Department of Pharmacology & Toxicology

2011 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 RETIREMENTS

Leonard C. Waite, PhD
Professor Emeritus of Pharmacology and Toxicology

Professor Len Waite retired and was appointed Professor Emeritus effective July 1. He provided exemplary leadership, teaching, and service to the University of Louisville for 40 years. Dr. Waite served as Director of the Department of Pharmacology and Toxicology graduate program for 25 years and served on the graduate committees of over 20 students. In addition to biomedical graduate students, Dr. Waite directed a large and diverse array of undergraduate, graduate, and professional students in the Schools of Arts & Sciences, Dentistry, Medicine, and Nursing. Dr. Waite was recognized for his excellence in teaching by the School of Dentistry and by the University by receipt of the President’s Award for Distinguished Service. His willingness to devote such leadership and teaching efforts to such a large and broad array of our educational programs at the University of Louisville is testament to his talent, work ethic and dedication.

FACULTY PROMOTIONS

La Creis R. Kidd, Ph.D. was promoted to associate professor with tenure and her endowed chair appointment as Our Highest Potential in Cancer Research was renewed.
NEW FACULTY APPOINTMENTS (Primary appointments)

Igor S. Lukashevich, MD, PhD, DSci
Professor of Pharmacology & Toxicology

Igor was recruited from the University of Maryland with appointment effective September 1 in partnership with the Center for Predictive Medicine. His research interests include novel vaccine technologies (virus-like-particle vectors; reassortant vaccines, infectious DNA vaccination); molecular biology and pathogenesis of viral hemorrhagic fevers.

NEW FACULTY APPOINTMENTS (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
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.
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.
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

NEW FACULTY APPOINTMENTS (Adjunct appointments)

John C. Lipscomb, PhD, DABT, F.A.T.S., Adjunct Associate Professor

PhD (1991), Pharmacology and Toxicology, University of Arkansas for Medical Sciences
Toxicologist, U.S. Environmental Protection Agency, Office of Research and Development, National Center for Environmental Assessment, Cincinnati, OH

APPOINTMENTS (administration)

David W. Hein was re-appointed Department Chair for a five year term following a comprehensive review. He was also appointed Interim Chair of the Department of Microbiology and Immunology.

William M. Pierce, Jr. was appointed Executive Vice President for Research and Innovation following a nationwide search.

RESIGNATIONS (Joint appointment)

Irene Litvan (primary appointment in the Department of Neurology) resigned her position, August 31 to accept the Tasch Endowed Professor in Parkinson Disease Research and Director of the Movement Disorders Program at the University of California-San Diego.

FACULTY HONORS

- Aruni Bhatnagar received an additional appointment as the Smith and Lucille Gibson Chair in Medicine
• **Lu Cai** was appointed councilor of OVSOT.

• **David W. Hein** received the President’s Award from the University of Wisconsin-Eau Claire.

• **Y. James Kang** received the Distinguished Society Award from the Society of Experimental Biology and Medicine.

• **La Creis R. Kidd** was promoted to Associate Professor with tenure and her endowed chair appointment was renewed.

• **Igor S. Lukashevich** was appointed University Scholar.

• The top student award in the Dental Pharmacology and Therapeutics course will honor **Professor Len Waite**.

**GRADUATE STUDENT HONORS**

• **Shyam S. Bansal** received the KC Huang Outstanding Graduate Student Award.

• **Alex Belshoff** received a graduate student poster award at the Brown Cancer Center annual retreat.

• **Amanda Lasnik** received a third place masters student research award at Research!Louisville.

• **Carmine Leggett** received a first place doctoral student research award at Research!Louisville and received an NIH travel award to participate in a graduate student symposium.

• **Lori Millner** was an invited speaker at the St. Jude National Graduate Student Symposium and presented a poster by invitation at the ERA of Hope DOD Breast Cancer Research Conference.

• **Clarisse Muenyi** received a 3rd place graduate student award at SOT Metals Specialty Section.

• **Olive Ngalame** received an SOT graduate student travel.

• **Robin Schmidt** was selected to give an oral research presentation at the OVSOT meeting.
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.

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.
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.

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, DSci
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.
W. Glenn McGregor, MD
Professor
M.D., University of Michigan (1976).

Research Interests: Molecular biology of DNA damage, repair and mutagenesis; molecular mechanisms of mutagenesis induced by model carcinogens; molecular mechanisms of replication of DNA templates containing well-defined site specific damage.

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
Associate 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
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.

Leonard C. Waite, PhD
Professor Vice-Chair for Education
Ph.D., Pharmacology, University of Missouri (1969).

Research Interests: Endocrine pharmacology; mechanism of action of hormones; pharmacological modulation of hormone action; mineral homeostasis.
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.

Irene Litvan, MD  
Professor of Neurology and Professor of Pharmacology and Toxicology  
Raymond Lee Lebby Professor of Parkinson Disease Research  
M.D., Universidad de la Republica (1979)

**Research Interests:** Etiology and treatment of Parkinsonian, Dementia, and Dystonia movement disorders.
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.

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.
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

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**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.

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**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.
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

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

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.
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).
- **Scharff, Thomas G.**, Professor Emeritus; Ph.D., University of Rochester (1956).
- **Waddell, William J.**, Professor and Chair Emeritus; M.D., University of North Carolina (1955).

Faculty with Adjunct Appointments

- **Lipscomb, John C**, Adjunct Associate Professor of Pharmacology and Toxicology; Ph.D., Pharmacology and Toxicology, University of Arkansas for Medical Sciences (1991).
- **Wang, Yang**, Adjunct Associate Professor of Pharmacology and Toxicology; M.D., Jiangxi Medical College (1982); Ph.D., 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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<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-Maqtari, Tareq</td>
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<td>Arnold, Shelia</td>
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<td>Avila, Diana</td>
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<td>Baldauf, Keegan</td>
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<td>Bansal, Shyam Sunder</td>
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<td>Barton, Chris</td>
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<td>Cao, Pengxiao</td>
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<td>Chambers, Elana</td>
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<td>Chen, Wei Yang (Jeremy)</td>
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<td>Cheng, Pei-Hsin (Penny)</td>
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<td>Donde, Hridgandh</td>
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<td>England, Christopher</td>
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<td>Greenwell, Caleb</td>
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<td>Kumar, Pritesh</td>
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Mathews, Stephanie  
McAllister, Ryan  
Millner, Lori  
Moghe, Akshata  
Muenyi, Clarisse  
Ngalame Ntube, Nini Olive  
Patil, Madhuvanti  
Risner, Benjamin  
Rogers, Erica  
Russell, Gilandra  
Schmidt, Robin  
Shidal, Christopher  
Stallons, L. Jay  
Stepp, Marcus  
Vicary, Glenn  
Wahlang, Banrida  
Wechman, Stephen  
Wu, Huihui  

2011 Entering Class of Graduate Students  

Diana Avila  
Home town: Bogata, Columbia  
B.S. Biology, Florida International University
Christopher England
Home town: Elizabethtown, KY
B.S., Biochemistry, Bellarmine University

Caleb Greenwell
Home town: Louisville, KY
B.S. (cum laude), Biology, Univ. of Louisville

Dominique Jones
Home town: Durham, NC
B.A, Biochemistry, Smith College
Chris Shidal  
Home town: Paducah, KY  
B.S. Biology, University of Kentucky

Marcus Stepp  
Home town: Floyds Knobs, IN  
B.S., Biochemistry, Rose-Hulman Institute of Technology

Stephen Wechman  
Home town: Georgetown, KY  
B.S., Biology, Georgetown College
**Postdoctoral Fellows**

Hina Amanullah  
Farrukh Aqil  
Juliane Arteel  
Katie Bourcy  
Xiang Ding  
Calvin Kouokam  
Akhilesh Kumar  
Radha Munagala  
Li Zhan

**PUBLICATIONS**


27. Hein, DW, Waite, LC, Waddell, WJ. Toxicology milestones at the Department of Pharmacology and Toxicology, University of Louisville. In: *Building for the Future: Toxicology Training Centers*, pp. 70-73, Society of Toxicology, Reston, Virginia, 2011.


65. Watson WH, Song Z, Kirpich IA, Deaciuc IV, Chen T, McClain CJ. Ethanol exposure modulates hepatic S-adenosylmethionine and S-adenosyl homocysteine levels in the isolated perfused rat liver through changes in the redox state of the NADH/NAD⁺ system. *Biochim Biophys Acta*, 1812: 613-618, 2011.


**In Press or E-pub in 2011:**

**E-pubs:**

**Cai:**


**Chen:**


**Hein:**


2. Millner LM., Doll MA, Cai J, States JC, Hein DW. Phenotype of the most common “slow acetylator” arylamine N-acetyltransferase 1 genetic variant (NAT1*14B) is substrate-dependent. *Drug Metabolism and Disposition* (Epub October 18, 2011).


**Kang:**


**Pierce:**

**States:**


**In Press:**

**Gupta:**


2. Bansal SS, Kausar H, Vadhanam MV, Ravoori S, Gupta RC. Controlled systemic delivery by polymeric implants enhances tissue and plasma curcumin levels compared with oral administration, EJPB, in press.


**Lukashevich:**


**Matoba:**


**States:**

ABSTRACTS

Arteel:

National/International:


Local/Regional:

1. Massey VL, Beier JI, Schmidt RH, Zhong H and Arteel GE (2011) Ethanol sensitization to LPS-induced liver injury: protection by the integrin inhibitor, cycloRGDFV. OVSOT annual meeting, Dayton, OH.

2. Baldauf KJ, Jokinen JD, Beier JI and Arteel GE (2011) Acetaldehyde dehydrogenase 2 (ALDH2) activation protects hepatocytes from mitochondrial damage and death caused by 4-hydroxynonenal. OVSOT annual meeting, Dayton, OH.


Cai:

1. Benz FW, Cai J, Nerland DE, and Hurst HE. Biomarkers of acrylonitrile exposure: Second
order rate constants for the reactions of acrylonitrile with the most reactive sites in human hemoglobin. *SOT 2011 Annual Meeting*, Washington, DC. March 6-10, 2011.


**Chen:**

1. Song, M et al. Copper deficiency-induced mitochondrial dysfunction exacerbates liver injury and fibrosis in a bile duct ligation rat model *Digestive Disease Week* (Control ID: 1038071). 2011

2. Song M et al., Chronic alcohol drinking exacerbates liver injury in high fructose diet fed mice. *Digestive Disease Week* 2012 (Control ID: 1299458)

**Gupta:**


Hein:


**Hurst:**


**Kang:**


Kidd:

First/Corresponding Author National Posters:

2. LaCreis R. Kidd, PhD; Dominique Jones, BS; Camille C.R. Ragin, PhD; Maria D. Jackson, PhD; Norma McFarlane-Anderson, PhD; Rafael Flores-Obando, MSc; Seian Morrison, PhD; James Rudd, BS; Kevin S. Kimbro, PhD. *Chemokine-associated SNPs Prostate Cancer in Men of African Descent*. Caribbean Exploratory Research Center (CERC) Health Disparities Institute in St Thomas, St. Thomas Virgin Islands, USA, October 19-21, 2011.


First/Corresponding Author Local Posters:
**Lukashevich:**


**Matoba:**

1. Hamorsky K, Sankaran S, Davis K, Palmer K, **Matoba N**. “Highly efficient production of recombinant cholera toxin B subunit for mass vaccination against cholera” The Gordon Conference Tropical Infectious Diseases, March 13 – 18, Galveston, TX – selected for an oral presentation


3. Husk A, Sankaran S, Hamorsky K, Palmer K, **Matoba N**. “Protein Engineering of the Mannose-Specific Lectin Actinohivin for Enhanced Antiviral Activity and Recombinant Producibility” James Graham Brown Cancer Center Retreat, October 28, Louisville, KY

4. **Hamorsky K**, Kouokam J, Bennett L, Davis K, Palmer K, **Matoba N**. “Investigation of Immunomodulatory Activity of Plant-derived Cholera Toxin B” James Graham Brown Cancer Center Retreat, October 28, Louisville, KY

5. **Bennett L**, Hamorsky K, **Matoba N**. “Utilization of Plant-derived Cholera Toxin B Subunit for Mass Vaccination against Cholera” 2011 Kentucky Academy of Science Annual Meeting, held at Murray University, Murray, KY, November 4 – 5, 2011

**Myers:**


Palmer:


7. Hamorsky K, Sankaran S, Davis K, Palmer KE, Matoba N. Highly efficient production of recombinant cholera toxin B subunit for mass vaccination against cholera. The Gordon Conference Tropical Infectious Diseases, March 13 – 18, Galveston, TX

**Sankar:**


**Song:**


6. Pritesh Kumar and **Zhao-Hui Song**. Homogenous Time Resolved Fluorescence (HTRF): Optimization and Validation of a Cell-Based cAMP Screening Technology for the Cannabinoid Receptors CB1 and CB2. Research Louisville, October 2011

**States:**

Published Abstracts:

2. Rogers, EN, States, J. Curcumin regulates cell cycle progression in response to BPDE-induced DNA damage. Abstract # 2235. The Toxicologist CD—An official Journal of the Society of Toxicology, Volume 120, Number S-2, March 2011


4. Ngalame, N, Feil, ME, Micciche, AF, States, J. Delayed temporal increase of hepatic Hsp70 in ApoE-/- mice with accelerated atherosclerosis induced by in utero arsenic exposure Abstract # 2199. The Toxicologist CD—An official Journal of the Society of Toxicology, Volume 120, Number S-2, March 2011


Others:


Pharmacology and Toxicology Grants—Active (Total of 85)

Arteel:

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<td>Production of High-Value Cellulase from Tobacco</td>
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<td>DoD US Army W81XWH-10-2-0143</td>
<td>Biomarkers of Exposure and Mechanism of Action of Toxic Industrial Chemicals (TICs)</td>
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<td>Title</td>
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<td>Project Period</td>
<td>Budget Award</td>
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<tr>
<td>National Institutes of Health/NIAID AI 076169</td>
<td>Antiviral lectins as microbicides</td>
<td>PI</td>
<td>Palmer</td>
<td>04/15/2008-03/31/2013</td>
<td>$1,760,728</td>
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<tr>
<td>National Institutes of Health/NIAID AI 076169S1</td>
<td>Administrative supplement: Antiviral lectins as microbicides</td>
<td>PI</td>
<td>Palmer</td>
<td>07/01/2010-03/31/2012</td>
<td>$522,561</td>
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<td>University of Louisville EVR Clinical and Translational Research Award</td>
<td>Selection of a Novel Pan-Oncogenic HPV Vaccine</td>
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<td>07/01/2010-12/31/2011</td>
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<td>Harry B and Leona M Helmsley Charitable Trust</td>
<td>Pan-oncogenic HPV vaccine</td>
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<td>Agency/ Number</td>
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<tr>
<td>DoD/USAMRM C W81XWH-09-2-0022</td>
<td>Development of Novel Vaccines and Therapeutics Using Plant-Based Expression Systems</td>
<td>Sub-Project PI</td>
<td>Wilkers on</td>
<td>03/15/09 - 03/14/12</td>
<td>$1,680,000</td>
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<tr>
<td>DoD/USAMRM C W81XWH-10-2-0082- CLIN 1</td>
<td>Plant-Based Expression Systems for New Vaccines and Therapeutics</td>
<td>Sub-Project PI</td>
<td>Wilkers on</td>
<td>08/23/2010 - 08/22/2013</td>
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<tr>
<td>DoD/USAMRM C W81XWH-10-2-0082- CLIN 2</td>
<td>Plant-Based Expression Systems for New Vaccines and Therapeutics</td>
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<td>08/23/2010 - 08/22/2013</td>
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**Sankar:**

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<tr>
<td>DoD/USAMRM C W81XWH-10-2-0082- CLIN 1</td>
<td>Plant-Based Expression Systems for New Vaccines &amp; Therapeutics Sub-Project: Ca²⁺/Calmodulin dependent protein kinases in early embryonic neuronal development</td>
<td>Sub-Project PI</td>
<td>Wilkers on</td>
<td>03/15/09 - 03/14/12</td>
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<td>DoD/USAMRM C W81XWH-10-2-0082- CLIN 2</td>
<td>Plant-Based Expression Systems for New Vaccines &amp; Therapeutics Sub-Project: Ca²⁺/Calmodulin dependent protein kinases in vaccine-related immunogenicity</td>
<td>Sub-Project PI</td>
<td>Wilkers on</td>
<td>08/23/10 – 08/22/13</td>
<td>$1,751,000 Sub-project: $389,505</td>
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<td>NIH/1RO1AI076 16 9-01A2</td>
<td>Antiviral lectins as microbicides</td>
<td>Co-I</td>
<td>Palmer</td>
<td>04/01/08 – 03/31/12</td>
<td>$1,760,628 (total costs)</td>
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<td>NIH NIAID Microbicide Innovation</td>
<td>Plant-produced Actinohivin as a Candidate HIV</td>
<td>Co-I</td>
<td>Matoba</td>
<td>06/10/10 – 05/31/12</td>
<td>$275,000 (total direct costs, and</td>
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Program V (R21/R33) 1R21AI088585-01

Microbicide

pending for $900,000 direct costs for R33 phase

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<tr>
<td>R01 DA11551-09</td>
<td>Structure and Function of CB2 Cannabinoid Receptor</td>
<td>PI</td>
<td>Song</td>
<td>5/1/04-4/30/11</td>
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<tr>
<td>R01EY13632</td>
<td>Cannabinoid Receptors-Potential Targets for Novel Antiglaucoma Drugs</td>
<td>PI</td>
<td>Song</td>
<td>8/1/09-7/31/12</td>
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<tr>
<td>T32ES11564</td>
<td>UofL Environmental Health Sciences Training Program</td>
<td>Mentor</td>
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States:

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<tr>
<td>NIEHS, R21-ES015812-02</td>
<td>Transplacental Arsenic Induced Hepatic Dysfunction and Vascular Disease</td>
<td>PI</td>
<td>States</td>
<td>04/01/08 – 03/31/11</td>
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<td>UofL SoMRC</td>
<td>Novel Cancer Chemotherapeutics Targeting Mitosis</td>
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<td>NIEHS, P30-ES04443</td>
<td>Center for Environmental Genomics and Integrative Biology</td>
<td>Dep. Director</td>
<td>Ramos</td>
<td>06/04/07 – 03/31/12</td>
<td>$1,292,306 (Annual)</td>
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<td>NIEHS, R01-ES017260-03</td>
<td>Atherogenic Mechanisms Of Arsenic</td>
<td>Co-I</td>
<td>Srivastava</td>
<td>06/15/09 – 03/31/14</td>
<td>$329,670 (Annual)</td>
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<tr>
<td>NIEHS, R21-ES016367-02</td>
<td>Priming Of Liver Disease By Arsenic Exposure</td>
<td>Co-I</td>
<td>Arteel</td>
<td>05/01/09 – 04/30/12</td>
<td>$221,131 (Annual)</td>
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<td>NIH-NCI, R25CA134283-01A2</td>
<td>University Of Louisville Cancer Education Program</td>
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<td>NIH-NIEHS, T32ES011564</td>
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<td>07/01/09-06/30/14</td>
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<td>NIH-NIEHS, T35ES014559</td>
<td>Summer Environmental Health Sciences Training Program</td>
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<td>Prough</td>
<td>04/01/06 – 03/31/16</td>
<td>$34,334 (Annual)</td>
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Pharmacology and Toxicology Grants –Submitted (Total of 50)

Arteel:

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<th>Title</th>
<th>Role</th>
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<tr>
<td>NIAAA</td>
<td>Ethanol: Uterine Lipids and Receptivity</td>
<td>Collaborator</td>
<td>Neal</td>
<td>04/01/11-03/31/16</td>
<td>$300,000</td>
<td>$150,000</td>
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<tr>
<td>NIAAA</td>
<td>Control of drug and ethanol metabolism</td>
<td>PI</td>
<td>Arteel</td>
<td>04/01/11-03/31/16</td>
<td>$1,250,000</td>
<td>$622,083</td>
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<tr>
<td>NIEHS</td>
<td>Influence of diet and GI tract flora on arsenic sensitivity</td>
<td>PI</td>
<td>Arteel</td>
<td>4/1/12-3/31/14</td>
<td>$300,000</td>
<td>$150,000</td>
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<td>NIAAA</td>
<td>Receptor-mediated effects of ethanol related lung tissue injury/repair</td>
<td>Collaborator</td>
<td>Roman</td>
<td>07/01/11-06/30/16</td>
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<td>NIAAA</td>
<td>Effect of dietary fat on the hepatotoxicity of environmental arsenic</td>
<td>Collaborator</td>
<td>Watson</td>
<td>04/01/12-03/31/14</td>
<td>$300,000</td>
<td>$150,000</td>
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<tr>
<td>NIAAA</td>
<td>Nutrition, gut flora/intestinal dysfunction in alcohol-induced organ injury</td>
<td>Core Leader</td>
<td>McClain</td>
<td>07/01/12-06/30/17</td>
<td>$6,000,000</td>
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Cai:

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<th>PI</th>
<th>Project Period</th>
<th>Budget Request</th>
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<tbody>
<tr>
<td>NIH/R21</td>
<td>Characterization/Novel Vascular System</td>
<td>Co-I</td>
<td>Kang</td>
<td>10/30/10-1/7/13</td>
<td>$411,250</td>
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<tr>
<td>NIH/R01 renew</td>
<td>TNF-alpha in Cell Death &amp; Neuroprotection in Glaucoma</td>
<td>Co-I</td>
<td>Tezel</td>
<td>4/1/12-3/31/17</td>
<td>$1,874,375</td>
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<tr>
<td>NSF/preproposal</td>
<td>Center for Primo-Vascular System</td>
<td>Co-I</td>
<td>Kang</td>
<td>6/1/13-5/30/18</td>
<td>N/A</td>
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<tr>
<td>DOD/preapplication</td>
<td>Characteristics and Roles of Primo Vascular System in Breast Cancer</td>
<td>Co-I</td>
<td>Kang</td>
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<td>N/A</td>
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<tr>
<td>NIH/R01</td>
<td>Oxidative stress in glaucoma</td>
<td>Co-I</td>
<td>Tezel</td>
<td>7/1/12-6/30/17</td>
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<td>NIH/Pioneer</td>
<td>Primo Vascular System</td>
<td>Co-I</td>
<td>Kang</td>
<td>9/30/12-7/31/17</td>
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<tr>
<td>NIH/R21 resubmission</td>
<td>Characterization of a Novel Vascular System by Proteomics and Molecular Imaging</td>
<td>Co-I</td>
<td>Kang</td>
<td>7/1/12-6/30/14</td>
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### Davis:

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<tr>
<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 to 6/30/2012</td>
<td>$78,059</td>
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<td>Promotion Board</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>
<td>Co-PI</td>
<td>Donald Wilkerson</td>
<td>9/30/2011 to 10/29/2015</td>
<td>$1,748,000</td>
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### Gupta:

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<th>Budget Request (Direct cost only)</th>
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<tr>
<td>NCI CA-162417</td>
<td>Sustained, Target Delivery for Treatment of Cervical Pathologies</td>
<td>PI</td>
<td>Gupta</td>
<td>04/12-09/13</td>
<td>$84,546</td>
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<tr>
<td>NCI CA-166306</td>
<td>Prevention &amp; Treatment Strategies of Lung Cancer Recurrence</td>
<td>PI</td>
<td>Gupta</td>
<td>04/12-03/17</td>
<td>$1,696,283</td>
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<td>NCI 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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<td>NCI ES-021769</td>
<td>Role of Estrogen in Lung Cancer</td>
<td>PI</td>
<td>Gupta</td>
<td>07/12-06/17</td>
<td>$1,613,137</td>
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<td>NCI CA169311</td>
<td>Inhibition of Breast Cancer by Berry Bioactives</td>
<td>PI</td>
<td>Gupta</td>
<td>07/12-06/17</td>
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<td>NCI 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>
<td>$1,526,923</td>
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<td>NCAAM/NCI AT007428</td>
<td>Inhibition of Lung Cancer by Berry Polyphenols</td>
<td>PI</td>
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<td>07/12-06/17</td>
<td>$1,684,076</td>
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<td>NCI CA-171327</td>
<td>Prophylactic Treatment of Lung Cancer by Natural Compounds</td>
<td>PI</td>
<td>Gupta</td>
<td>07/12/06/14</td>
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<td>NIEHS R25ES020701</td>
<td>UofL R25 Environmental Health Sciences Research Program</td>
<td>PI</td>
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<td>05/01/11-04/30/16</td>
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<td>NIEHS R03ES020927</td>
<td>NAT2 genetic variants, inhibitors, and genotoxicity</td>
<td>PI</td>
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<td>09/01/11-08/31/13</td>
<td>$149,584</td>
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<td>NCI R25</td>
<td>UofL Program of Distinction in Student Cancer Research</td>
<td>PI</td>
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Kidd:

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<tr>
<td>Department of Defense/Grant10893442</td>
<td>Prostate Cancer Health Disparity/Understanding the Role of Genetics in Susceptibility and Disease Progression of Prostate Cancer Among Men of African Ancestry</td>
<td>Qualifying Collaborator</td>
<td>Camille</td>
<td>9/30/12 - 9/30/15</td>
<td>$600,000</td>
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<td>NIMHD Resource-Related Minority Health and Health Disparities Research</td>
<td>U24/Health Disparities Data Coordinating and Analytical Center (DCAC)</td>
<td>Co-PI</td>
<td>Kidd/Kimbro</td>
<td>9/1/11-8/31/16</td>
<td>$4,859,196</td>
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<td>NIMHD/1 R01 MD007073-01</td>
<td>R01/Role of Obesity in Renal Injury</td>
<td>Consultant</td>
<td>Pointe r</td>
<td>4/01/12 – 03/31/17</td>
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Matoba:

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<tr>
<td>NIH NIAID R21</td>
<td>HIV vaccine potential of a cholera toxin subunit displaying high-mannose glycans</td>
<td>PI</td>
<td>Matoba</td>
<td>07/01/11-06/30/13</td>
<td>$275,000 (total direct costs) -Not funded, to be resubmitted</td>
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<td>UofL Office of the Vice President for Research IRIG Research Initiation Grant</td>
<td>Prophylactic potential of plant-produced cholera toxin B subunits in experimental colitis</td>
<td>PI</td>
<td>06/01/11-05/31/12</td>
<td>$5,000 -Awarded</td>
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<td>PI</td>
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<tr>
<td>DoD/UAMRMC W81XWH-10-2-0082-CLIN 2</td>
<td>Plant-Based Expression Systems for New Vaccines and Therapeutics</td>
<td>Co-PI</td>
<td>Wilkerson</td>
<td>9/30/10-10/29/15</td>
<td>$1,748,000</td>
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<tr>
<td>Harry B and Leona M Helmsley Charitable Trust</td>
<td>Pan-oncogenic HPV Vaccine</td>
<td>PI</td>
<td>Palmer</td>
<td>8/1/11-7/31/12</td>
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<td>American Cancer Society Research Scholar Award</td>
<td>Anti-Proliferative Kinases in Hematopoietic Stem Cell Homeostasis.</td>
<td>PI</td>
<td>Sankar</td>
<td>07/01/10-06/30/16</td>
<td>$928,191 Total costs</td>
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<td>NIH/R01EY13632</td>
<td>Cannabinoid Receptors-Potential Targets for Novel Antiglaucoma Drugs</td>
<td>PI</td>
<td>Song</td>
<td>8/1/09-7/31/11 (submitted quarterly report)</td>
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<td>NIH/R01</td>
<td>Cannabinoids and Glaucoma</td>
<td>PI</td>
<td>Song</td>
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<td>NIH/1R21DK096</td>
<td>Searching New Ligands for GPR119</td>
<td>PI</td>
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<td>Novel Cancer Chemotherapeutics Targeting Mitosis</td>
<td>PI</td>
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<td>KLCRP</td>
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<td>Targeting the Anaphase Promoting Complex (PQ18)</td>
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<td>07/01/12 - 06/30/16</td>
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<tr>
<td>NIH-NIEHS</td>
<td>Whole Life Arsenic-exposure: Hepatic Dysfunction and Vascular Disease</td>
<td>PI</td>
<td>States</td>
<td>12/1/11 – 11/30/16</td>
<td>$1,842,889</td>
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<td>NIH-NIEHS</td>
<td>Influence of diet and GI tract flora on arsenic sensitivity</td>
<td>Co-I</td>
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<td>04/1/12 – 03/31/14</td>
<td>$449,625</td>
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<td>NIH-NIEHS</td>
<td>Mitochondrial Dysfunction Induced by Arsenic: Diet Interactions</td>
<td>Co-I</td>
<td>Watso n</td>
<td>9/1/11 to 8/31/16</td>
<td>$1,872,917</td>
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<td>NIH-NIEHS</td>
<td>Center for Environmental Genomics and Integrative Biology</td>
<td>Dep. Director</td>
<td>Ramos</td>
<td>4/1/2012 – 3/30/2017</td>
<td>$8,250,000</td>
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</tbody>
</table>

**INVITED SCIENTIFIC PRESENTATIONS**

**Arteel:**

1. Research seminar, 01/11 "PAI-1 and fibrin metabolism in hepatic inflammation and injury." University of Essen, Essen, Germany

2. Research seminar, 01/11 "PAI-1 and fibrin metabolism in hepatic inflammation and injury." University of Regensburg, Regensburg, Germany

3. Research seminar, 08/11 "New projects and directions." University of Louisville Alcohol Research Center (ULARC) meeting, Louisville, KY.

4. Research seminar, 10/11 "Hepatic regeneration in the chronicity of liver diseases." The Cleveland Clinic, Cleveland, OH.
5. Research seminar, 10/11 "Fibrin and the balance between (hepatic) life and death." RTI International, Research Triangle Park, NC.

**Davis:**


3. Development of the soy peptide lunasin as an anticancer agent. 2011. Spalding University, Louisville, Kentucky


**Gupta:**


2. 16th World Congress on Advances in Oncology and 10th International Symposium on Molecular Medicine, Greece, October 2011 (Canceled)

**Hein:**

1. *Pharmacogenetics: Past, Present and Future*. Pulmonary, Critical Care and Sleep Disorders Medicine, Department of Medicine, University of Louisville School of Medicine, Louisville, Kentucky, January 2011.


**Kang:**


**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

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. Len Waite 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. Leonard Waite 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. McGregor and Prough)
  - 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)
KC HUANG MEMORIAL LECTURE

"Xenobiotic metabolising enzymes from a comparative genomic perspective" was presented September 2 by Dr. Sotiria Boukouvala, Senior Lecturer of Molecular Genetics, Department of Molecular Biology and Genetics, Democritus University of Thrace, Greece.

STANDING COMMITTEES– 2011

Graduate Student Affairs and Curriculum Committee

Dr. Peter Rowell (Chair)
Dr. Glenn McGregor (2012)
Dr. Uma Sankar (2011)
Dr. Gavin Arteel (2010)
Clarisse Muenyi

Graduate Student Admissions and Recruitment Committee

Dr. Chris States (Chair)
Dr. Steve Myers (2012)
Dr. La Creis Kidd (2011)
Dr. Paul Epstein (2010)

SIBUP/Grievance Committee

Dr. Peter Rowell (Chair)
Dr. Joe Song (2012)
Dr. Don Nerland (2011)
Dr. Harrell Hurst (2010)

Teaching Evaluation Committee

Dr. Mike Williams (Chair)
Dr. Harrell Hurst (2012)
Dr. Len Waite (2011)
Dr. Fred Benz (2010)

Seminar Committee

Dr. Don Nerland (Chair)
Dr. Gavin Arteel (2012)
Dr. Fred Benz (2011)
Dr. Steve Myers (2010)
Core Laboratories/Research Committee

Dr. Gavin Arteel (Chair)
Dr. Jian Cai (2012)
Dr. Glenn McGregor (2011)
Dr. Theresa Chen (2010)

Events Committee

Dr. Len Waite (Chair)
Dr. Glenn McGregor (2012)
Dr. Nobuyuki Matoba (2011)
Dr. LaCreis Kidd (2010)
Graduate Student Representative

Information Technology Committee

Dr. Gavin Arteel
Dr. Fred Benz
Dr Harrell Hurst

Faculty Search Committee

Dr. David Hein
Dr. La Creis Kidd
Dr. William Pierce, Jr.
Dr. Chris States

Department Graduates

<table>
<thead>
<tr>
<th>Name</th>
<th>Degree</th>
<th>Mentor</th>
<th>Thesis/Dissertation Title</th>
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<tbody>
<tr>
<td>228 Pritesh</td>
<td>M.S.</td>
<td>Zhao-Hui (Joe) Song, Ph.D.</td>
<td>Searching for novel ligands for cannabinoid and related receptors</td>
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<tr>
<td>Kumar</td>
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<tr>
<td>227 Benjamin</td>
<td>M.S.</td>
<td>Richard Goldstein, M.D., Ph.D.</td>
<td>Pharmacists as mid-level healthcare providers and the clinical results of a pharmacist-</td>
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<tr>
<td>M. Risner</td>
<td></td>
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<td>led diabetes disease management program</td>
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<tr>
<td>226 Stephanie</td>
<td>Ph.D.</td>
<td>Shirish Barve, Ph.D.</td>
<td>Role of HDACs and SAM in interferon-alpha signaling and epigenetic regulation of anti-HCV</td>
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<tr>
<td>A. Mathews</td>
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<td>gene expression</td>
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<tr>
<td>225 Erica N.</td>
<td>Ph.D.</td>
<td>J. Christopher States, Ph.D.</td>
<td>The role of curcumin in response to BPDE-induced DNA damage in human lung epithelial cells</td>
</tr>
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<td>Rogers</td>
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Mechanistic insights into copper-induced regression of heart hypertrophy
Arsenic-induced developmental changes in the liver and adult cardiovascular disease
Roles of 5HT1A receptor in CNS neurogenesis and ADAM21 in spinal cord injury
Mitigating cisplatin resistance in ovarian cancer
Functional analysis of N-acetyltransferase (NAT1*14B and NAT1*10) in complete NATb and NATa mRNA
Adenovirus-induced cyclin E activates CDK2 for virus replication
DNA polymerase iota promotes G2/M checkpoint activation and genetic stability after UV-induced DNA damage
Development and evaluation of polymeric implants of curcumin for enhanced chemopreventive activity
Profile of systemic treatment with the antiviral lectin griffithsin in guinea pigs
Prevention and treatment of lung cancer by green tea polyphenols
Sustained systemic delivery of chemopreventive agents in inhibiting dibenzo[a,l]pyrene-induced DNA adducts in the lungs of A/J mice
Cardiac abnormalities after transaortic constriction are worsened by changing glucose metabolism and benefited by repair of mitochondrial DNA
Sulforaphane prevents acetaminophen-induced hepatic injury in mice
2011 PhD Graduates

Shelia A. Arnold, PhD

Shyam Sunder Bansal, PhD
Ntube Nini Olive Ngalame, PhD

Erica N. Rogers, PhD
Gilandra K. Russell, PhD
2011 MS Graduates

Christopher L. Barton

Benjamin M. Risner

Pei-Hsin (Penny) Cheng

Robin H. Schmidt

Pritish Kumar