK2 Inhibition in Enhancing Bone Fracture Healing</td>
<td>PI</td>
<td></td>
<td>01/15/2013-07/14/2015</td>
<td>$187,000 (Total Costs) – Awarded</td>
</tr>
<tr>
<td>Research Scholar Grant/American Cancer Society</td>
<td>CaMKK2 Inhibition in Palliative Care of Advanced Prostate Cancer Patients</td>
<td>PI</td>
<td></td>
<td>07/01/13-06/30/17</td>
<td>$838,039 Total direct costs</td>
</tr>
<tr>
<td>Department of Defense CDMRP/PCRP/P C120844</td>
<td>CaMKK2 Inhibition as a Therapeutic Approach in the Treatment for Osteoporosis in Advanced Prostate Cancer Patients on Androgen Deprivation Therapy</td>
<td>PI</td>
<td></td>
<td>02/01/13-01/31/16</td>
<td>$375,000 total direct costs – Preapplication Invited for a Full Proposal; Awaiting Notification</td>
</tr>
<tr>
<td>United Mitochondrial Disease Foundation</td>
<td>Gfer-Drp1 molecular link in the maintenance mitochondrial dynamics and function</td>
<td>PI</td>
<td></td>
<td>07/01/13-06/30/2016</td>
<td>$200,000 Direct costs – Pre-application submitted. Awaiting</td>
</tr>
</tbody>
</table>
### Department of Defense CDMRP / PRMRP

**CaMKK2 inhibition as a bone anabolic strategy in the treatment of osteoporosis**

PI | 02/01/13-01/31/16 | $750,000 Total direct costs

- **Preapplication not Invited**

**Role of CaMKK2 in the maintenance of hematopoietic stem cell niche**

PI | 02/01/13-01/31/16 | $750,000 Total direct costs

- **Preapplication not Invited**

**Role of Calmodulin dependent protein kinase kinases in bone remodeling**

PI | 01/01/13-12/31/17 | $1,476,363 Total Costs

- Application scored at 30th percentile. Will be resubmitting in June 2013

### Department of Defense CDMRP / Discovery Award

**Accelerated Bone Attachment and Remodeling of Bone-Implant Interfaces**

Co-I | Voor | 01/01/13-06/30/14 | $125,000 Direct costs – Not Funded

**Accelerated Bone Attachment and Remodeling of Osseous Implants**

Co-I | Voor | 01/01/13-06/30/13 | $32,667 – Not funded

**Accelerated Bone Attachment and Remodeling of Bone Substitutes**

04/01/13-09/30/13 | $50,000 – Not funded

### American Cancer Society Research Scholar Award

**Anti-Proliferative Kinases in Hematopoietic Stem Cell Homeostasis.**

PI | 07/01/1006/30/16 | $928,191 Total costs - Application not funded

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**Agency/Number** | **Title** | **Role** | **PI** | **Project Period** | **Budget Request**
--- | --- | --- | --- | --- | ---
R21 DA034899 | Screening and characterizing novel cannabinoid ligands from FDA approved drugs | PI | ZH Song | 9/1/2012-8/31/2014 | $412,500

R21 EY023375 | Repurposing FDA approved drugs as ligands for | PI | ZH Song | 4/1/2013- | $412,500
<table>
<thead>
<tr>
<th>Agency/Number</th>
<th>Title</th>
<th>Role</th>
<th>PI</th>
<th>Project Period</th>
<th>Budget Request</th>
</tr>
</thead>
<tbody>
<tr>
<td>NIH-NCI / R01CA174981-01</td>
<td>Targeting the Anaphase Promoting Complex</td>
<td>PI</td>
<td>States</td>
<td>4/01/2013 - 3/31/2018</td>
<td>$1,875,000</td>
</tr>
<tr>
<td>NIH-NCI / R21CA176340-01</td>
<td>Lead Compounds to Treat Pancreatic Cancer</td>
<td>PI</td>
<td>States</td>
<td>4/01/2013 - 3/31/2015</td>
<td>$412,500</td>
</tr>
<tr>
<td>NIH-NIEHS / R21ES023045-01</td>
<td>Children and Coal Ash: Heavy Metals and Emotional and Behavioral Functioning</td>
<td>Co-I</td>
<td>Zierold</td>
<td>7/1/13 – 6/30/15</td>
<td>$412,500</td>
</tr>
<tr>
<td>NIH-NIEHS</td>
<td>Gut-liver interaction in arsenic-enhanced obesity-induced liver disease</td>
<td>Co-I</td>
<td>Arteel</td>
<td>07/01/13-03/31/18</td>
<td>$1,875,000</td>
</tr>
</tbody>
</table>
Invited Scientific Presentations
Faculty with Primary Appointments

Arteel:
1. Research seminar, 03/12 “Impaired regeneration and the chronicity of liver disease.” University of Louisville, Dept of Biochemistry, Louisville, KY.
2. Research seminar, 03/12 “Fibrin ECM and the balance between (hepatic) life and death.” University of Kentucky, Dept of Microbiology, Lexington, KY.
3. Research seminar, 05/12 “Environmental Factors as Risk Modifiers in Liver Diseases.” University of Louisville, Center for Predictive Medicine, Louisville, KY.
4. Research seminar, 06/12 “How to get your papers published in good journals.” University of Louisville, R25 Cancer Education Program, Louisville, KY.
5. Invited symposium, 06/12 “Integrins and crosstalk between coagulation and injury in alcohol-induced liver injury.” Research Society on Alcoholism, annual meeting, San Francisco, CA.
8. Research symposium, 11/12 “Hepatic Involvement in VHF,” University of Louisville, Center for Predictive Medicine, Research Retreat.

Beier:
1. Research seminar, 05/21/12, Fatty liver diseases: Convergent mechanisms, University of Louisville, UofL Alcohol Center, University of Louisville, KY.
2. Research seminar, 05/24/12, Fatty liver diseases: Convergent mechanisms, University of Louisville, Dept of Pharmacology and Toxicology, University of Louisville, KY.
3. Research symposium, 09/14/12 Role of ECM/integrin crosstalk in hepatic regeneration: implications for liver disease. ISBRA 2012 Satellite Symposium: Recent Progress in Biomedicine on Alcoholism, Kyoto, Japan.

Ceresa:
1. January 19, 2012 – University of Louisville, Department of Pharmacology and Toxicology, “Modulation of Epidermal Growth Factor Endocytic Trafficking to Enhance Cell Physiology”
2. November 29, 2012 – University of Louisville Brown Cancer Center Poa Pratensis Molecular Targets Program “Spatial Regulation of EGFR Signaling”

Davis:
2. Scalable Plant-Based Expression of Alpha-1 Antitrypsin. 2012. Alpha-1 Foundation, Researcher’s Meeting, Miami, Florida

Gupta:
1. Seminar speaker at the Medical College of Wisconsin, Milwaukee, WI, June 2012
Hein:
1. UofL NCI Cancer Education Program: Example Translational Research Project in Cancer Susceptibility. Distinction in Research Program, University of Louisville School of Medicine, Louisville, Kentucky, February 2012.
2. Role of Acetylation Polymorphisms in Tobacco-related Cancer Risk. Department of Microbiology & Immunology, University of Louisville School of Medicine, Louisville, Kentucky, March 2012.

Kang:
3. Apr 12, 2012, Invited Speaker, The 14th South China International Congress of Cardiology, Guangzhou, China, April 11-14, 2012. Copper and hypoxia-inducible factor-1 in myocardial regeneration”

Lukashevich:
1. 2nd International Conference on Vaccines and Vaccination, Aug 20-22, 2012, Hilton/Northbrook, USA
4. NIH Workshop: Ensuring the quality and integrity of animal model and efficacy studies at BSL4, the Galveston National Laboratory, Oct 25-26, 2012, UTMB, Galveston, TX

Myers:

Palmer:
1. Invitation from NIAID to grant review panel on biodefense vaccine adjuvants – declined invitation.
Sankar:

Song:
1. Cannabimimetic activity of FDA approved drugs. Department of Immunology, School of Basic Medical Sciences, Peking University Health Science Center, Beijing, China, December, 2012

States:

Matoba:

Myers:
1. “Biomarkers of Environmental Pollution: Polycyclic Aromatic Hydrocarbons”, University of Cairo, Cairo, Egypt, January, 2011
2. “Biomarkers of Environmental Pollution to Cancer”, Fayoum University, Fayoum, Egypt, January, 2011

Sankar:
1. "Tale of Two Kinases: CaMKs II and IV Feud over Leukemia Cell Proliferation.” The Poa Pratensis Molecular Targets Program and Brown Cancer Center; University of Louisville, KY, March 2011

States:
1. “Hepatic gene expression changes associated with in utero arsenic exposure accelerated atherosclerosis in the ApoE-Knockout mouse”, Department of Molecular and Cellular Craniofacial Biology, University of Louisville, Louisville, KY (9/20/2011)
3. “Arsenic-Induced Keratosis and p53 Mutation”, All India Congress of Cytology and Genetics, Magadh University, Bodhgaya, India, November 21-23, 2011
Song:
1. "CB2 polymorphism and cannabinoid-induced immune suppression.", Department of Immunology, School of Basic Medical Sciences, Peking University Health Science Center, Beijing, China, October, 2011

Inventions disclosures, license(option agreements, patent awards, business startups
Faculty with Primary Appointments

Cai:
Davis KR, Barnett B, Seber L, and Cai J. Lunasin-Containing Complex and Purification of Lunasin from Plants. (Submitted)

Davis:
Business Startups: I continue to serve as the CEO of Planta BioProducts, LLC. Recent efforts have gone towards business development activities.

Gupta:
License Patents: University of Louisville Research Foundation filed the following pending patent applications to protect the valuable technology described in ULRF Research Disclosure, ref. #08046, entitled, Methods and Compositions for the Controlled Delivery of Phytochemical Agents ("ULRF Technology"):
- Amendment to the original United State Patent Application filed: March 2012

Kidd:
- Genetic Determinants of Prostate cancer Risk, Research Disclosure ref. #10008
  - Impact of Angiogenesis-related sequence variants and prostate cancer risk.
  - provisional application for U.S. patent #61-240089, filed on September 4, 2009.
  - Publication date: August 30, 2012
    (http://www.google.com/patents/US20120220467)

- “Genetic Determinants of Prostate Cancer”, UofL Research Disclosure ref. #11078.
  - Impact of chemokine-related sequence variants and prostate cancer risk.

Matoba:
Title: POLYPEPTIDES HAVING IMMUNOACTIVATING ACTIVITY AND METHODS OF PRODUCING THE SAME

Palmer:
Continued to act as Managing Director of Intrucept Biomedicine LLC (Owensboro, KY).
Sankar:
Invention Disclosure: application as PI for the development of Gfer as a biomarker for environmental toxin-mediated mitochondrial injury at UofL Technology Transfer Office

States:

Review Activities of Primary Faculty Members

Dr. Arteel

- Member, editorial board, Archives of Biochemistry and Biophysics
- Member, editorial board, World Journal of Gastroenterology
- Member, editorial board, Alcohol
- Member, Xenobiotic and Nutrient Disposition and Action [XNDA] study section (met 3× in 2012)

Ad-hoc manuscript, grant or project reviews
50 Ad hoc manuscript reviews for: Alcohol (6), Alcohol and Alcoholism (1), Alcoholism: Clinical and Experimental Research (5), Archives of Biochemistry and Biophysics (9), Biochemica et Biophysica Acta: Molecular Basis of Disease (1), British Journal of Pharmacology (1), Experimental and Molecular Pathology (1), Experimental Biology in Medicine (1), Frontiers in Gastrointestinal Science (1), Gastroenterology (3), Hepatology (6), International Journal of Toxicology (1), Journal of Biological Chemistry (1), Journal of Hepatology (3), Journal of Pharmacology and Experimental Therapeutics (1), Liver International (2), Molecular Pharmacology (2), Nature Protocols (1), Toxicological Sciences (2), and Toxicology and Applied Pharmacology (2)
06/12, Reviewed abstracts for AASLD annual meeting.
06/12, External reviewer of intramural research grant application, Heinrich Heine Universität, Düsseldorf, Germany.
07/12, Ad hoc reviewer for NIAAA member conflict special emphasis panel
12/12, Reviewed abstracts for Digestive Disease Week (DDW) annual meeting.

Dr. Beier-Arteel

8 ad hoc manuscript reviews for: Alcohol (3), American Journal of Physiology (2), Hepatic Medicine: Evidence and Research (2), Journal of Pharmacology and Experimental Therapeutics (1)

Dr. Benz

Drug Metabolism and Disposition ad-hoc reviewer
Dr. Ceresa

A. Grant review committees, editorial boards or review boards
   American Heart Association (ad hoc), Oak Ridge Associated Universities

B. Ad-hoc manuscript, grant or project reviews
   Oncogene (2012)
   Drug and Food Toxicology (2012)
   PLOS One (2012)

Dr. Davis

Grant review committees, editorial boards or review boards

   F1000 Research, Editorial Board
   ISRN Biotechnology, Editorial Board,
   Faculty of 1000, Biotechnology Faculty Member

B. Ad-hoc manuscript, grant or project reviews

   Proteome Science (1 review)
   Cereal Science (1 review)
   PLoS One (5 reviews)
   ISRN Biotechnology (6 reviews)

Dr. Gupta

A. Grant review committees, editorial boards or review boards

   Editorial Board/Editor:
   • International Journal of Oncology (1992 – Present)
   • Cancer Letters – Editor Capacity (2008 – Present)
   • Oncology Letters (2009 – Present)

B. Ad-hoc manuscript, grant or project reviews

   Adhoc Journal Reviewer
   • Cancer Letters
   • Cancer Research
   • Carcinogenesis
   • Chemical Research in Toxicology
   • Mutation Research
   • Nutrition & Cancer
   • Cancer Prevention Research
Dr. Hein

Manuscript, grant, or project reviews


2. Served on NIEHS review committee (EHS T3) to review training grants.


4. Reviewed manuscripts for: *Clinical Pharmacology and Therapeutics; Advances in Pharmacology; Environmental Toxicology and Pharmacology; Biochemical Toxicology; Pharmacogenomics and Personalized Medicine; Chemical Research in Toxicology; International Journal of Hygiene and Environmental Health; Expert Opinion on Drug Metabolism and Toxicology; Pharmacogenomics; PLOS ONE*.

5. Served on the Academy of Pharmacology Educators membership selection committee for the American Society for Pharmacology and Experimental Therapeutics.

Dr. Kang

A. Grant review committees, editorial boards or review boards

Editor-in-Chief, Regenerative Medicine Research (2012-)
Editor-in-Chief, Cardiovascular Toxicology (2000-)
The Editor, Methods in Pharmacology and Toxicology series (2001-)
Member of Editorial Board, Pathology and Laboratory Medicine International (2009-)
Member of Editorial Board, Journal of Nutrition and Dietary Supplements (2009-)
Member of Editorial Board, Journal of Toxicology (2008-)
Member of Editorial Board, Journal of Biomedicine and Biotechnology (2008-)

Dr. Kidd

R21 and U01 Cancer Health Disparities and Diversity in Basic Cancer Research, November 2012

Dr. Lukashevich

A. Grant review committees, editorial boards or review boards

1. The NIH study section meeting, Small Business Grant Applications in Microbial Vaccine Development. The two day meeting: March 8th to Friday March 9th 2012, the Hyatt Regency Bethesda in downtown Bethesda, MD.

2. The NIH study section meeting, Small Business Grant Applications: Non-HIV
Microbial Vaccine Development. June 15th 2012 at the Hyatt Regency, Bethesda, MD

3. From the NIH letter dated 7/7/2012: “On the basis of your substantial service to peer review at the National Institutes of Health, you will have the opportunity to submit certain grant applications at any time. Your eligibility is based on having participated in peer review at least six times in the 18 months ending June 30, 2012. This opportunity is available to you from AUGUST 16, 2012 to SEPTEMBER 30, 2013”

4. Editorial Board Member: Journal of Vaccine and Immunization
5. Editorial Board Member: Journal of Drug Metabolism and Toxicology
6. Editorial Board Member: OMICS Group eBooks

B. Ad-hoc manuscript, grant or project reviews:

7 ad hoc manuscript reviews for: Viruses (4), Virology Journal (1), PLOS Neglected Tropical Diseases (1), Clinical and Vaccine Immunology (1)

Dr. Matoba

A. Grant review committees, editorial boards or review boards
   1. Associate Faculty Member, Faculty of 1000 Biology (09/2009 – present)
B. Ad-hoc manuscript, grant or project reviews
   1. Ad-hoc manuscript review for: J. Antimicrob Chemother (1 paper); Mol Biol Rep (1 paper); Vaccine (2 papers); Molecular Biotechnology (1 paper)

Dr. Myers

A. Grant review committees, editorial boards or review boards

<table>
<thead>
<tr>
<th>Journal Editorial Board Memberships</th>
<th>Dates</th>
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<tbody>
<tr>
<td>Polycyclic Aromatic Compounds: Analysis, Chemistry, Metabolism, and Carcinogenicity</td>
<td>1994 – present</td>
</tr>
<tr>
<td>Biomarker Insights</td>
<td>2005 – present</td>
</tr>
<tr>
<td>Biomarkers of Cancer</td>
<td>2009 - present</td>
</tr>
<tr>
<td>Breastfeeding Medicine</td>
<td>2008 - present</td>
</tr>
<tr>
<td>European Journal of Toxicological Sciences</td>
<td>2012 - present</td>
</tr>
<tr>
<td>Journal of Drug Metabolism and Toxicology</td>
<td>2012 - present</td>
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<tr>
<td>Research Communications in Chemical Pathology and Pharmacology</td>
<td>2</td>
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<tr>
<td>Polycyclic Aromatic Compounds: Analysis, Chemistry, Metabolism, and Carcinogenicity (Associate Editor)</td>
<td>10</td>
</tr>
<tr>
<td>Biomarker Insights (Editorial Board Member)</td>
<td>4</td>
</tr>
<tr>
<td>Biomarkers of Cancer (Editorial Board Member)</td>
<td>4</td>
</tr>
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</table>
Dr. Palmer
A. Grant review committees, editorial boards or review boards

04/2012 NIAID Special Review Panel ZAI1-ESB-A (M2) Integrated Preclinical-Clinical Program for HIV Topical Microbicides (IPCP-HTM)
Member of the University of Louisville School of Medicine Research Committee
Editor, Current Topics in Microbiology and Immunology Plant Viral Vectors Edition

B. Ad-hoc manuscript, grant or project reviews

05/2012 Project Review for University of New Mexico Center of Excellence in Sexually Transmitted Infections U19 Project.
Reviewer of manuscripts for: Molecular Pharmaceutics (1 manuscript); Journal of Biological Chemistry (1 MS); Journal of Antimicrobial Chemotherapy (1 MS); Clinical and Vaccine Immunology (2 MSS); PLoS ONE (3 MSS)

Dr. Sankar
A. Grant review committees, editorial boards or review boards

NIH Study Section

2012 - Selected as NIH Early Career Reviewer.

B. Ad-hoc manuscript, grant or project reviews

ADHOC REVIEWER
2008 – Present  Journal of Cellular Physiology (4 manuscripts in 2012)
2008 – Present  Journal of Toxicological Sciences
2008 – Present  Toxicology and Applied Pharmacology
2012 - Stem Cells and Development (2 manuscripts in 2012)
2012 - Journal of Biological Chemistry (2 manuscripts in 2012)
2012 - European Journal of Cell Biology (1 manuscript in 2012)

Dr. Song


Chemico- Biological Interactions | 2
Breastfeeding Medicine (Editorial Board Member) | 3
Dr. States

A. Grant review committees, editorial boards or review boards

Toxicology and Applied Pharmacology & Toxicology
Reproductive Toxicology
Journal of Ovarian Research
PLoS ONE (academic editor)

B. Ad-hoc manuscript, grant or project reviews

Grant reviews:
National Institutes of Health:, CIDO Study Section (mail reviewer) (2012)
National Institutes of Health:, CADO Study Section (mail reviewer) (2012)
Medical Research Council (United Kingdom), grant reviewer (2012)

Manuscript reviews (#):
Archives of Toxicology (2)
Chemical Research in Toxicology (1)
Chemico-Biological Interactions (2)
Environmental Health Perspectives (6)
Epigenetics (1)
FEBS Letters (1)
Gene (1)
Microbial Ecology (1)
Reproductive Toxicology (7)
Journal of Toxicology and Environmental Health, Part A (1)
Toxicology and Applied Pharmacology & Toxicology (13)
Toxicological Sciences (2)

DEPARTMENTAL COURSES

- Medical Pharmacology course to second year medical students. Dr. Mike Williams served as course director.

- Pharmacology and Dental Therapeutics course to dental students. Dr. David Hein served as course director.

- Pharmacology course to second year students in the Dental Hygiene Program. Dr. Steve Myers served as course director.

- Basic Pharmacology course for undergraduate students. Dr. Steven Myers served as course director.

- The Department team taught several courses for graduate students. The individual courses and course directors included:
- PhTx 660 – Principles of Drug and Chemical Action (Dr. Benz)
- PhTx 606 – Pharmacology Seminar (Dr. Nerland)
- PhTx 661 – Molecular Toxicology (Drs. Prough and Gavin Arteel)
- PhTx 625 – Scientific Writing (Dr. Gavin Arteel)
- PhTx 655 – Neuropharmacology (Drs. Rowell and Song)
- PhTx 656 – Cardiovascular and Renal Pharmacology (Drs. Benz and Williams)
- PhTx 657 – Endocrine and Metabolic Pharmacology (Dr. Arteel)
- PhTx 658 – Selective Toxicity and Chemotherapy (Drs. Hurst and Nerland)
- PhTx 672 – Research Methods in Pharmacology & Toxicology I (Drs. Song and States)
- PhTx 673 – Research Methods in Pharmacology & Toxicology II (Drs. Song and States)
- PhTx 674 – Research Methods in Pharmacology & Toxicology III (Drs. Song and States)
- PhTx 675 – Research Methods in Pharmacology & Toxicology IV (Drs. Song and States)
- PhTx 618 – Biostatistics (Dr. Kidd)

**KC Huang Annual Lecture**

"Innate immunity and alcoholic liver disease" was presented September 17 by Dr. Laura Nagy, PhD, Professor, Department of Nutrition, Case Western Reserve University; Co-director, Cell Biology Graduate Program, Case Western Reserve University; Professor, Department of Molecular Medicine, Cleveland Clinic; and Director, Center for Liver Disease Research, Cleveland Clinic, Cleveland, Ohio.

**William J. Waddell Annual Lecture**

“The hormesis dose response” was presented October 24 by Edward J. Calabrese, Ph.D., Professor of Toxicology, University of Massachusetts School of Public Health and Health Sciences, Amherst, MA

**Standing Committees – 2012**

**Graduate Student Affairs and Curriculum Committee**

Dr. Peter Rowell (Chair)
Dr. Glenn McGregor (2012)
Dr. Uma Sankar (2014)
Dr. Gavin Arteel (2013)
Student rep: Pritesh Kumar
Student rep: Akshata Moghe
Graduate Student Admissions and Recruitment Committee
Dr. Chris States (Chair)
Dr. Steve Myers (2012)
Dr. La Creis Kidd (2014)
Dr. Ken Palmer (2013)
Dr. Ramesh Gupta (2015)

SIBUP/Grievance Committee
Dr. Peter Rowell (Chair)
Dr. Joe Song (2012)
Dr. Ramesh Gupta (2014)
Dr. Harrell Hurst (2013)

Teaching Evaluation Committee
Dr. Mike Williams (Chair)
Dr. Harrell Hurst (2012)
Dr. Don Nerland (2014)
Dr. Fred Benz (2013)

Seminar Committee
Dr. Don Nerland (Chair)
Dr. Gavin Arteel (2012)
Dr. Fred Benz (2013)
Dr. Igor Lukashevich (2014)

Core Laboratories/Research Development Committee
Dr. Gavin Arteel (Chair)
Dr. Jian Cai (2012)
Dr. Glenn McGregor (2014)
Dr. Theresa Chen (2013)

Events Committee
Dr. Glenn McGregor (Chair)
Dr. Nobuyuki Matoba (2013)
Dr. LaCreis Kidd (2012)
Dr. Keith Davis (2014)

Information Technology Committee
Dr. Gavin Arteel
Dr. Fred Benz
Dr Harrell Hurst

Faculty Search Committee
Dr. David Hein
Dr. La Creis Kidd
Dr. Russ Prough
Dr. Chris States
Students in the NCI Cancer Education Program 2012

April F. Aloway
Roosevelt University graduate
Accepted into PhD program in Pharmacology and Toxicology
University of Louisville School of Medicine
Email: a0alow01@louisville.edu
Faculty Mentor: La Creis R. Kidd, PhD, MPH
Research Project: Micro RNA expression in Divine-Favour Anene
University of Louisville undergrad
Email: deanen01@louisville.edu
Faculty Mentor: La Creis R. Kidd, PhD, MPH
Research Project: Impact of Inflammatory and immune response sequence variants in relation to prostate cancer outcomes

Ryan J. Anderson
Rising second year medical student
University of Louisville School of Medicine
Email: rjande06@louisville.edu
Faculty Mentor: Robert C.G. Martin, MD, PhD
Research Project: Clinical evaluation of optimal hepatic surgery in the management of primary and metastatic liver cancer

Praise O. Anene
University of Houston undergrad
Email: praise1302@yahoo.com
Faculty Mentor: La Creis R. Kidd, PhD, MPH
Research Project: Identification of microRNA that can serve as biomarkers for prostate cancer metastasis
Harrison M. Black  
Rising third year dental student  
University of Louisville School of Dentistry  
Email: hmbloc02@louisville.edu  
Faculty Mentor: David A. Scott, PhD  
Research Project: Tobacco-induced dysregulation of matrix metalloproteinases in immune cells

Nicolas P. Burnett  
Rising second year medical student  
University of Louisville School of Medicine  
Email: npburn01@louisville.edu  
Faculty Mentor: Robert C.G. Martin, MD, PhD  
Research Project: Clinical evaluation of somatostatin use in pancreatic resections: Clinical efficacy or limited benefit?

James A. Bradley  
Morehead State University graduate  
Accepted into University of Louisville School of Medicine  
Email: jabrad07@louisville.edu  
Faculty Mentor: John W. Eaton, PhD  
Research Project: Detection of anti-tumor antibodies as biomarkers of early stage lung cancer

Adrienne M. Bushau  
University of Louisville undergrad  
Email: ambush03@louisville.edu  
Faculty Mentor: James L. Wittliff, PhD  
Research Project: Racial discrepancies in breast cancer
Samantha M. Carlisle
University of Louisville graduate
Accepted into PhD program in Pharmacology and Toxicology
University of Louisville School of Medicine
Email: smcarl06@louisville.edu
Faculty Mentor: David W. Hein, PhD
Research Project: In silico screening for novel arylamine N-acetyltransferase inhibitors

Laura E. Conrad
Rising Second year medical student
University of Louisville School of Medicine
Email: leconr01@louisville.edu
Faculty Mentor: Douglas C. Dean, PhD
Research Project: Zeb-1 and lung cancer stem cells

Noura E. Estephane
Rising second year medical student
University of Louisville School of Medicine
Email: neeste01@louisville.edu
Faculty mentor: Yong Li, PhD
Research Project: Prognostic significance of sequence variation in the TP53 gene in diffuse large B-cell lymphoma

Jeffrey (Brett) Farmer
Middle Tennessee State Univ. undergrad
Email: jbf3b@mtmail.mtsu.edu
Faculty Mentor: Lacey R. McNally, PhD
Research Project: Evaluation of microRNA 671 in pancreatic adenocarcinoma
John D. Gettelfinger
Rising second year medical student
University of Louisville School of Medicine
Email: jdgett01@louisville.edu
Faculty Mentor: John O. Trent, PhD
Research Project: Drug discovery with unique virtual chemical libraries

Farrah L. Harden
Rising second year medical student
University of Louisville School of Medicine
Email: flhard02@louisville.edu
Faculty Mentor: Robert C.G., Martin, MD, PhD
Research Project: Outcomes in patients treated surgically for medullary thyroid carcinoma

Christina L. Hickey
Western Kentucky University graduate
Accepted into MPH program
University of Louisville
Email: Christina.hickey848@topper.wku.edu
Faculty Mentor: La Creis R. Kidd, PhD, MPH
Research Project: Role of variant carcinogen metabolism genes and breast cancer risk

Gretchen E. Holz
Indiana University graduate
Accepted into PhD program in Pharmacology and Toxicology
University of Louisville School of Medicine
Email: geholz01@louisville.edu
Faculty Mentor: Levi J. Beverly, PhD
Research Project: Understanding how ubiquilin proteins regulate IGF1R in lung cancer
Allison H. Hunter  
Rising second year medical student  
University of Louisville School of Medicine  
Email: amhunt01@louisville.edu  
Faculty Mentor: Anthony E. Dragun, MD  
Research Project: A phase 2 study of accelerated hypo-fractionated radiotherapy (AHF-RT) after breast conserving surgery

Nicole M. Jackson  
Cheyney University of Pennsylvania graduate  
Accepted into PhD program in Pharmacology and Toxicology  
University of Louisville School of Medicine  
Email: nmjack05@louisville.edu  
Faculty Mentor: David W. Hein, PhD  
Research Project: Inhibition of human arylamine N-acetyltransferase I to decrease cell invasion and metastasis

Daniel J. Kmetz  
Rising second year medical student  
University of Louisville School of Medicine  
Email: djkmet01@louisville.edu  
Faculty Mentor: Kelly M. McMasters, MD, PhD  
Research Project: Identifying microRNA in melanoma patients

Callie A. Linden  
Rising second year medical student  
University of Louisville School of Medicine  
Email: calind04@louisville.edu  
Faculty Mentor: Rebecca A. Redman, MD  
Research Project: Plant eybsomes as potential abrogators of chemotherapy and radiation-induced oval mucositis in head and neck cancer
Joshua M. Mitchell
University of Louisville graduate
Accepted into University of Louisville School of Medicine
Email: jmmitc06@louisville.edu
Faculty Mentor: Hunter N. Moseley, PhD
Research Project: Developing computational tools for the characterization of FT-ICR-MS/identified uncharacterized metabolic

Douglas J. Saforo
University of Louisville undergrad
Email: djsafo01@louisville.edu
Faculty Mentor: J. Christopher States, PhD
Research Project: Candidate drugs for inhibition of the anaphase promoting complex

Sabrina S. Schatzman
University of Louisville undergrad
Email: ssscha02@louisville.edu
Faculty Mentor: Teresa Fan, PhD
Research Project: Exploring cancer metabolism for potential drug discovery

R. Jennifer Siow
University of Louisville undergrad
Email: rjsiow01@louisville.edu
Faculty Mentor: Ramesh Gupta, PhD
Research Project: Sustained delivery of chemopreventives by biodegradable polymeric implants
McKinley D. Soult  
Rising second year dental student  
University of Louisville School of Dentistry  
Email: mdsoul01@louisville.edu  
Faculty Mentor: Douglas S. Darling, PhD  
Research Project: Immortalization of parotid acinar cells

Lauren M. Strait  
Rising second year medical student  
University of Louisville School of Medicine  
Email: l0stra02@louisville.edu  
Faculty Mentor: Uma Sankar, PhD  
Research Project: Anti-proliferative kinases in hematopoietic stem cells

Vanessa A. R. States  
University of Louisville undergrad  
Email: vastat02@louisville.edu  
Faculty Mentor: Robert C.G. Martin, MD, PhD  
Research Project: Identification of cancer stem cells (CSC) derived HCC from the H411E cell line

Jara N. Vega Velez  
Rising second year medical student  
University of Louisville School of Medicine  
Email: jnvega01@louisville.edu  
Faculty Mentor: Levi J. Beverly, PhD  
Research Project: Determining mechanisms of drug resistance to BCL2 antagonists in human leukemia