



Department of Pharmacology & Toxicology

2005 Annual Report

University of Louisville

School of Medicine

UNIVERSITY of LOUISVILLE[®]

dare to be great



Department of Pharmacology and Toxicology-2005

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I. Department Highlights

The Department of Pharmacology and Toxicology continued its efforts to foster excellence in graduate education and research as outlined in this annual report. Much of the details are provided in the individual faculty reports from each of the salaried faculty members. Notable achievements were the initiation of a new start up biotechnology company ([Pradama, Inc](#)) by Dr. William Pierce and receipt of a many awards by faculty, staff, and students as described below.

Faculty Awards

School of Medicine Golden Apple Award for Outstanding Teaching

- Dr. W. Michael Williams

Department of Pharmacology and Toxicology Outstanding Teaching Award

- Dr. W. Michael Williams

School of Medicine nominee: President's Award for Outstanding Research, Scholarship, and Creative Activity (Career)

- Dr. William M. Pierce, Jr.

Ohio Valley Society of Toxicology Young Investigator's Award

- Dr. Gavin E. Arteel

First place Award, Scientific Importance of Research, Research!Louisville

- Dr. Gavin E. Arteel

Appointment as Distinguished University Scholar

- Dr. Nick A. Delamere
- Dr. Paul N. Epstein
- Dr. David J. Tollerud

Appointment as University Scholar

- Dr. Zhao-Hui (Joe) Song

Health Science Center Technology Innovation Teaching Award

- Dr. Steven R. Myers

President's Award for Outstanding Research, Scholarship, and Creative Activity

- Dr. David Gozal

President's Award for Outstanding Research, Scholarship, and Creative Activity (Career)

- Dr. Donald M. Miller

Faculty Appointments/Promotions/Tenure

Promoted to Professor

- Dr. W. Glenn McGregor
- Dr. J. Christopher States

Promoted to Associate Professor

- Dr. David E. Clouthier
- Dr. Evelyne Gozal
- Dr. Yang Wang

Approved for Tenure

- Dr. David E. Clouthier
- Dr. Evelyne Gozal
- Dr. W. Glenn McGregor
- Dr. Yang Wang

Faculty Appointments

- Dr. Craig J. McClain

Dr. McClain left to take a position at Ohio State University, was but recruited back to UofL soon thereafter and was reappointed Professor of Medicine and Pharmacology/Toxicology. Dr. McClain agreed to take the lead role in UofL's application for the Center for Translational Science Award. Dr. McClain's new appointment includes a salary component from the Department.

Administrative Appointments

Associate Dean for Research, School of Medicine

- Dr. Peter P. Rowell

Chair, Department of Surgery

- Dr. Kelly M. McMasters

Staff Promotions

Administrative Assistant

- Sharon Carpenter
- Heddy Rubin

Research Scientist

- Mark Doll

Graduate Student Awards

KC Huang Outstanding Graduate Student Award

- Anwar Husain

John Richard Binford Memorial Award

- Anwar Husain

First place research award, FASEB/ASPET

- Tanvi Jani

First place research award, Ohio Valley Society of Toxicology

- Sam McNeely

Cancer Center Retreat Research Award

- Chad Dumstorf

Research!Louisville Awards

- Frazier Taylor
- Yu (Janet) Zang

Graduate Dean's Citations

- Sam McNeeley
- Jason Walraven
- Xiaoyan (Susan) Zhang

School of Medicine Distinguished Alumni Award

- Brian Lukey

II. Mission Statement

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 Challenge for Excellence to become a preeminent metropolitan research university, the Department Strategic Plan 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 will be 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 active contribution to high quality research and other scholarly activities, particularly in pharmacology and toxicology and other areas of focus within the University of Louisville *Challenge for Excellence*.
- Provide high quality research and educational experiences in pharmacology and toxicology for the education and training of future biomedical scientists who can 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.

III. Faculty/Research Descriptions (Primary and joint appointments)



George R. Aronoff, M.D. (Indiana University)

Professor

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



Gavin E. Arteel, Ph.D. (University of North Carolina-Chapel Hill)

Assistant Professor

Mechanisms of oxidative stress; mechanisms of alcohol-induced hepatitis, pancreatitis, and hepatocellular carcinoma.



Shirish Barve, Ph.D. (University of Kentucky)

Associate Professor

Effects of alcohol on molecular mechanisms of cytokine action, gene expression and liver injury.



Frederick W. Benz, Ph.D. (University of Iowa)

Professor

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



Aruni Bhatnagar, Ph.D. (University of Kanpur)

Professor

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



Haribabu Bodduluri, Ph.D. (Indian Institute of Science)

Associate Professor

Signal transduction and chemoreceptors. Role of leukotriene receptors in inflammation and host response.



Jian Cai, Ph.D. (University of Louisville)

Instructor

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, Ph.D. (University of Louisville)

Professor

Biochemical toxicology; role of glutathione in aging toxicology; general and specific toxicity of environmental pollutants.



Jason A. Chesney, MD, PhD (University of Minnesota)

Assistant Professor

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



David E. Clouthier, Ph.D. (University of Texas Southwestern)

Associate Professor

Function of endothelin-A receptor signaling during craniofacial and cardiovascular development. Mouse models of human birth defect syndromes.



Nicholas A. Delamere, Ph.D. (University of East Anglia)

Professor

Electrolyte transport mechanisms in epithelia; second messenger regulation of Na,K-ATPase activity; fluorescence imaging studies on cytoplasmic calcium; cellular proton transport.



John W. Eaton, Ph.D. (University of Michigan)

James Graham Brown Professor

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



Paul N. Epstein, Ph.D. (Baylor College of Medicine)

Professor

Carol B. McFerran Chair in Pediatric Diabetes Research

Molecular mechanisms of diabetogenesis. The use of transgenic animals to study genetics and molecular mechanisms in vivo.



Teresa Whei-Mei Fan, Ph.D. (University of California-Davis)

Associate Professor

Metabolomics, proteomics, ecotoxicology, contaminant bioavailability, transport, biotransformation, and bioremediation.



Richard E. Goldstein, M.D., Ph.D.
(M.D., Thomas Jefferson University; Ph.D., Vanderbilt University)

Professor and vonRoenn Family Chair in Surgical Endocrinology

Surgical endocrinology; surgical oncology.



David Gozal, M.D. (Hebrew University of Jerusalem)

Professor

Children's Hospital Foundation Pediatric Research Chair

Signal transduction mechanisms underlying ventilatory response to hypoxia; neuronal adaptations to intermittent hypoxia: growth factors, intracellular signaling, and genomic implications.



Evelyne Gozal, Ph.D. (University of Southern California)

Associate Professor

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.



Ramesh C. Gupta, PhD (University of Roorkee)

Professor and Agnes Brown Duggan Chair of Oncological Research

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



Theo Hagg, MD, PhD

(MD, University of Leiden; PhD, University of California, San Diego)

Professor and Endowed Chair In Neurological Surgery

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



David W. Hein, Ph.D. (University of Michigan)

Professor

Peter K. Knoefel Chair of Pharmacology and Toxicology

Molecular pharmacogenetics; molecular epidemiology; functional genomics; genetic predisposition to chemical carcinogenesis and drug toxicity; molecular genetics; environmental toxicology.



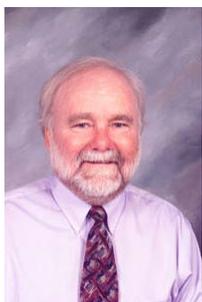
Michal Hetman, M.D., Ph.D.

(M.D., Warsaw Medical School; Ph.D., Polish Academy of Sciences)

Assistant Professor

Endowed Professor of Molecular Signaling

Role of signaling kinases in neuronal repair and demise.



Harrell E. Hurst, Ph.D. (University of Kentucky)

Professor

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, Ph.D. (Iowa State University)

Professor

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.



Mary Jayne Kennedy, Pharm. D. (Medical University of South Carolina)

Assistant Professor

Pediatric clinical pharmacology; pharmacodynamics, pharmacokinetics; pharmacogenetics, and biotransformation



La Creis Renee Kidd, Ph.D., M.P.H.

(Ph.D., Massachusetts Institute of Technology)

(M.P.H. Johns Hopkins University)

Assistant Professor

Our Highest Potential Endowed Chair in Cancer Research

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



Craig J. McClain, M.D. (University of Tennessee, Memphis)

Professor
Jewish Hospital Distinguished Chair in Hepatology

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



W. Glenn McGregor, M.D. (University of Michigan)

Professor

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.



Kelly M. McMasters, M.D., Ph.D.
(University of Medicine and Dentistry of New Jersey/Rutgers Medical School)

Sam and Lolita Weakley Endowed Professor

Adenoviral vector cancer gene therapy. Development of vectors that selectively replicate in cancer cells. Mechanisms of E2F-1-induced apoptosis.



Donald M. Miller, M.D., Ph.D. (Duke University)

Professor
James Graham Brown Foundation Chair

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



Steven R. Myers, Ph.D. (University of Kentucky)

Associate Professor

Drug metabolism, metabolism of xenobiotics and chemical carcinogens; use of hemoglobin as biomarker in exposure to xenobiotics.



Donald E. Nerland, Ph.D. (University of Kansas)

Professor

Biochemical toxicology; metabolism of drugs and environmental pollutants.



William M. Pierce, Jr., Ph.D. (University of Louisville)

Professor

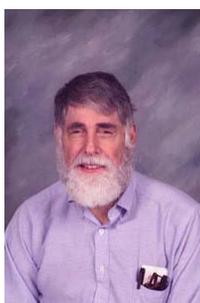
Mechanisms of bone formation and resorption; design of novel drugs for management of osteoporosis; biomolecular mass spectrometry; proteomics in structural biology.



M. Michele Pisano, Ph.D. (Thomas Jefferson University)

Professor

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, Jr. M.D., Ph.D.
(Ph.D., Yale University; M.D., State University of New York)

Professor

Toxicokinetics in drug overdoses and pharmacokinetics in pediatric disease states.



Peter P. Rowell, Ph.D. (University of Florida)

Professor

Neuropharmacology; effect of drugs on brain neurotransmitters and receptors.

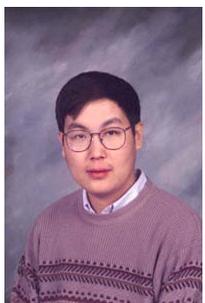


Daniel I. Sessler, M.D. (Columbia University)

Professor

Weakley Distinguished University Research Chair

Outcomes research; effects of anesthetics on thermoregulation; perioperative heat balance; adverse effects of mild hypothermia; effects of supplemental perioperative oxygen on wound infections, nausea and vomiting.



Zhao-Hui (Joe) Song, Ph.D. (University of Minnesota)

Associate Professor

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, Ph.D. (Albany Medical College/Union University)

Professor

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



Janice E. Sullivan, M.D. (University of Minnesota)

Associate Professor

Clinical pharmacology with a focus on developmental pharmacokinetics and pharmacodynamics.



David J. Tollerud, M.D., M.P.H.
(M.D., Mayo Medical School; M.P.H., Harvard University)

Professor

Occupational and environmental health; Occupational toxicology; molecular epidemiology



Leonard C. Waite, Ph.D. (University of Missouri)

Professor

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



Yang Wang, M.D. Ph.D.
(M.D., Jiangxi Medical College; Ph.D., University of Toronto)

Associate Professor

Molecular and cellular regulation of genes implicated in hypoxic/ischemic injury and protection in the cardiovascular system.



Walter M. Williams, M.D., Ph.D. (University of Louisville)

Professor

Studies of drug elimination (metabolism and excretion).



Hong Ye, Ph.D. (Keele University)

Assistant Professor

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, Ph.D. (Philipps-University Marburg)

Associate Professor

Ribozymes for gene therapy in rheumatoid arthritis; involvement and roles of cathepsins in oral cancers; gene expression profiling with DNA microarray chip technology.



Wayne S. Zundel, Ph.D. (Stanford University)

Assistant Professor

Molecular oncology.

IV. Personnel

Faculty with Primary Appointments

Arteel, Gavin E., Assistant Professor; Ph.D., Toxicology, University of North Carolina-Chapel Hill (1997).

Benz, Frederick W., Professor; Ph.D., Pharmacology, University of Iowa (1970).

Cai, Jian, Instructor; Ph.D., Pharmacology and Toxicology, University of Louisville (1999).

Chen, Theresa S., Professor; Ph.D., Pharmacology, University of Louisville (1971).

Gupta, Ramesh, Professor and Agnes Brown Duggan Chair of Oncological Research; Ph.D. Analytical/Physical Chemistry, University of Roorkee (1972).

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

Hurst, Harrell E., Professor; Ph.D., Toxicology, University of Kentucky (1978).

Kidd, LaCreis R., Assistant Professor, Ph.D., Toxicology, Massachusetts Institute of Technology (1997).

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

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

Nerland, Donald E., Professor; Ph.D., Medicinal Chemistry, University of Kansas (1974).

Pierce, William M., Jr., Professor and Vice Chair for Graduate Education; Ph.D., Pharmacology and Toxicology, University of Louisville (1981).

Rowell, Peter P., Professor; Ph.D., Pharmacology and Therapeutics, University of Florida (1975).

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

States, J. Christopher, Professor; Ph.D., Molecular Biology and Pathology, Albany Medical College/Union University (1980).

Waite, Leonard C., Professor and Vice Chair for Professional Education; Ph.D., Pharmacology, University of Missouri (1969).

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

Faculty with Joint Appointments

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

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

Bhatnagar, Aruni, Professor of Medicine (Cardiology), and Pharmacology and Toxicology; Ph.D., Chemistry, University of Kanpur (1985).

Bodduluri, Hari, Associate Professor of Microbiology and Immunology, and Pharmacology and Toxicology; Ph.D., Biochemistry, Indian Institute of Science (1983).

Chesney, Jason A., Assistant Professor of Medicine (Hematology/Oncology), and Pharmacology and Toxicology; Ph.D., Biomedical Sciences/Immunology, University of Minnesota (1997); M.D., University of Minnesota (1998).

Clouthier, David E., Associate Professor of Molecular, Cellular and Craniofacial Biology, and Pharmacology and Toxicology; Ph.D., Cell and Molecular Biology, University of Texas Southwestern Medical Center (1994).

Delamere, Nicholas A., Professor of Ophthalmology and Visual Sciences, and Pharmacology and Toxicology; Ph.D., Membrane Physiology and Biophysics, University of East Anglia, Norwich, England (1976).

Eaton, John W., James Graham Brown Professor of Cancer Biology, Department of Medicine, and Professor of Pharmacology and Toxicology; Ph.D., Biological Anthropology and Human Genetics, University of Michigan (1969).

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

Fan, Teresa, Associate Professor of Chemistry, and Pharmacology and Toxicology; Ph.D., Biochemistry, University of California-Davis (1983).

Goldstein, Richard E., Professor of Surgery, and Pharmacology and Toxicology; M.D., Thomas Jefferson University (1982); Ph.D., Molecular Physiology and Biophysics, Vanderbilt University School of Medicine (1994).

Gozal, David*, Children's Hospital Foundation Pediatric Research Chair, Professor of Pediatrics, and Pharmacology and Toxicology; M.D., Hebrew University of Jerusalem, Hadassah Medical School (1979).

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

Hagg, Theo, Professor and Endowed Chair of Neurological Surgery, and Professor of Pharmacology and Toxicology; M.D., University of Leiden (1985), Ph.D., Neurosciences, University of California-San Diego (1998).

Hetman, Michal, Assistant Professor of Neurological Surgery, and Pharmacology and Toxicology; M.D., Warsaw Medical School (1994); Ph.D., Experimental and Clinical Medicine, Polish Academy of Sciences (1997).

Kang, Y. James*, Professor of Medicine, and Pharmacology and Toxicology; Ph.D., Cell Biology and Zoology, Iowa State University (1989).

Kennedy, Mary Jayne, Assistant Professor of Pediatrics, and Pharmacology and Toxicology; Pharm.D, Medical University of South Carolina (1998).

McClain, Craig J., Professor of Medicine (Gastroenterology), and Pharmacology and Toxicology; M.D., University of Tennessee-Memphis (1972).

McMasters, Kelly M., Professor of Surgery, and Pharmacology and Toxicology; Ph.D., Cell and Developmental Biology, Rutgers University (1988); M.D., UMDNJ R.W. Johnson Medical School (1989).

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

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

Rodgers, George C., Jr., Professor of Pediatrics, and Pharmacology and Toxicology; Ph.D., Organic Chemistry, Yale University (1964); M.D., State University of New York (1975).

Sessler, Daniel I., Professor of Anesthesiology, Weakley Distinguished University Research Chair, and Professor of Pharmacology and Toxicology, M.D., Columbia University (1980).

Sullivan, Janice E., Associate Professor of Pediatrics, and Assistant Professor of Pharmacology and Toxicology; M.D., University of Minnesota (1988).

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

Wang, Yang, Associate Professor of Pediatrics, and Pharmacology and Toxicology; M.D., Jiangxi Medical College (1982); Ph.D., Physiology, University of Toronto (1993).

Ye, Hong, Assistant Professor of Medicine (Hematology/Oncology), and Pharmacology and Toxicology; Ph.D., Biophysics, Keele University (1998).

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

Zundel, Wayne S., Assistant Professor of Radiation Oncology, and Pharmacology and Toxicology; Ph.D., Cancer Biology, Stanford University (2000).

* Partial salary from Department of Pharmacology and Toxicology

Faculty with Associate Appointments

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

Cai, Lu, Assistant Professor of Medicine; Ph.D., Radiation Biology/Oncology, Norman Bethune University of Medical Sciences (1987).

Conklin, Daniel J., Assistant Professor of Medicine (Cardiology); Ph.D., University of Notre Dame (1995).

Liu, Ye Qi, Assistant Professor of Pediatrics; M.D., Guangxi Medical University (1983); Ph.D., Pharmacology, Osaka University (1993).

Schurr, Avital, Professor of Anesthesiology; Ph.D., Biochemical Pharmacology, Ben Gurion University, Beer Sheva, Israel (1977).

Stansbury, Kevin H., Assistant Professor, Brown Cancer Center; Ph.D. University of Kentucky (1994).

Wong, John L., Professor of Chemistry, and Pharmacology and Toxicology; Ph.D., Chemistry, University of California at Berkeley (1966).

Young, William W., Professor of Molecular, Cellular, and Craniofacial Biology; Ph.D., Pharmacology, Washington University (1975).

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).

Zimmerman, Thom J., Professor Emeritus of Ophthalmology and Visual Sciences, and Pharmacology and Toxicology; Ph.D., Pharmacology, University of Florida (1976); M.D., University of Illinois (1968).

Faculty with Adjunct Appointments

Friedman, Marvin A., Adjunct Professor of Pharmacology and Toxicology; Ph.D., Massachusetts Institute of Technology (1967).

Hayes, A. Wallace, Adjunct Professor of Pharmacology and Toxicology; Ph.D., Auburn University (1967).

Hong, Jun-Yan, Adjunct Professor of Pharmacology and Toxicology; Ph.D., University of Medicine and Dentistry of New Jersey (1987).

Matyunas, Nancy, Adjunct Instructor of Pharmacology and Toxicology; Pharm.D., University of Utah (1983).

Nicholson, John A., Adjunct Assistant Professor of Pharmacology and Toxicology; D.M.D., University of Louisville (1979); Ph.D., University of Louisville (1968).

Staff

Aiyer, Harini, Research Assistant
Barker, David, Research Scientist
Baumgarten, Sara, Student Assistant
Benford, Marnita, Laboratory Assistant
Burke, Tom, Research Technologist II
Carpenter, Sharon, Administrative Assistant
Doll, Mark, Research Scientist
Duveau, Ilinca, Research Technologist II
Greca, Edie, Business Manager InterIII
Guo, Luping, Senior Research Associate
Holloman, Jessica, Student Assistant
Hollkamp, Judy, Administrative Assistant
Jiang, Guohui, Research Associate Senior
Kellie, Brandon, Student Assistant
Liu, Marcia, Research Associate
Martini, Ben, Student Assistant
Miller, Heather, Senior Research Technician
Rubin-Teitel, Heddy, Administrative Assistant
Smith, Ned, Senior Research Technologist
Taylor, Kevin G., Research Technologist IV
Templeton, Tiva, Research Technologist II
Tucker, Alison, Lab Research Technician III
Turner, Delano, Lab Research Technician III
Vadhanam, Manicka, Senior Research Associate
Venugopal, Kamal, Research Associate
Watson, Nick, Lab Research Technician III

Postdoctoral Fellows

Ali, Yeakub
Bendaly, Jean
Beier, Juliane
Bergheim, Ina
Jiang, Guo-hui
Kim, Tae Kang
Mukhopadhyay, Suparna
Neale, Jason
Ravoori, Srivani
Thaiparambil, J. Thomas
Zhao, Shuang

Continuing Graduate Students

Name	Advisor
Cherone Anthony	Aruni Bhatnagar
Aisha Bagshaw	Bill Pierce
Cristian Campian	Fred Benz
Alex Carrasquer	Joe Song
Wendy Chang	Theresa Chen
Molly Davis	Gavin Arteel
Chad Dumstorf	Glenn McGregor
Agata Habas	Michal Hetman
Anwar Husain	David Hein
Jin Liu	Michael Brier
Sam McNeely	Chris States
Robert Martin	David Hein
Kevyn Merten	James Kang
Kristin Metry	David Hein
Tanvi Jani	Shirish Barve
Sam McNeely	Chris States
Afsoon Moktar	Ramesh Gupta
Lasharon Mosley	Richard Goldstein
Sheila Mullins	Paul Epstein
Miranda Nebane	Joe Song
YaFatou Njie	Joe Song
John Philipose	Michele Pisano
Paul Porter	Chris States
Stephen Reeves	David Gozal
Katie Richardson	Gavin Arteel
Emily Esposito	Michele Pisano
Gilandra Russell	Gavin Arteel
Frazier Taylor	Chris States
Joshua Thornburg	Jason Chesney
Jason Walraven	David Hein
Nick Watson	Glenn McGregor
Christina Wiegand	Evelyne Gozal
Steven Xu	Theresa Fan
Lu Yang	Paul Epstein
Janet Zang	David Hein
Rundong Zhang	Joe Song
Susan Zhang	David Hein
Yang Zhou	James Kang

New Graduate Students

Bratcher, Jeremy
 Decker, Rebecca
 Hoetker, David
 Jones, Kay
 Kaiser, Phillip
 Kamga, Christelle
 Kennedy, Mary Jayne
 Ma, Shankang
 Mathews, Stephanie
 Menchu, Mildred
 Nzimulinda, Jean Claude
 Phelps, Allison
 Rogers, Erica
 Smith, Wesley
 Souza, Vinnie
 Wang, Jianxun

V. Graduates

Graduate	Degree	Mentor	Dissertation or Thesis Title
Paul C. Porter	Ph.D.	J. Christopher States, Ph.D.	Discovery and functional analysis of XPA polymorphisms and use of telomerase immortalized cells for nucleotide excision repair studies
Ya Fatou Njie	M.S.	Zhao-Hui (Joe) Song, Ph.D.	Effects of the endogenous cannabinoid, noladin ether on aqueous humor outflow facility mediated by the CB1 cannabinoid receptor
Molly Anne Davis	M.S.	Gavin E. Arteel, Ph.D.	Characterization of recovery from liver damage by choline deficiency: Effect of biochemical modulators of lipid metabolism?
E. Cristian Campian	Ph.D.	Frederick W. Benz, Ph.D.	Acute acrylonitrile toxicity: Mechanistic studies
Anwar Husain	Ph.D.	David W. Hein, Ph.D.	Regulatory control regions of human arylamine N-acetyltransferase 1 and 2: Implications for genetic predisposition to breast cancer

Xiaoyan (Susan) Zhang	M.S.	David W. Hein, Ph.D.	Role of N-acetyltransferase (NAT) polymorphism on 4,4'-methylene bis (2-chloroaniline) and 4,4'-methylenedianiline (MDA) acetylation, MDA hepatotoxicity and a proposal to study NAT expression in breast cancer
Gilandra Russell	M.S.	Gavin E. Arteel, Ph.D.	Protection of cultured hepatocytes from hypoxic death by ATP-delivery with lipid vesicles
Samuel C. McNeely	M.S.	J. Christopher States, Ph.D.	Arsenic: A potential chemotherapeutic for melanoma
Tanvi S. Jani	M.S.	Shirish Barve, Ph.D.	Methionine adenosyltransferase IIA (MAT IIA) and S-adenosylmethionine (SAdMet) are critical for the survival of CD4+ T lymphocytes
Jin Liu	M.S.	Michael E. Brier, Ph.D.	An evaluation of pharmacokinetic study design for describing drug disposition in renal failure
Kevyn E. Merten	M.S.	Y. James Kang, Ph.D.	Molecular mechanisms of metallothionein protection from adriamycin cardiotoxicity
Jason M. Walraven	M.S.	David W. Hein, Ph.D.	Investigations of N-acetyltransferases in human hepatocytes and rat models
Nicholas B. Watson	M.S.	W. Glenn McGregor, M.D.	The ubiquitin ligase RAD18 is implicated in mutagenic translesion synthesis of DNA damage in human cells

VI. Publications (salaried and emeritus faculty)

Papers

1. Adams TB, Cohen SM, Doull J, Feron VJ, Goodman JI, Marnett LJ, Munro IC, Portoghesi PS, Smith RL, Waddell WJ, and Wagner BM (2005) The FEMA GRAS assessment of hydroxy- and alkoxy-substituted benzyl derivatives used as flavor ingredients. *Food Chem.Toxicol.* **43**:1241-1271.
2. Adams TB, Cohen SM, Doull J, Feron VJ, Goodman JI, Marnett LJ, Munro IC, Portoghesi PS, Smith RL, Waddell WJ, and Wagner BM (2005) The FEMA GRAS assessment of benzyl derivatives used as flavor ingredients. *Food Chem.Toxicol.* **43**:1207-1240.

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VII. Additional Publications of Faculty with Joint Appointments

1. Adeagbo AS, Zhang X, Patel D, Joshua IG, Wang Y, Sun X, Igbo IN, and Oriowo MA (2005) Cyclo-oxygenase-2, endothelium and aortic reactivity during deoxycorticosterone acetate salt-induced hypertension. *J Hypertension* **23**:1025-1036.
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66. Sanghi, P., Roychowdhury, S., Vyas, P.M., Doll, M.A., Hein, D.W. and Svensson, C.K.: Metabolism, protein haptentation, and toxicity of sulfamethoxazole (SMX) and dapsone (DDS) in normal human dermal fibroblasts (NHDF). *Proceedings of the Joint ISSX/JSSX Meeting*, Abstract #492, Maui, Hawaii, October 2005.
67. Zhang, X., Barker, D.F., Doll, M.A., Martin, R.C., States, J.C. and Hein, D.W.: Human N-acetyltransferase (NAT) expression in breast cancer. *Proceedings of the Ohio Valley Society of Toxicology*, Abstract #1, Louisville, Kentucky, October 2005.
68. Walraven, J.M., Barker, D.F., Doll, M.A. and Hein, D.W.: A novel polymorphic rat N-acetyltransferase allele (Nat3*2) with reduced catalytic activity in vitro. *Proceedings of the Ohio Valley Society of Toxicology*, Abstract #6, Louisville, Kentucky, October 2005.
69. Metry, K.J., Zhao, S., Neale, J.R., Doll, M.A., States, J.C., McGregor, W.G., Pierce, W.M.Jr., and Hein, D.W.: Activation of 2-amino-1-methyl-6-phenylimidazo [4,5-b] pyridine (PhIP)-induced DNA adducts in Chinese hamster ovary cells expressing human CYP1A2 and rapid and slow N-acetyltransferase 2 (NAT2). *Proceedings of the Ohio Valley Society of Toxicology*, Abstract #8, Louisville, Kentucky, October 2005.
70. Barker, D.F., Husain, A., Neale, J.R., Martini, B.D., Zhang, X., Doll, M.A., States, J.C., and Hein, D.W.: Functional properties of an alternative, tissue-specific promoter for the N-acetyltransferase-1 gene, NAT1. *Proceedings of the Ohio Valley Society of Toxicology*, Abstract #9, Louisville, Kentucky, October 2005.
71. Zang, Y., Doll, M.A., States, J.C. and Hein, D.W.: Genetic polymorphisms of human N-acetyltransferase 2 influences the bioactivation of aromatic and heterocyclic amines. *Proceedings of the Ohio Valley Society of Toxicology*, Abstract #13, Louisville, Kentucky, October 2005.
72. Neale, J.R., Smith, N.B., Pierce, W. M. and Hein, D.W.: Quantification of 4-ABP DNA adducts in rapid and slow acetylator rats by liquid chromatography-tandem mass spectrometry. *Proceedings of the Ohio Valley Society of Toxicology*, Abstract #15, Louisville, Kentucky, October 2005.
73. Nerland, D.E., Doll, M.A. and Hein, D.W.: Tissue distribution of N-acetyltransferases 1 and 2 in congenic rapid and slow acetylator Syrian hamsters that catalyze the N-acetylation of 4-aminobiphenyl and O-acetylation of N-hydroxy-4-aminobiphenyl. *Proceedings of the Ohio Valley Society of Toxicology*, Abstract #19, Louisville, Kentucky, October 2005.

74. Zahm, S.H., Morton, L.M., Wang, S.S., Hein, D.W., Rothman, N., Colt, J.S., Davis, S., Cerhan, J.R., Severson, R.K., Hartge, P., and Ross, R.R.: Non-Hodgkin lymphoma, hair dyes, and genetic susceptibility. *Proceedings of the Fourth Annual American Association for Cancer Research International Conference on Frontiers in Cancer Prevention Research*, #B91, p123, Baltimore, Maryland, October-November 2005.
75. Metry, K.J., Zhao, S., Neale, J.R., Doll, M.A., States, J.C., McGregor, W.G., Pierce, W.M.Jr., and Hein, D.W.: Activation of 2-amino-1-methyl-6-phenylimidazo [4,5-b] pyridine (PhIP) by Chinese hamster ovary cells expressing human CYP1A2 and N-acetyltransferase 2 (NAT2). *Proceedings of Research!Louisville*, Abstract #GRD38, Louisville, Kentucky, October-November 2005.
76. Walraven, J.M., Barker, D.F., Doll, M.A. and Hein, D.W.: A novel polymorphic rat N-acetyltransferase allele (Nat3*2) with reduced catalytic activity in vitro. *Proceedings of Research!Louisville*, Abstract #GRD50, Louisville, Kentucky, October-November 2005.
77. Zang, Y., Doll, M.A., States, J.C. and Hein, D.W.: Genetic polymorphisms of human N-acetyltransferase 2 influences the bioactivation of aromatic and heterocyclic amines. *Proceedings of Research!Louisville*, Abstract #GRD57, Louisville, Kentucky, October-November 2005.
78. Zhang, X., Barker, D.F., Doll, M.A., Martin, R.C., States, J.C. and Hein, D.W.: Human N-acetyltransferase (NAT) expression in breast cancer. *Proceedings of Research!Louisville*, Abstract #GRD58, Louisville, Kentucky, October-November 2005.
79. Zhu, Y., Abudu, N., Valdes, R., Hein, D.W., Doll, M.A. and Linder, M.W.: Simultaneous determination of seven N-acetyltransferase-2 polymorphisms by allele-specific primer extension assay. *Proceedings of Research!Louisville*, Abstract #CRF13, Louisville, Kentucky, October-November 2005.
80. Bendaly, J., Zhao, S., Doll, M.A., States, J.C., and Hein D.W.: Chinese hamster ovary cells expressing CYP1A1 or CYP1A2 and rapid or slow acetylator N-acetyltransferase 1 (NAT1): A model to investigate effects of human NAT1 polymorphism on arylamine genotoxicity. *Proceedings of Research!Louisville*, Abstract #PRF4, Louisville, Kentucky, October-November 2005.
81. Neale, J.R., Smith, N.B., Pierce, W. M. and Hein, D.W.: Quantification of 4-aminobiphenyl DNA adducts in rapid and slow acetylator rats by liquid chromatography-tandem mass spectrometry. *Proceedings of Research!Louisville*, Abstract #PRF27, Louisville, Kentucky, October-November 2005.
82. Ali, M Y., Hurst, H.E., Myers, S.R., Characterization of epoxide adducts of polycyclic aromatic hydrocarbons (PAH) with hemoglobin (Hb). 44th Annual Meeting, Society of Toxicology, New Orleans, LA, March 6 - 11, 2005.

83. Hurst, H.E. and Ali, M Y., Identification of enantiomeric forms of chloroprene epoxide metabolites and their enantiomeric selectivity in reactions with red cells. 11th Annual Kentucky EPSCoR Conference, Louisville, KY, May 13, 2005.
84. Myers, S.R., Hurst, H.E. and Ali, M Y., Kinetics of binding of polycyclic aromatic hydrocarbons to hemoglobin (Hb) in the mouse. 11th Annual Kentucky EPSCoR Conference, Louisville, KY, May 13, 2005.
85. Ali, M Y. and Hurst, H.E., GC/MS identification of enantiomeric forms of chloroprene epoxide metabolites and their enantiomeric selectivity in reactions with red cells. 53rd ASMS Conference on Mass Spectrometry and Allied Topics, San Antonio, TX, June 9, 2005.
86. Hurst, H.E. and Ali, M.Y. Analyses of hemoglobin N-valine adducts and headspace of (1-chloroethenyl)oxirane in erythrocytes indicate selective detoxification of chloroprene epoxide enantiomers. International Symposium on Evaluation of Butadiene and Chloroprene Health Risks, Charleston, SC, September 20-22, 2005.
87. Kang YJ (2005). Metallothionein protection from oxidative heart injury. 5th International conference on metallothionein, Beijing, China October 8-12, 2005. Abstract S-IV-01.
88. Kang YJ (2005). Cardiac hypertrophy: A risk factor for sudden death and heart failure. 24th Annual meeting of the Society of Toxicologic Pathology. June 9-23, 2005.
89. Merten, K. E., Feng, W., Cai, J., Pierce, W. M. and Kang, Y. J. (2005). Cytochrome c oxidase Va, a possible protein involved in the metallothionein cardioprotection from oxidative injury. *FASEB J.* 19: Abstract #701.3.
90. Feng, W., Cai, J., Pierce, WM., Franklin, RB., Maret, W., Benz, FW and Kang, YJ (2005). Metallothionein transfers zinc to mitochondrial aconitase through a direct interaction in mouse heart. *FASEB J.* 19: Abstract #701.5.
91. Merten, K. E., Jiang, Y., Feng, W. and Kang, Y. J. (2005). Modulation of calcineurin activity by zinc in Adrimaycin-treated H9c2 cardiac muscle cells. OVSOT Annual meeting. Cai L, Kang YJ. (2005) Prevention of diabetes-enhanced LPS cardiotoxicity in cardiac-specific metallothionein-overexpressing transgenic mice. *Toxicological Sci.* 84 (Suppl. 1):376.
92. Wang J, Kang YJ, Cai L. (2005) Metallothionein protection from protein nitration caused by LPS/TNF-alpha-derived intracellular peroxynitrite. *Toxicological Sci.* 84 (Suppl. 1): 375,
93. Zhou Z, Feng W, Song Z, McClain CJ, Kang YJ. (2005). Preservation of hepatocyte nuclear factor 4 α is involved in zinc protection against TNF- α -induced liver injury in

- mice. 56th Annual Meeting of the American Association of Study on Liver Disease, San Francisco, CA November 11-15, 2005.
94. Zhou Z, Wang L, Song Z, McClain CJ, Kang YJ. (2005). Protection of intestinal tight junction integrity by zinc supplementation involves in zinc inhibition of alcoholic hepatitis. Digestive Disease Week, Chicago, IL. May 14-19, 2005.
 95. Reynolds, C., Jiang, Y., Rodriguez, W., Merten, K. E., Sun, X. and Kang, Y. J. (2005). Copper supplementation inhibits aortic banding-induced heart hypertrophy in a mouse model. OVSOT annual meeting.
 96. La Creis Renee Kidd, Ph.D., M.P.H., Karen Woodson, Ph.D., M.P.H., Phillip R. Taylor, M.D., Demetrius Albanes, Ph.D., Jarmo Virtamo, Ph.D., and Joseph A. Tangrea, M.P.H., Ph.D., Polymorphic IL-10 and Susceptibility to Prostate Cancer Among participants of the ATBC Cancer Prevention Study. 96th Annual AACR Meeting, Anaheim, CA, April 2005.
 97. LaCreis Renee Kidd, Ph.D., M.P.H., Aoua Coulibaly, Tiva M. Templeton, Weidong Chen, Layron O. Long, Tshela Smith-Lewis, Carolina Bonilla, Folsade Akereyeni, Vincent Freeman, William Isaacs, Chiledum Ahagotu, Rick A. Kittles. Germ-line *BCL-2* sequence variants and inherited predisposition to prostate cancer. 3rd Annual Brown Cancer Center Retreat, September 2005.
 98. La Creis Renee Kidd, Ph.D., M.P.H., Karen Woodson, Ph.D., M.P.H., Phillip R. Taylor, M.D., Demetrius Albanes, Ph.D., Jarmo Virtamo, Ph.D., and Joseph A. Tangrea, M.P.H., Ph.D., Polymorphic IL-10 and Susceptibility to Prostate Cancer Among participants of the ATBC Cancer Prevention Study. 3rd Annual Brown Cancer Center Retreat, September 2005.
 99. La Creis Renee Kidd, Ph.D., M.P.H., Karen Woodson, Ph.D., M.P.H., Phillip R. Taylor, M.D., Demetrius Albanes, Ph.D., Jarmo Virtamo, Ph.D., and Joseph A. Tangrea, M.P.H., Ph.D., Polymorphic IL-10 and Susceptibility to Prostate Cancer Among participants of the ATBC Cancer Prevention Study. Research Louisville! October 2005.
 100. Translesion DNA Replication Proteins Are Potential Targets for Cancer Prevention. S.Mukhopadhyay, W.E. Simon, W. Zacharias, and W. G. McGregor. Frontiers in Cancer Prevention Research, Baltimore MD 10/30-11/2/2005. [Platform Presentation]
 101. Gao, X., Qian, M., McGregor, W.G. and Eaton, J.W. Cytotoxic and Mutagenic Effects of Tobacco-Borne Free Fatty Acids. Southern Society for Clinical Investigation, February 24-26, 2005, New Orleans, LA.
 102. L. Stallons, C.A. Dumstorf, E, Krishnan, S. Waigel, W. Zacharias, B. Haribabu, and W.G. McGregor. Chronic Inflammation Does Not Alter Patterns of Gene Expression in Carcinogen-Initiated Lung Cancer. Research! Louisville 10/2005.

103. C. A. Dumstorf, A. Clark, L. Qingcong, T. Burke, R. Kucherlapati, T.A. Kunkel, and W. G. McGregor. Multiple DNA Polymerases are involved in Mutagenic Translesion Synthesis past UV Photoproducts In Vivo. Research Louisville, Louisville, KY 2005; and Ohio Valley Society Of Toxicology 2005; Louisville, KY
104. E. Krishnan, C.A. Dumstorf, A. B. Jenson, W. G. McGregor, and B. Haribabu. Leukotriene B4: At the Crossroads of Chronic Inflammation and Cancer. Research! Louisville; 2005; Louisville, KY. [First Place Award, Graduate Student Division]
105. W. Mazhawidza, S.M. Dougherty, W.G. McGregor, and C.M. Klinge. Gender-dependent differences in the activity of estrogen receptors alpha and beta between human lung adenocarcinoma cell lines from females and males. James Graham Brown Cancer Center Retreat, 9/14/05.
106. K.J. Metry, S. Zhao, J. Neale, M.A. Doll, J.C. States, W. G. McGregor, W.M. Pierce, and D.W. Hein. Activation of PhIP by Chinese hamster ovary cells expressing human *CYP1A2* and *N-acetyltransferase 2*. James Graham Brown Cancer Center Retreat, 9/14/05.
107. P.C. Porter, D.R. Clark, L.D. McDaniel, W.G. McGregor, and J.C. States. Telomerase immortalized human fibroblasts retain UV-induced mutagenesis and p53 mediated DNA damage responses. James Graham Brown Cancer Center Retreat, 9/14/05.
108. N.B. Watson, E. Nelson, B. Alphenaar, and W.G. McGregor. RAD18 regulated translesion synthesis in human cells. James Graham Brown Cancer Center Retreat, 9/14/05.
109. Weeks, Jonathan and Myers, Steven R. *Levels of Polycyclic Aromatic hydrocarbons in amniotic fluid samples from smokers and nonsmokers*. Society of Toxicology Meeting, March 6 – 11, 2005, New Orleans, LA.
110. Ali, M Y., Hurst, Harrell E., and Myers, Steven R., *Characterization of epoxide adducts of polycyclic aromatic hydrocarbons (PAH) with hemoglobin (Hb)* Society of Toxicology Meeting, March 6 – 11, 2005, New Orleans, LA.
111. Myers, Steven R., Cunningham, Christopher, and Wright, Terry, *Correlation of maternal hemoglobin (Hb) 4-aminobiphenyl adduct levels with respect to cotinine levels and maternal genotypes*. Society of Toxicology Meeting, March 6 – 11, 2005, New Orleans, LA.
112. Cunningham, Christopher, Wright, Terry, and Myers, Steven R., *Correlation of maternal and fetal hemoglobin (Hb) adducts in smokers with respect to genotype*. Society of Toxicology Meeting, March 6 – 11, 2005, New Orleans, LA.

113. Wright, Terry, Cunningham, Christopher, and Myers, Steven R., *Relationship between CYP1A1 genotype and benzo(a)pyrene (BP) hemoglobin (Hb) adducts in maternal and fetal blood*. Society of Toxicology Meeting, March 6 – 11, 2005, New Orleans, LA.
114. Myers, S.R. and Ali, Md. Y. *Characterization and kinetics of polycyclic aromatic hydrocarbon hemoglobin adducts in mice*. The 20th International Meeting of the International Society for Polycyclic Aromatic Compounds, August, 2005, Toronto, CA.
115. Myers, S.R. and Weeks, J. *Polycyclic aromatic hydrocarbon levels in amniotic fluid samples from smokers: correlation with smoking status*. The 20th International Meeting of the International Society for Polycyclic Aromatic Compounds, August, 2005, Toronto, CA.
116. Myers, S. R. *Biomarkers of polycyclic aromatic hydrocarbon exposure: Application of protein adducts in Toxicology*. International Meeting of the International Society for Polycyclic Aromatic Compounds, August, 2005, Toronto, CA.
117. Merten KE, Feng W, Cai J, et al. Cytochrome c oxidase Va, a possible protein involved in the metallothionein cardioprotection from oxidative injury FASEB J.19 (5): A1108-A1108 Part 2 Suppl. S MAR 7 2005
118. Feng W, Cai J, Pierce WM, et al. Metallothionein transfers zinc to mitochondrial aconitase through a direct interaction and protects the protein from degradation FASEB J 19 (5): A1108-A1108 Part 2 Suppl. S MAR 7 2005 Treatment of glaucoma with marijuana and its active principals.
119. Z H Song, Research Round Table/Symposium: Treatment of eye diseases with Chinese herbs or their active principles. China-US Relations Conference sponsored by Bush International Center/George Bush Presidential Library and Beijing University, November 14 - 17, 2005.
120. Molecular basis for the constitutive activity of cannabinoid receptors--modeling and mutagenesis studies. Ntsang Miranda Nebane, Rundong Zhang, Patricia H. Reggio and Zhao-Hui Song, 40th IUPAC congress, August 14-18, 2005.
121. The high constitutive activity exhibited by CB1 is due in part to the lack of aromatic residues I-4 and I+3 from W6.48. Ntsang Miranda Nebane, Patricia H. Reggio and Zhao-Hui Song, International Cannabinoid Research Society Conference, 2005.
122. Lack of aromatic residue at position 6.44 of human CB2 cannabinoid receptor contributes to constitutive activity. Rundong Zhang, Tae-Kang Kim, Patricia H. Reggio, and Zhao-Hui Song, International Cannabinoid Research Society Conference, 2005.

123. The Effect of endocannabinoid Noladin ether on aqueous humor outflow facility. Ya Fatou Njie, Zhao-Hui Song The Association for Research in Vision and Ophthalmology Annual Meeting, 2005.
124. McNeely SC, Taylor BF, Xu X, Zacharias W, McCabe Jr, MJ and States JC. P53 Modulates Arsenite-Induced Mitotic Disruption and Altered Gene Expression. *Toxicologist* 84(S-1): 140 (2005) (#689).
125. Taylor BF, McNeely SC, Miller HL, McCabe MJ and States JC. P53 Suppression Of Arsenite Induced Mitotic Arrest Is Mediated By P21. *Toxicologist* 84(S-1):140 (2005) (#690).
126. States JC, Srivastava S, Sen U, Miller HL D'Souza SE. Arsenic exposure accelerates atherogenic changes in ApoE^{-/-} mice. *Toxicologist* 84(S-1): 141 (2005) (#691).
127. Zang Y, Zhao S, States J and Hein DW. Mechanistic study of the A411T (L137F) genetic polymorphism in human N-acetyltransferase 2. *Toxicologist* (2005) 84(S-1): 260 (#1267).
128. Jiang, G and States, JC. Arsenic co-exposure disrupts cell cycle regulatory response to benzo[a]pyrene genotoxicity in human lung cells. Kentucky Engineering and Innovation Conference, Louisville KY (2005).
129. Porter, PC, Clark, DR, McDaniel, LD, McGregor, WG and States, JC. Telomerase immortalized human fibroblasts retain normal UV-induced DNA damage responses. 7th Annual Midwest DNA Repair Symposium, Wayne State University (2005).
130. Jiang, G, Skorvaga, M, Van Houten, B and States, JC. Robust Incision of BPDE-DNA Adducts by Recombinant Thermoresistant Interspecies Combination of UvrABC Endonuclease System Cloned From the Eubacteria *Bacillus Caldotenax* and *Thermatoga Maritima*. 7th Annual Midwest DNA Repair Symposium, Wayne State University (2005).
131. Barker, DF, Husain, A, Neale, JR, Martini, BD, Zhang, X, Doll, MA, States, JC and Hein, DW. Functional Properties of an Alternative, Tissue-Specific Promoter for the N-acetyltransferase-1 gene, *NAT1*. JG Brown Cancer Center 4th Annual Retreat, Louisville KY (2005).
132. Jiang, G, Skorvaga, M, Van Houten, B and States, JC. Robust Incision of BPDE-DNA Adducts by Recombinant Thermoresistant Interspecies Combination of UvrABC Endonuclease System Cloned From the Eubacteria *Bacillus Caldotenax* and *Thermatoga Maritima*. JG Brown Cancer Center 4th Annual Retreat, Louisville KY (2005).
133. McNeely, SC, Taylor, BF and States, JC. Arsenic: A Potential Chemotherapeutic for Melanoma. JG Brown Cancer Center 4th Annual Retreat, Louisville KY (2005).

134. Metry, KJ, Zhao, S, Neale, JR, Doll, MA, States, JC, McGregor, WG, Pierce, WM Jr and Hein DW. Activation of 2-amino-1-methyl-6-phenylimidazo [4,5-b] pyridine (PhIP) by Chinese Hamster Ovary Cells expressing human *CYP1A2* and *N-acetyltransferase 2*. JG Brown Cancer Center 4th Annual Retreat, Louisville KY (2005).
135. Porter, PC, Clark, DR, McDaniel, LD, McGregor, WG and States, JC. Telomerase immortalized human fibroblasts retain normal UV-induced DNA damage responses. JG Brown Cancer Center 4th Annual Retreat, Louisville KY (2005).
136. Taylor, BF, Miller, HL, McNeely, SC, McCabe, MJ Jr. and States, JC. P53 Suppression of Arsenite-Induced Mitotic Catastrophe is Mediated by p21^{CIP1/WAF1}. JG Brown Cancer Center 4th Annual Retreat, Louisville KY (2005).
137. Zhang, XY, Barker, DF, Doll, MA, Martin, RC, States, JC and Hein, DW. Human N-acetyltransferase (*NAT*) Expression in Breast Cancer. JG Brown Cancer Center 4th Annual Retreat, Louisville KY (2005).
138. Taylor, BF, Miller, HL, McNeely, SC, McCabe, MJ Jr. and States, JC. P53 Suppression of Arsenite-Induced Mitotic Catastrophe is Mediated by p21^{CIP1/WAF1}. Ohio Valley Society of Toxicology, Louisville KY (2005).
139. McNeely, SC, Taylor, BF and States, JC. Arsenic: A Potential Chemotherapeutic for Melanoma. Ohio Valley Society of Toxicology, Louisville KY (2005).
140. Metry, KJ, Zhao, S, Neale, JR, Doll, MA, States, JC, McGregor, WG, Pierce, WM Jr and Hein DW. 2-amino-1-methyl-6-phenylimidazo [4,5-b] pyridine (PhIP)-induced DNA adducts in Chinese Hamster Ovary Cells expressing human *CYP1A2* and N-acetyltransferase 2 (*NAT2*). Ohio Valley Society of Toxicology, Louisville KY (2005).
141. Barker, DF, Husain, A, Neale, JR, Martini, BD, Zhang, X, Doll, MA, States, JC and Hein, DW. Functional Properties of an Alternative, Tissue-Specific Promoter for the N-acetyltransferase-1 gene, *NAT1*. Ohio Valley Society of Toxicology, Louisville KY (2005).
142. Zang, Y, Doll, MA, States, JC and Hein, DW. Genetic Polymorphisms of Human N-acetyltransferase 2 Influences the Bioactivation of Aromatic and Heterocyclic Amines. Ohio Valley Society of Toxicology, Louisville KY (2005).
143. Jiang, G, Skorvaga, M, Van Houten, B and States, JC. Robust Incision of BPDE-DNA Adducts by Recombinant Thermoresistant Interspecies Combination of UvrABC Endonuclease System Cloned From the Eubacteria *Bacillus Caldotenax* and *Thermatoga Maritima*. Ohio Valley Society of Toxicology, Louisville KY (2005).

144. Porter, PC, Clark, DR, McDaniel, LD, McGregor, WG and States, JC. Telomerase immortalized human fibroblasts retain normal UV-induced DNA damage responses. Ohio Valley Society of Toxicology, Louisville KY (2005).
145. Bendaly, J., Zhao, S., Doll, M.A., States, J.C., and Hein D.W.: Chinese hamster ovary cells expressing CYP1A1 or CYP1A2 and rapid or slow acetylator N-acetyltransferase 1 (NAT1): A model to investigate effects of human NAT1 polymorphism on arylamine genotoxicity. Research!Louisville, Louisville KY (2005).
146. McNeely, SC, Taylor, BF and States, JC. Arsenic: A Potential Chemotherapeutic for Melanoma. Research!Louisville, Louisville KY (2005).
147. Metry, KJ, Zhao, S, Neale, JR, Doll, MA, States, JC, McGregor, WG, Pierce, WM Jr and Hein DW. Activation of 2-amino-1-methyl-6-phenylimidazo [4,5-b] pyridine (PhIP) by Chinese Hamster Ovary Cells expressing human *CYP1A2* and *N-acetyltransferase 2*. Research!Louisville, Louisville KY (2005).
148. Taylor, BF, Miller, HL, McNeely, SC, McCabe, MJ Jr. and States, JC. P53 Suppression of Arsenite-Induced Mitotic Catastrophe is Mediated by p21^{CIP1/WAF1}. Research!Louisville, Louisville KY (2005).
149. Zhang, XY, Barker, DF, Doll, MA, Martin, RC, States, JC and Hein, DW. Human N-acetyltransferase (*NAT*) Expression in Breast Cancer. Research!Louisville, Louisville KY (2005).
150. Zang, Y, Doll, MA, States, JC and Hein, DW. Genetic Polymorphisms of Human N-acetyltransferase 2 Influences the Bioactivation of Aromatic and Heterocyclic Amines. Research!Louisville, Louisville KY (2005).
151. Jiang, G, Skorvaga, M, Van Houten, B and States, JC. Robust Incision of BPDE-DNA Adducts by Recombinant Thermoresistant Interspecies Combination of UvrABC Endonuclease System Cloned From the Eubacteria *Bacillus Caldotenax* and *Thermatoga Maritima*. Research!Louisville, Louisville KY (2005).
152. Clark, BJ, Corbitt, C, Klinge, CM, Lei, Z and States, JC. Decreased serum testosterone levels in adult male mice exposed prenatally to arsenite. Research!Louisville, Louisville KY (2005).

IX. Invited Scientific Presentations and Seminars (salaried faculty)

Dr. Gavin Arteel

Research seminar, 01/05, "New 'antioxidants' to prevent hepatic inflammation and damage", University of Alabama-Birmingham, Dept of Pathology, Birmingham, AL.

Symposium, 04/05, "EtOH/Transplant models," University of Louisville and Jewish Hospital, Midwest Liver Meeting, Louisville, KY.

Seminar, 06/05, "Modeling ALD," University of Louisville Alcohol Research Group, Louisville, KY.

Plenary Lecture, 06/05, "Modeling ALD: Where are we and where should we go?" Research Society of Alcoholism annual meeting, Santa Barbara, CA.

Seminar, 08/05, "New' potential players in liver diseases," University of Louisville, Dept of Pharmacology and Toxicology, Louisville, KY.

Seminar, 09/05, "Inflammatory and fibrotic changes in the liver: new slices of the PAI," University of Louisville, Dept of Physiology and Biophysics, Louisville, KY.

Research seminar, 10/05, "Inflammation and fibrosis in liver: contributions of PAI-1" Kansas University Medical Center, Dept of Pharmacology, Toxicology and Therapeutics, Kansas City, KS.

Plenary lecture, 10/05, "Inflammation and fibrosis in the liver: contributions of PAI-1," Ohio Valley Society of Toxicology, Annual meeting, Louisville, KY.

Research symposium, 11/05, "Metformin protects against hepatic ischemia reperfusion injury in rats" American Association for the Study of Liver Diseases, annual meeting, San Francisco, CA.

Research seminar, 11/05, "Modeling alcoholic liver disease: new slices of the 'PAI.'" Case Western Reserve University, Dept of Nutrition, Cleveland, OH.

Research symposium, 12/05, "Oxidative stress in alcoholic liver disease." International symposium on energy metabolism and oxidative stress in liver pathophysiology, Juntendo University, Tokyo, Japan.

Dr. David Gozal

The Snoring Child: A Bedside Conundrum.

Invited Speaker, ACCP Course, January 11-12, 2005, Scottsdale, AZ.

Annenberg Award Lecture, 23rd Annual Conference on Sleep Disorders in Infancy and Childhood, January 13, 2005, Rancho Mirage, CA

Neural Implications of Sleep Apnea: Injury, Plasticity and Repair.

Children's Hospital Boston, April 4, 2005, Boston, MA.

Non-Invasive Ventilation in Children.

Children's Hospital Boston, April 5, 2005, Boston, MA.

Cysteinyl Leukotrienes: Important Mediators in the Pathogenesis of Allergic Rhinitis.
Massachusetts Pediatric Pulmonology Association, April 6, 2005, Boston, MA.

The Snoring Child: A Not so Benign Bedtime Noise.
Invited Speaker, Boston Medical Center, April 6, 2005, Boston, MA.

Sleep Disordered Breathing in Children: A Triple-Risk Model of Morbidity.
New England Invited Pediatric Pulmonary Consortium Weekly Session) Massachusetts General Hospital, April 6, 2005, Boston MA.

Snoring in Children: Sound the Alarm!
Invited Speaker, Committee on Sleep Medicine and research, Workshop on the Public Health Deprivation and Disorders, Institute of Medicine, April 12, 2005, Washington, D.C.

Cysteinyl Leukotrienes: Important Mediators in the Pathogenesis of Allergic Rhinitis.
University of Memphis, April 19, 2005, Memphis, TN.

Snoring in Children: More than Just Noise.
Invited Speaker, Grand Rounds Stony Brook University, July 13, 2005, Stony Brook, NY

State of the Science-Pathophysiology of Allergic Rhinitis: Impact on Target Organs.
Children's Hospital of the King's Daughters, September 7, 2005, Virginia Beach, VA

State of the Science-Pathophysiology of Allergic Rhinitis: Impact on Target Organs.
Children's Hospital of the King's Daughters, Division of Allergy and Immunology, September 8, 2005, Norfolk, VA

State of the Science-Pathophysiology of Allergic Rhinitis: Impact on Target Organs.
Medical College of Virginia, September 8, 2005, Richmond, VA

Snoring in Children: More than Just Noise.
Grand Rounds, Loyola University, Stritch School of Medicine, September 13, 2005, Maywood, IL

Cysteinyl Leukotrienes: Important Mediators in the Pathogenesis of Allergic Rhinitis.
Invited Speaker, Chicago Thoracic Society, September 15, 2005, Brookfield, WI

Snoring in Children: More than Just Noise.
Invited Speaker, Grand Rounds Children's Hospital Milwaukee, Medical College of Wisconsin, September 14, 2005, Chicago, IL

Snoring in Children: Metabolic Consequences.
Invited Speaker, Research Grand Rounds, Children's Hospital Milwaukee, Medical College of Wisconsin, September 14, 2005, Chicago, IL

Snoring in Children: More than Just Noise.

Invited Speaker, Grand Rounds supported by Children's Memorial Hospital, Northwestern School of Medicine, September 16, 2005, Chicago, IL

Snoring in Children: More than Just Noise.

Invited Speaker, Grand Rounds Southwestern Medical Center, The University of Texas, September 21, 2005, Dallas, TX.

Snoring in Children: More than Meets the Ear.

Invited Guest Speaker, Nancy N. Huang, MD Guest Professor in Cystic Fibrosis and Pediatric Pulmonology, St. Christopher's Hospital for Children-Drexel University College of Medicine, October 6, 2005, Philadelphia, PA.

Snoring in Children: More than Meets the Ear.

Invited Speaker, Grand Rounds, St. Christopher's Hospital for Children-Drexel University College of Medicine, October 7, 2005, Philadelphia, PA.

Keynote Speaker, Chile Pediatric Society Conference. 3 talks on:

CCHS

Sleep Apnea in Children: Diagnosis and Management

Rhinitis and Sleep in Children

Santiago de Chile, Chile, October 2005

Keynote Speaker, French Sleep Research Society Annual Conference, November 23-25, 2005, Lyon France

Dr. David W. Hein

Functional Genomics of Human N-acetyltransferase 1 and their Effects on Breast Cancer Susceptibility. Environmental Cardiology Program, University of Louisville, Louisville, Kentucky, March 2005.

Molecular Epidemiology Investigations From SNPs to Cancer Risks. Biomarkers, Genetics and Chemoprevention Program, James Graham Brown Cancer Center, University of Louisville, Louisville, Kentucky, March 2005.

Genetic Polymorphisms in Human NAT1 and NAT2. Center for Environmental Systems Biology, University of Louisville, Louisville, Kentucky, April 2005.

Functional Characterization of Syrian Hamsters Congenic at the NAT2 locus for the N-acetylation of the Tobacco Carcinogen 4-Aminobiphenyl and the O-acetylation of its N-Hydroxy-Metabolite. Fourth International Scientific Conference of the International Society for the Prevention of Tobacco Induced Diseases, Athens, Greece, September 2005.

Characterization of NAT1 Overexpression in Breast Tumors (with Dr. David Barker). Division of Cancer Biology, National Cancer Institute Activities to Promote Research Collaborations (APRC) Workshop, Gaithersburg, Maryland, October 2005.

Pharmacogenetics of N-acetyltransferases and their Role in Genetic Predisposition to Cancer. Public Health Seminar Series, University of Louisville, Louisville, Kentucky, October 2005.

Experimental Update. Procter and Gamble, Inc., Cincinnati, Ohio, November 2005.

Genes and Environment in Cancer Risk. St. Matthews Rotary Club, Louisville, Kentucky, December 2005.

Dr. Harrell E. Hurst

Hurst, H.E. and Ali, M.Y. Analyses of hemoglobin N-valine adducts and headspace of (1-chloroethenyl)oxirane in erythrocytes indicate selective detoxification of chloroprene epoxide enantiomers. International Symposium on Evaluation of Butadiene and Chloroprene Health Risks, Charleston, SC, September 21, 2005.

Dr. Y. James Kang

Nov 20, 2005; Invited Speaker, “Zinc Signals 2005” Galveston, Texas, November 17-21, 2005, “Metallothionein-mediated zinc transfer and function in mouse heart”

Nov 2, 2005; Invited Seminar, University of Kentucky, Interdisciplinary Nutrition Graduate Program, “Copper Supplementation and Regression of Hypertrophic Cardiomyopathy”

Oct 11, 2005; Invited Speaker, The 5th International Conference on Metallothionein, Beijing, China, October 8-12, 2005, “Metallothionein protection from oxidative heart injury”

June 28, 2005; Invited Seminar, US Department of Agriculture, Grand Forks Human Nutrition Research Center, “Recovery of copper deficient cardiomyopathy.”

June 21, 2005; Invited Speaker, The 24th Annual meeting of the Society of Toxicologic Pathology, Washington, DC, June 19 – 23, 2005, “Cardiac hypertrophy: A risk factor for heart failure and sudden death.”

Mar 6, 2005; Invited Speaker, Continuing Education, “*Evaluation of cardiac drug toxicity in pharmaceutical discovery and development*” at the 44th Annual Meeting of the Society of Toxicology, New Orleans, LA, “Mechanisms of drug-induced cardiotoxicity.”

Dr. W. Glenn McGregor

DNA replication proteins as targets for cancer prevention. Cancer Prevention and Control Seminar Series, James Graham Brown Cancer Center, University of Louisville. February 2005.

Promiscuous polymerases, unusual ubiquitins, and mutant madness. Molecular Targets Seminar Series, James Graham Brown Seminar Series, University of Louisville. April 2005.

Steven R. Myers

“Biomarkers of Polycyclic Aromatic Hydrocarbons” Department of Pediatrics, University of Louisville School of Medicine, Louisville KY, March 30, 2005.

“Biomarkers of maternal and fetal tobacco exposure” Department of Pediatrics, University of Louisville School of Medicine, February, 2005.

“Biomarkers of exposure to polycyclic aromatic hydrocarbons” Australia Aluminum Council, Gladstone, Australia, April, 2005.

“Hemoglobin as a biomarker of exposure to environmental PAHs” Australia Aluminum Council, Gladstone, Australia, April, 2005.

“Urinary biomarkers of exposure assessment: Pros and cons” Australia Aluminum Council, Gladstone, Australia, April, 2005.

“Biomarkers: advantages and disadvantages in population studies” Australia Aluminum Council, Gladstone, Australia, April, 2005.

“Biomarkers of tobacco exposure” Australia Society for Occupational Medicine and Industrial Hygiene. Brisbane, Australia, April, 2005.

“Hemoglobin as a biomarker of exposure assessment” Australia Society for Occupational Medicine and Industrial Hygiene. Brisbane, Australia, April, 2005.

“Biomarkers of tobacco smoke exposure” University of Louisville Birth Defects Center, October, 2005.

“Biomarkers of Tobacco exposure: correlation with mutations in msx1 and irf6 genes” University of Louisville Birth Defects Center, NIH site visit seminar, November 2005.

William M. Pierce, Jr.

Biomolecular Mass Spectrometry. Presented at Centre College, April 2005.

Biomolecular Mass Spectrometry. Presented at Indiana University Southeast, March, 2005.

Spectra for the Masses: From Biomedical Science to CSI. Cancer Chemoprevention Unit, University of Louisville, September, 2005.

Bone Targeting of Drugs. Kentucky Science and Engineering Foundation, March 2005.

Zhao-Hui (Joe) Song

Invited Talk: Treatment of glaucoma with marijuana and its active principals.

Research Round Table/Symposium: Treatment of eye diseases with Chinese herbs or their active principles. China-US Relations Conference sponsored by Bush International Center/George Bush Presidential Library and Beijing University, November 16, 2005.

Invited Seminar: Functional Significance of Cannabinoid Receptor Polymorphisms. Genomics and Bioinformatics Institute, Chinese Academy of Sciences, Beijing, China, November, 20 2005.

Invited Seminar: A journey from opioid to cannabinoid field. Dr. E Leong Way birthday symposium, July 10, 2005

J. Christopher States

4/11/05 “Arsenic Induced Atherosclerosis” Department of Medicine, Division of Cardiology, University of Louisville, Louisville, KY.

9/19/05 “Arsenic, mitotic death and p53” The Graduate Center for Toxicology, University of Kentucky, Lexington, KY.

11/8/05 “Arsenic: Friend or Foe?” Biomarkers, Genetics & Chemoprevention Group, James Graham Brown Cancer Center, University of Louisville, Louisville, KY.

12/7/05 “Arsenic: Potent Poison / Potential Panacea?” Department of Biology, Georgetown College, Georgetown, KY.

X. Teaching

School of Medicine

The Department team-taught the Medical Pharmacology course to second year medical students. Dr. Mike Williams served as course director. Individual faculty contributions are identified in the Appendix.

School of Dentistry

The Department team-taught the Dental Pharmacology and Therapeutics course to second year dental students. Dr. Leonard Waite served as course director. Individual faculty contributions are identified in the Appendix.

The Department team-taught a Pharmacology course to second year students in the Dental Hygiene Program. Dr. Leonard Waite served as course director. Individual faculty contributions are identified in the Appendix.

School of Nursing

The Department team-taught a Basic Pharmacology for Nursing course to second year nursing students. The course is also cross-listed as Biology 390 and is taken by other undergraduate students. Dr. Leonard Waite served as course director. Individual faculty contributions are identified in the Appendix.

The Department team-taught an Advanced Pharmacology course to graduate nursing students. Dr. Leonard Waite served as course director. Individual faculty contributions are identified in the Appendix.

The Department developed and provided an online pharmacology course for undergraduate nursing students. Dr. Steve Myers developed the course and served as course director.

Graduate School

The Department team taught several courses for graduate students. The individual courses and course directors were as follows:

Principles of Drug Action (Dr. Frederick Benz)
Research Methods (Dr. Chris States and Dr. Joe Song)
Pharmacology Seminar (Dr. Donald Nerland)
Graduate Pharmacology (Dr. Len Waite)

Individual faculty contributions to these courses are identified in the Appendix.

XI. Standing Committees

Graduate Program Committee

Dr. William Pierce (Chair)
Dr. Gavin Arteel (2007)
Dr. Evelyne Gozal (2006)
Dr. Chris States (2005)
Jason Walraven (student representative)

SIBUP/Grievance Committee

Dr. Peter Rowell (Chair)
Dr. Harrell Hurst (2007)
Dr. Joe Song (2006)
Dr. Don Nerland (2005)

Teaching Evaluation Committee

Dr. Mike Williams (Chair)
Dr. Fred Benz (2007)
Dr. Harrell Hurst (2006)
Dr. Len Waite (2005)

Seminar Committee

Dr. Don Nerland (Chair)
Dr. Steve Myers (2007)
Dr. Ramesh Gupta (2006)
Dr. Fred Benz (2005)

Core Laboratories/Research Development Committee

Dr. Chris States (Chair)
Dr. Theresa Chen (2007)
Dr. Jian Cai (2006)
Dr. Glenn McGregor (2005)

Information Technology Committee

Dr. Gavin Arteel
Dr. Fred Benz
Dr Harrell Hurst