Department of Pharmacology & Toxicology

2004 Annual Report

University of Louisville

School of Medicine
Department of Pharmacology and Toxicology-2004
<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>I. DEPARTMENT HIGHLIGHTS</td>
<td>1</td>
</tr>
<tr>
<td>II. MISSION STATEMENT</td>
<td>7</td>
</tr>
<tr>
<td>III. FACULTY/RESEARCH DESCRIPTIONS (PRIMARY AND JOINT APPOINTMENTS)</td>
<td>8</td>
</tr>
<tr>
<td>IV. PERSONNEL</td>
<td>18</td>
</tr>
<tr>
<td>V. GRADUATES</td>
<td>26</td>
</tr>
<tr>
<td>VI. PUBLICATIONS (SALARIED FACULTY AND STAFF)</td>
<td>28</td>
</tr>
<tr>
<td>VII. PUBLICATIONS (JOINT FACULTY)</td>
<td>37</td>
</tr>
<tr>
<td>VIII. ABSTRACTS (SALARIED FACULTY AND STAFF)</td>
<td>46</td>
</tr>
<tr>
<td>IX. INVITED SCIENTIFIC PRESENTATIONS AND SEMINARS (SALARIED FACULTY)</td>
<td>64</td>
</tr>
<tr>
<td>X. RESEARCH GRANTS AND CONTRACTS SUBMITTED (SALARIED FACULTY)</td>
<td>69</td>
</tr>
<tr>
<td>XI. RESEARCH GRANTS AND CONTRACTS IN FORCE (SALARIED FACULTY)</td>
<td>77</td>
</tr>
<tr>
<td>XII. TEACHING</td>
<td>88</td>
</tr>
<tr>
<td>XIII. STANDING COMMITTEES</td>
<td>89</td>
</tr>
<tr>
<td>XIV. PROGRAM REVIEW</td>
<td>90</td>
</tr>
<tr>
<td>XV. INDIVIDUAL FACULTY REPORTS</td>
<td></td>
</tr>
<tr>
<td>Gavin E. Arteel</td>
<td></td>
</tr>
<tr>
<td>Frederick W. Benz</td>
<td></td>
</tr>
<tr>
<td>Jian Cai</td>
<td></td>
</tr>
<tr>
<td>Theresa S. Chen</td>
<td></td>
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<tr>
<td>Paul N. Epstein</td>
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<tr>
<td>David Gozal</td>
<td></td>
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<tr>
<td>Evelyne Gozal</td>
<td></td>
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<tr>
<td>Ramesh Gupta</td>
<td></td>
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<tr>
<td>David W. Hein</td>
<td></td>
</tr>
<tr>
<td>Harrell E. Hurst</td>
<td></td>
</tr>
<tr>
<td>Y. James Kang</td>
<td></td>
</tr>
<tr>
<td>LaCreis R. Kidd</td>
<td></td>
</tr>
<tr>
<td>W. Glenn McGregor</td>
<td></td>
</tr>
<tr>
<td>Steven R. Myers</td>
<td></td>
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<tr>
<td>Donald E. Nerland</td>
<td></td>
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<tr>
<td>William M. Pierce, Jr.</td>
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<td>Peter P. Rowell</td>
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<tr>
<td>Zhao-hui (Joe) Song</td>
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<td>J. Christopher States</td>
<td></td>
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<tr>
<td>Leonard C. Waite</td>
<td></td>
</tr>
<tr>
<td>Walter M. Williams</td>
<td></td>
</tr>
</tbody>
</table>
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 in the Department. Some highlights of the year included several outstanding faculty recruitments:

Primary Appointment in the Department of Pharmacology & Toxicology

- **La Creis Renee Kidd, PhD, MPH** was appointed Assistant Professor of Pharmacology and Toxicology and Our Highest Potential Endowed Chair in Cancer Research. Dr. Kidd received her B.S from Spelman College. She received her PhD in Toxicology from Massachusetts Institute of Technology as an NIEHS-funded predoctoral fellow. She was subsequently appointed as an NIEHS postdoctoral Fellow at Johns Hopkins University where she also completed an MPH program with major in epidemiology and biostatistics. Prior to her recruitment to the University of Louisville, she completed a Cancer Prevention Fellowship in the Cancer Prevention Studies at the National Cancer Institute.

Joint Appointments in the Department of Pharmacology & Toxicology

- **Richard E. Goldstein, MD, PhD** was appointed Professor of Pharmacology and Toxicology. Dr. Goldstein received his B.A. from Amherst College, his MD from Thomas Jefferson University and his PhD in Molecular Physiology and Biophysics from Vanderbilt University. He held appointments as Assistant and Associate Professor of Surgery and of Medicine at Vanderbilt University prior to his appointment as Professor of Surgery and von Roenn Family Chair in Surgical Endocrinology at the University of Louisville in 2002.

- **Kelly M. McMasters, MD, PhD** was appointed Professor of Pharmacology and Toxicology. Dr. McMasters received his B.A from Colgate University and completed the MD/PhD program at Rutgers University/UMDNJ-Robert Wood Johnson Medical School. He completed a general surgery residency at UofL, followed by a surgical oncology fellowship at the University of Texas-MD Anderson Cancer Center. He was appointed Assistant Professor of Surgery at UofL in 1996 and was subsequently promoted to associate and then full professor. Dr. McMasters holds the Sam and Lolita Weakley Chair in Surgical Oncology and was recently appointed Chairman of the Department of Surgery following a nationwide search.

- **Hong Ye PhD** was appointed Assistant Professor of Pharmacology and Toxicology. Dr. Ye received her PhD degree from Keele University (UK).
She subsequently received further postdoctoral research training at Weill Medical College of Cornell University. She was recruited to the University of Louisville Brown Cancer Center in 2003 as Assistant Professor in the Department of Medicine (Division of Hematology/Oncology).

- **Wayne Zundel, PhD** was appointed Assistant Professor of Pharmacology and Toxicology. Dr. Zundel received his B.S./B.A. from Montana State University and his PhD in Cancer Biology from Stanford University. He held appointments as Lecturer in the Department of Radiation Oncology at Stanford and Assistant Professor in the Department of Medicine at the University of Colorado Health Sciences Center. He was recruited to the University of Louisville Brown Cancer Center as Assistant Professor in the Department of Radiation Biology in 2004.

**Associate Appointments in the Department of Pharmacology & Toxicology**

- **Lu Cai MD, PhD** was appointed to the associate faculty. Dr. Cai received his MD and his PhD in Radiation Biology/Oncology from Norman Bethune University of Medical Sciences. He completed postdoctoral training at Norman Bethune University of Medical Sciences, the University of Western Ontario, and McGill University. He was appointed research associate in the Department of Medicine at the University of Louisville in 1999 and promoted to Assistant Professor in 2001.

- **Daniel J. Conklin, PhD** was appointed to the associate faculty. Dr. Conklin received his PhD from the University of Notre Dame. He received further postdoctoral training in cardiovascular toxicology at the University of Texas Medical Branch in Galveston. In 1998, he was appointed assistant professor at the University of Wisconsin-Eau Claire and was promoted to associate professor in 2003. He was recruited to the University of Louisville as Assistant Professor of Medicine (Cardiology) in 2003.

- **Kevin H. Stansbury, PhD** was appointed to the associate faculty. Dr. Stansbury received his PhD in Toxicology from the University of Kentucky. He subsequently completed postdoctoral training in Toxicological Sciences at Johns Hopkins University and subsequently served as an Analytical Chemist in their Center in Urban Environmental Health and a Research Associate in their Division of Clinical Pharmacology.

**Program Highlights**

- The Department received a very complimentary review of the pharmacology and toxicology graduate programs (provided as Section XIV of the report).

- The Department in collaboration with the Department of Biochemistry and Molecular Biology received an institutional predoctoral training grant in
environmental health sciences funded by NIEHS. This is the first NIH-funded predoctoral training grant in the history of the University.

- A Departmental Teaching Incentive Program was developed and initiated.

- A new molecular toxicology course and a new medical pharmacology graduate course were developed and initiated.

- Several department faculty are active participants and are research lab directors in the Center for Pediatric Pharmacology Research Unit (Jan Sullivan, Principal Investigator) funded by the NIH beginning January 1, 2004.

As described more fully in their annual reports, numerous faculty and students in the Department received honors and awards. Of particular note:

- **Steven R. Myers, PhD** initiated a new online nursing pharmacology course that enrolled students throughout the Commonwealth

- **La Creis Renee Kidd, PhD, MPH** was appointed Our Highest Potential Chair in Cancer Research.

- **Y. James Kang PhD** was promoted to Distinguished University Scholar

- **Gavin E. Arteel, PhD** was received the Young Investigator Award from the Research Society on Alcohol

- **Leonard C. Waite PhD** received the University of Louisville President Award for Distinguished Service.

- **Yu (Janet) Zang** was selected for the KC Huang Outstanding Graduate Student Award and received a predoctoral fellowship from the Susan B. Komen Breast Cancer Research Foundation.

- **Frazier Taylor** and **Steve Reeves** received individual NIH-NRSA fellowships for their dissertation research.

- **Tanvi Modi Jani** received a travel award and a second place award for her abstract presentation at the annual FASEB meeting

- **Guo-hui Jiang, PhD** received first place award for his abstract presentation at the annual SOT meeting

- **Clare Shen** and **Prachi Hote** received first place awards for their abstract presentations at the annual OVSOT meeting
• **Sam McNeely** and **Frazier Taylor** received awards for their abstract presentations at the annual Brown Cancer Center Retreat

Several faculty and staff received awards for their abstract presentations at the annual meeting of Research!Louisville:

• **David Clouthier PhD**, mentor for first place School of Dentistry Student Award
• **Brad Brewer** (and **John Eaton, PhD**, mentor) for second place School of Medicine Student Award
• **Haribabu Bodduluri, PhD** mentor for third place School of Medicine Student Award
• **Aruni Bhatnagar, PhD** mentor for third place School of Medicine Student Award
• **Craig McClain, MD**, mentor for second place Resident/Clinical Research Fellow Award
• **Paul Epstein, PhD** mentor for first place postdoctoral fellow award
• **Ina Berghein, PhD** (and **Gavin Arteel, PhD**, mentor) for second place postdoctoral fellow award
• **Michal Hetman, MD,PhD**, mentor for honorable mention postdoctoral fellow award
• **John Eaton, PhD**, first place faculty award for scientific importance
• **Yang Wang, MD, PhD**, second place faculty award for scientific importance
• **Gavin Arteel, PhD**, third place faculty award for most promising basic science research
Research Summary

Departmental research productivity measures such as number of research grants (Fig. 1), abstracts (Fig. 2) and number of publications (Fig. 3) all document that the Department research programs are continuing to grow and mature.

Figure 1: Grants in which Department faculty and students serve as PI by year

Figure 2: Department abstracts by year
The number of graduates increased to 14 students (Figure 4) reflective of the recent growth of the program. The Department cooperated with the Department of Biochemistry and Molecular Biology in receipt of the first NIH-funded predoctoral training grant awarded to UofL.
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)

**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)
Assistant 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 adaptions to intermittent hypoxia: growth factors, intracellular signaling, and genomic implications.

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

**Assistant 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.

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**Ramesh C. Gupta, PhD** (University of Roorkee, India)

**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.

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**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)  
Associate 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  

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)
Associate 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)
Assistant 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).

John L. Wong, Ph.D. (University of California-Berkeley)
Professor
Biological chemistry; molecular dosimetry in environmental health; preparation of monoclonal antibodies in biomarker studies.
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 and Our Highest Potential Endowed Chair in Cancer Research, Ph.D., Toxicology, Massachusetts Institute of Technology (1997); M.P.H., Johns Hopkins University (2001).

McGregor, W. Glenn, Associate 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, Associate 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., Assistant 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 and vonRoenn Family Chair in Surgical Endocrinology; 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*, Assistant 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; and Endowed Professor of Molecular Signaling, 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; and Jewish Hospital Distinguished Chair in Hepatology, M.D., University of Tennessee-Memphis (1972).

McMasters, Kelly M., Sam and Lolita Weakley Endowed Professor of Surgery, and Pharmacology and Toxicology; Ph.D., Cell and Developmental Biology, Rutgers University (1988); M.D., UMDNJ Robert Wood 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, Assistant Professor of Pediatrics, and Pharmacology and Toxicology; M.D., Jiangxi Medical College (1982); Ph.D., Physiology, University of Toronto (1993).

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

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).
Jumblatt, James E., Professor of Ophthalmology and Visual Sciences; Ph.D., Biological Sciences, Columbia University (1975).

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

Miller, Frederick N., Professor of Physiology and Biophysics; Ph.D., Pharmacology, University of Cincinnati (1971).

Parsian, Abbas, Associate Professor of Molecular, Cellular and Craniofacial Biology; Ph.D., Biomedical Sciences, Western Michigan University (1986).

Rigor, Benjamin M., Professor of Anesthesiology; M.D., University of the East Ramon Magsaysay Memorial Medical Center (1962).

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).

Wang, Guang Jian, Assistant Professor of Pediatrics; Ph.D., Neuroscience, University of Minnesota (1996).

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).

Mitchell, Kent, Adjunct Assistant Professor of Pharmacology and Toxicology; Ph.D., Clemson University (1994).

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

Wedlund, Peter A., Adjunct Associate Professor of Pharmacology and Toxicology; Ph.D., Pharmaceutical Sciences, University of Washington (1981).

New Faculty Appointments

Cai, Lu, Associate faculty, effective January 1, 2004

Conklin, Daniel J., Associate faculty, effective June 1, 2004

Goldstein, Richard E., Professor, effective December 1, 2004

Kidd, LaCreis R., Assistant Professor, effective July 1, 2004

McMasters, Kelly M., Professor, effective July 1, 2004

Stansbury, Kevin H., Associate faculty, effective January 1, 2004

Ye, Hong, Assistant Professor, effective April 1, 2004

Zundel, Wayne S., Assistant Professor, effective December 1, 2004
Staff

Aiyer, Harini, Research Assistant
Azeem, Nabel, Student Assistant
Barker, David, Research Associate
Baumgarten, Sara, Student Assistant
Buck, Joshua, Student Assistant
Burke, Tom, Research Technologist II
Carpenter, Sharon, Executive Secretary
Casey, Jonathan, Student Assistant
Doll, Mark, Research Associate
Greca, Edie, Business Manager III
Holloman, Jessica, Student Assistant
Kellie, Brandon, Student Assistant
Lederer, Paul, Student Assistant
Liu, Marcia, Research Associate
Martini, Ben, Student Assistant
Miller, Heather, Senior Research Technician
Rubin-Teitel, Heddy, Program Assistant III
Smith, Ned, Senior Research Technologist
Stover, Rebekah, Student Assistant
Tucker, Alison, Lab Research Technician III
Turner, Delano, Lab Research Technician III
Vadhanam, Manicka, Senior Research Associate
Venugopal, Kamal, Research Associate
Walker, Dan, Student Assistant
Watson, Nick, Lab Research Technician III
Wicks, Chelsea, Student Assistant
## Continuing Graduate Students

<table>
<thead>
<tr>
<th>Name</th>
<th>Advisor</th>
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<tbody>
<tr>
<td>Cristian Campian</td>
<td>Fred Benz</td>
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<td>Alex Carrasquer</td>
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<td>Wendy Chang</td>
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<td>Chris Cunningham</td>
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<td>Molly Davis</td>
<td>Gavin Arteel</td>
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<td>Chad Dumstorf</td>
<td>Glenn McGregor</td>
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<td>Laila Elsherif</td>
<td>James Kang</td>
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<td>Agata Habas</td>
<td>Michal Hetman</td>
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<td>April Hartford</td>
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<td>Nina Li</td>
<td>Paul Epstein</td>
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<td>Michael Brier</td>
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<td>Kristin Metry</td>
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<td>Tanvi Modi</td>
<td>Shirish Barve</td>
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<td>Lasharon Mosley</td>
<td>Richard Goldstein</td>
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<td>Sheila Mullins</td>
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<td>Joe Song</td>
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<td>YaFatou Njie</td>
<td>Joe Song</td>
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<td>John Philipose</td>
<td>Michele Pisano</td>
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<td>Paul Porter</td>
<td>Chris States</td>
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<td>Stephen Reeves</td>
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<td>Katie Richardson</td>
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<td>Clare Shen</td>
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<td>Frazier Taylor</td>
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<td>Jason Walraven</td>
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<td>Cindy Wang</td>
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<td>Nick Watson</td>
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<td>Janet Zang</td>
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<td>Rundong Zhang</td>
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<td>Susan Zhang</td>
<td>David Hein</td>
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<tr>
<td>Yuanqi Zhu</td>
<td>David Hein</td>
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</tbody>
</table>
New Graduate Students

Anthony, Cherone  
Bagshaw, Aisha  
Green, Maia  
Martin, Robert  
Moktar, Afsoon  
Roberts, Emily  
Wiegand, Christina  
Xu, Xiaoqiang (Steven)  
Yang, Lu  
Zhou, Yang

Postdoctoral Fellows

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

V. Graduates

Prachi T. Hote (M.S.)  Mentor: Shirish Barve, Ph.D.  
Ethanol mediated loss of MAT2A (Methionine adenosylmethytransferase) expression and SAMe (S-adenosylmethionine) biosynthesis induce Fas-mediated CD4+ T lymphocyte death: Potential mechanism(s) for alcohol mediated immunotoxicity

Ntsang Miranda Nebane (M.S.)  Mentor: Zhao-Hui (Joe) Song, Ph.D.  
Effects of D3.49N mutations on ligand binding and activation of the CB1 and CB2 cannabinoid receptors

Xia (Clare) Shen (Ph.D.)  Mentor: Paul N. Epstein, Ph.D.  
Mitochondrial damage and biogenesis in diabetic heart and protection by overexpression of manganese superoxide dismutase
Chad A. Dumstorf (M.S.) Mentor: W. Glenn McGregor, M.D.
Mutagenesis of induced tumors in murine lung

Yuanqi Zhu (Ph.D.) Mentor: David W. Hein, Ph.D.
Human NAT1 genetic polymorphisms: coding region & non-coding region

Agata M. Habas (M.S.) Mentor: Michal Hetman, M.D., Ph.D.
The role of nuclear factors of activated T-cells (NFAT) in neuronal death

Yu (Cindy) Wang (M.S.) Mentor: David Gozal, M.D.
Cooperative effects of amyloid beta (25-35) and hypoxia-reoxygenation on cell death in primary cultured mouse neurons of cerebral cortex

Christopher R. Cunningham (Ph.D.) Mentor: Steven R. Myers, Ph.D.
Hemoglobin adducts and the role of genotype in the modification of risk associated with tobacco smoke exposure to the fetus

Xiaoyan (Nina) Li (Ph.D.) Mentor: Paul N. Epstein, Ph.D.
The roles of pancreatic beta cell antioxidants in islet transplantation and type 1 diabetes

Kristin J. Metry (M.S.) Mentor: David W. Hein, Ph.D.
NAT polymorphism in breast cancer risk

Wei (Wendy) Yuan Cheng (M.S.) Mentor: Theresa S. Chen, Ph.D.
Mechanism of oxidative stress induced cell toxicity

Jennifer A. Loehle (M.S.) Mentor: David W. Hein, Ph.D.
Pediatric pharmacogenetic studies: The advent of genomics, clinical implications and current initiatives in research

April K. Hartford (Ph.D.) Mentor: Nicholas A. Delamere, Ph.D.
NA,K-ATPase Alpha 2: Its role in calcium homeostasis, signalling and cell survival in astrocytes

Laila Elsherif (Ph.D.) Mentor: Y. James Kang, Ph.D.
Dietary copper restriction-induced cardiomyopathy and its reversibility
VI. Publications (salaried and emeritus faculty)

Papers


VII. Additional Publications of Faculty with Joint Appointments


VIII. Abstracts (salaried faculty and staff, and emeritus)


2. Arteel GE (2004): Investigations on the source(s) and type(s) of oxidants in alcoholic liver disease. *Alcoholism: Clinical and Experimental Research* 28:54A.


18. Xiaoyan Li, Hainan Chen, Patricia Kralik and Paul N Epstein. Overexpression of beta cell Cytoplasmic Antioxidants Reduced ROS Mediated beta cell Survival and Unexpectedly Sensitized Type 1 Diabetes and beta cell Apoptosis in NOD Mice. Late-breaking abstract #71–LB American Diabetes Association’s 64th Scientific Sessions June 4–8, 2004 in Orlando, Florida


34. Ivanenko A, Barnes ME, Crabtree VM, Gozal D. Psychiatric Symptoms in children with insomnia evaluated at the Pediatric Sleep Medicine Center. Presented at: 18th Annual APSS


55. Gozal D, Guo SZ, Gozal E, Li RC, Sachleben LR, Reeves SR. Time-dependent changes in growth factor expression following domoic acid lesions in the nucleus of the solitary tract of


75. Gozal E, Sachleben Jr LR, Wiegand C, Wu R, Rane, MJ. HSP90 inhibition induces PC-12 cell death and Akt downregulation without altering hypoxia induced Akt phosphorylation.


acyltransferase-2 to 2-amino-1-methyl-6-phenylimidazo[4,5-B]pyridine (PhIP).


167. Joellen Lewtas, Steven Myers, Christopher Simpson, Russell Dill, David Kalman, Development of urinary metabolite biomarkers to assess population exposure to PM2.5 from various combustion sources, PM2.5 meeting, Department of Environmental Health, University of Washington, Seattle, WA 98195-7234.


170. Steven R. Myers, Christopher Cunningham, and Jonathan Weeks, Levels of Polycyclic Aromatic Hydrocarbons in Amniotic Fluid Samples from Smokers and Nonsmokers. State EPSCoR meeting, Feb, 2004, Lexington, KY.


IX. Invited Scientific Presentations and Seminars (salaried faculty)

Dr. Gavin Arteel

Research seminar, 01/04, “Reactive oxygen species”, University of Louisville, GI Liver Group, Louisville, KY.

Research symposium, 01/04, “Liver transplantation”, University of Louisville, Dept of Medicine Research Conference, Louisville, KY.

Research seminar, 04/04, “Oxidants and antioxidants in ALD: tipping the balance”, University of Louisville, Dept of Microbiology and Immunology, Louisville, KY.

Research symposium, 05/04, “Oxidants and antioxidants in alcoholic liver disease: tipping the balance”, University of Kentucky, Graduate Center for Nutritional Sciences, Lexington, KY.

Research seminar, 06/04, “Spin-offs”, University of Louisville, Dept of Biochemistry, Ken Ramos laboratory, Louisville, KY.

Research seminar, 06/04, “What’s good for your heart is good for your liver?” Dept of Medicine-Cardiology, Bhatnagar PPG group, Louisville, KY.

Research symposium, 06/04, “Alcoholic liver disease: crossroads between TLRs and oxidative stress,” NIAAA satellite session, Research Society on Alcoholism, Vancouver, Canada.

Research Seminar, 09/04, “New targets against oxidative stress and inflammation in the liver,” Heinrich Heine Universität, Institut für Biochemie und Molekularbiologie I, Düsseldorf, Germany.

Research Syposium, 09/04, “Investigations on the source(s) and type(s) of oxidants in alcoholic liver disease,” ISBRA annual meeting, International society on Biomedical Research on Alcoholism, Heidelberg, Germany.


Research Seminar, 10/04, “New pathways and potential targets in hepatic inflammation,” University of Louisville, Dept of Pharmacology and Toxicology, Louisville, KY.
Research Seminar, 11/04, “Potential new therapies against oxidative stress and liver damage,” Michigan State University, Dept of Pharmacology and Toxicology, East Lansing, MI.

**Dr. Paul Epstein**

Paul N Epstein September 2004, University of Louisville, Endocrine Grand Rounds, Diabetic Nephropathy

Paul N Epstein September 2004, University of Louisville, CGEMM Diabetic Nephropathy and Cardiomyopathy

**Dr. David Gozal**


SIDS Update. Celebration of Pediatric Pulmonology, April 2-4, 2004, Sonesta Beach Resort Key Biscayne, Miami, FL.

Topics in Congenital Central Hypoventilaiton Syndrome. Celebration of Pediatric Pulmonology, April 2-4, 2004, Sonesta Beach Resort Key Biscayne, Miami, FL.

Pre-Laboratory Evaluation of Sleep-Disordered Breathing. Celebration of Pediatric Pulmonology, April 2-4, 2004, Sonesta Beach Resort Key Biscayne, Miami, FL.


New Developments in Pediatric Obstructive Sleep Apnea. XII Reunion Anual de la Asociacion Iberica de Patologia del Sueno, 6-7 May, 2004, Valencia, Spain.


Pediatric Morbidity in Obstructive Sleep Apnea. Speaker, Post-Graduate Course on “Pediatric Clinical Issues in Sleep and OSA”, 18th APSS Meeting, June 5-10, 2004, Philadelphia, PA. Is Sleep and Anti-Oxidant?

Speaker, Symposium on “Sleep and Oxidative Stress”, 18th APSS Meeting, June 5-10, 2004, Philadelphia, PA.

Effects of Intermittent Hypoxia on Adult Neurogenesis in Rodents. Speaker, Symposium on “Adult Neurogenesis: A Biological Link Between Sleep Disorders, Cognitive Deficits in Obstructive Sleep Apnea, and Depression”, 18th APSS Meeting, June 5-10, 2004, Philadelphia, PA.

Special Lecture, Society for Neuroscience Annual Conference, San Diego 2004

**Dr. Evelyne Gozal**


*Heat Shock Proteins / Akt Binding in Hypoxia: A Question of Life and Death ?*


**Dr. Ramesh Gupta**

Presented a research seminar to the Environmental Cardiology Group.

**Dr. David W. Hein**


*NAT2 Genetic Polymorphisms: Effects on Cancer Risk (Many) and Treatment (Some),* Poa Pratensis Seminar, James Graham Brown Cancer Center, University of Louisville, Louisville, Kentucky, July 2004.

*NAT2 Metabolism and Hair Dyes.* Epidemiology-Toxicology Workshop on Hair Dyes, Baltimore, Maryland, October 2004.

*Update on N-acetylation of Hair Dye Chemicals by Human NAT1 and NAT2.* Procter and Gamble meetings, University of Louisville, Louisville, Kentucky, October 2004.


**Dr. Y. James Kang**


**Dr. W. Glenn McGregor**


**Dr. Steven R. Myers**


**Dr. Zhao-Hui (Joe) Song**

The Mechanisms of Actions for Cannabinoids
Department of Immunology, Peking University School of Medicine, July, 2004

The Anti-glaucoma Potentials of Cannabinoids
Department of Cell Biology and Anatomy, New York Medical College, Valhalla, New York, April, 2004

Cannabinoid Receptors: Structure, Function, and Potentials as Therapeutic Targets
Department of Molecular Biology, University of Medicine and Dentistry of New Jersey, Stratford, New Jersey, March, 2004

Updates on Cannabinoid Receptor Research
University of Connecticut School of Pharmacy Seminar Series, Storrs, Connecticut, January, 2004

**Dr. J. Christopher States**


X. **Research Grants and Contracts Submitted (salaried faculty)**

<table>
<thead>
<tr>
<th><strong>Dr. Gavin E. Arteel</strong></th>
<th><strong>Agency</strong></th>
<th><strong>Budget Requested</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Crosstalk between PXR and A/EpRE signaling (Co-I; K Falker, PI) 10/01/04-09/30/08</td>
<td>NIH</td>
<td>$904,404</td>
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<tr>
<td>Development of a new model of recovery from ALD (PI) 12/01/04-11/30/06</td>
<td>NIH</td>
<td>$294,000</td>
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<td>Development of a direct cellular energy delivery system (Co-I; W Ehringer, PI) 07/04/04-06/30/06</td>
<td>NIH</td>
<td>$1,655,671</td>
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<td>Matrix metalloproteinases in alcoholic liver injury (Co-I; I Deaciuc, PI) 04/01/05-03/31/07</td>
<td>NIH</td>
<td>$362,800</td>
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<tr>
<td>Metallothionein Prevents Diabetic Cardiomyopathy (Co-I; L Cai, PI) 04/01/05-03/31/10</td>
<td>NIH</td>
<td>$1,129,615</td>
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<td>Prevention of liver transplant nonfunction with ATP vesicles (PI) 04/01/05-03/31/10</td>
<td>NIH</td>
<td>$1,406,038</td>
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<tr>
<td>A new ATP delivery system for liver transplantation (Subcontract PI; W Ehringer, PI) 04/15/05-10/14/05</td>
<td>NIH</td>
<td>$100,000</td>
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<td>Control of drug and ethanol metabolism (competitive renewal) (PI) 07/01/05-06/30/10</td>
<td>NIH</td>
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<td>University of Louisville Alcohol Research Center (PI) 07/01/05-06/30/10</td>
<td>NIH/NIAAA</td>
<td>$5,269,418</td>
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<th><strong>Dr. Frederick Benz</strong></th>
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<tr>
<td>MT Interaction with Zn-Binding Proteins in the Heart (Co-I; W Feng, PI) 04/01/05 – 03/31/07</td>
<td>NIH</td>
<td>$404,250</td>
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<th><strong>Dr. Jian Cai</strong></th>
<th><strong>Agency</strong></th>
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<td>MT prevents diabetic protein nitration in the heart (Co-I; L Cai, PI) 09/30/2004 – 09/29/2006</td>
<td>NIH</td>
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<td>Dr. Jian Cai (continued)</td>
<td>Agency</td>
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<td>MT interaction with Zn-binding proteins in the heart (Co-I; W Feng, PI) 04/01/2005 – 03/31/2007</td>
<td>NIH</td>
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<td>NanoLC linear Q-trap mass spectrometer (Co-I; W Pierce, PI) 04/01/2005 – 03/31/2006</td>
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<td>Short term course in proteomic analysis (Co-I; J Klein, PI) 12/01/2004 – 11/30/2009</td>
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<td>MT prevents diabetic protein nitration in the heart (Co-I; L Cai, PI) 04/01/2005 – 03/31/2007</td>
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<td>Functional map of S1P signaling in endothelial cell (Co-PI; M-J Lee, PI) 07/01/2005 – 06/30/2010</td>
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<td><strong>Dr. Theresa S. Chen</strong></td>
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<td>Green tea polyphenols: A novel approach to IBD (Co-I; Dr. Oz, PI)</td>
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<td>Podocytes and oxidative stress in diabetic kidney (Co-I; P Epstein, PI) 09/30/05 – 08/31/10</td>
<td>NIH/NIDDK</td>
<td>$250,000</td>
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<td><strong>Dr. Paul N. Epstein</strong></td>
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<tr>
<td>Podocytes and oxidative stress in diabetic kidney (PI) 09/30/05 – 08/31/10</td>
<td>NIH/NIDDK</td>
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<td><strong>Dr. Evelyne Gozal</strong></td>
<td><strong>Agency</strong></td>
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<td>Heat shock proteins in spinal cord neural survival (Co-I; M Rane, PI) 07/01/05 – 06/31/10</td>
<td>NIH</td>
<td>$902,020</td>
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<td>Role of Hsp27 in regulation of PMN apoptosis (Co-I; M Rane, PI) 04/01/04 – 03/31/09</td>
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<td>$1,250,000</td>
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<td>Diet and susceptibility to intermittent hypoxia (Co-I; B Row, PI) 04/01/04 – 03/30/09</td>
<td>NIH/NHLBI</td>
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<td>Cell antioxidant transgenes in diabetes and transplantation (Co-I; P Epstein, PI) 08/01/04 – 07/31/09</td>
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<td>Proteomic analysis of hippocampal hypoxic vulnerability (Co-I; J Klein, PI) 04/01/05 – 03/31/10</td>
<td>NHLBI</td>
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<td>Role of Hsp90 interactions in PC-12 survival to hypoxia (Mentor; C. Wiegand, PI) 03/05 -02/07</td>
<td>NIH (F30 NS051998)</td>
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<td>Molecular analysis of human cervical cancer development (PI)</td>
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<td>$1,243,767</td>
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<td>Biomarkers of human cervical cancer development (PI) 07/05 – 06/10</td>
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<td>$1,786,870</td>
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<tr>
<td>Molecular analysis of human cervical cancer development (PI) 07/05 – 06/08</td>
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<td>Biomarkers of human cervical cancer development (PI) 07/05 – 06/10</td>
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<td>Kentucky Network for Cancer Health Disparity (PI) 04/05 – 03/10</td>
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<td>Dietary chemoprevention of breast cancer (PI)</td>
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<th><strong>Agency</strong></th>
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<tr>
<td>Pharmacogenetics of drug and carcinogen metabolism (PI; minority supplement for Dr. LaCreis Kidd) 07/01/04 – 06/30/08</td>
<td>NIH/NCI</td>
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<td>Characterization of NAT1 overexpression in breast tumors (PI) 07/01/04 – 06/30/06</td>
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<td>Human hepatocyte characterization (PI) 03/01/04 – 12/31/04</td>
<td>Tissue Transformation Technologies</td>
<td>$1,386</td>
</tr>
<tr>
<td>International Conference on Tobacco Induced Diseases (Member of Organizing Committee; D Kinane, PI) 09/08/04 – 09/07/05</td>
<td>NCI</td>
<td>$3,500</td>
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<tr>
<td>Xenobiotic metabolizing genes and prostate cancer (Co-I; L Kidd, PI) 07/01/04 – 06/30/05</td>
<td>James Graham Brown Cancer Center</td>
<td>$40,000</td>
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<tr>
<td>NanoLC-Linear Q-trap Mass Spectrometer (Major User; W Pierce, PI) 04/01/05 – 03/31/06</td>
<td>NIH/NCRR</td>
<td>$500,000</td>
</tr>
<tr>
<td>Predictive genetic polymorphisms in surgical pancreatic cancers (Co-I; R Martin, PI) 2004 - 2007</td>
<td>US Department of Veterans Affairs Merit Review</td>
<td>$165,000</td>
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<tr>
<td>The role of DNA adduct formation in pancreatic cancer carcinogenesis (Co-I; R Martin, PI) 07/01/05 – 06/30/07</td>
<td>American Association for Cancer Research</td>
<td>$100,000</td>
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<tr>
<td>Polymorphisms in MnSOD as a risk factor for lung cancer (Co-I/mentor; R.Martin, PI) 04/01/05 – 03/31/10</td>
<td>NIH</td>
<td>$540,000</td>
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<tr>
<td>Regulatory genes of NFkappaB and their effect on IBD (Co-I; S Glandiuk, PI) 12/01/04 – 11/30/06</td>
<td>NIH</td>
<td>$294,000</td>
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<tr>
<td>Gene expression in UC dysplasia/cancer (Co-I; S Glandiuk, PI) 12/01/04 – 11/30/06</td>
<td>NIH</td>
<td>$294,000</td>
</tr>
<tr>
<td>Genomic assessment of human hepatic metabolism (Subproject investigator; P Wedlund, PI) 12/01/04 – 11/30/09</td>
<td>NIH</td>
<td>$2,328,285</td>
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<tr>
<td>Dr. David W. Hein (continued)</td>
<td>Agency</td>
<td>Budget Requested</td>
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<tr>
<td>---------------------------------------------------------------------------------------------</td>
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<tr>
<td>MnSOD polymorphisms as a risk factor for lung cancer (Co-I; R Martin, PI) 07/01/05 – 06/30/07</td>
<td>Sidney Kimmel Foundation for Cancer Research</td>
<td>$200,000</td>
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<tr>
<td>Polymorphisms in MnSOD as a risk factor for lung cancer (Co-I; R Martin, PI) 01/01/05 – 12/31/08</td>
<td>Damon Runyon Cancer Research Foundation</td>
<td>$300,000</td>
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<tr>
<td>NAT1 and NAT2 genotype determinations in cancer center patients and controls (PI) 01/01/04 – 12/31/09</td>
<td>MD Anderson Cancer Center</td>
<td>$20,000</td>
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</table>

**Dr. Harrell E. Hurst**

Biochemistry of DAF-9 and DAF-12 interaction (Co-I; K. C. Falkner, PI) 07/01/05 – 06/30/09

NIH

$900,000

**Dr. Y. James Kang**

Endothelin-mediated cardiotoxicity of airborne particulate matter (PI)

Philip Morris External research Program

$1,190,000

Metallothionein and hepatic oxidative stress (Co-I; W Maret, PI)

NIH-NIAAA

$3,085,971

Zinc and alcohol-induced oxidative liver injury (Co-I; Z Zhou, PI)

NIH-NIAAA

$1,000,000

Han-Dan-Gabn-Le therapy for toxic liver fibrosis (PI)

NIH-NCCAM

$2,217,355

**Dr. La Creis R. Kidd**

Kentucky Network for Cancer Health Disparities (Co-I; R Edwards, PI)

NCI

$5,592,114

**Dr. W. Glenn McGregor**

Mutagenesis as a novel target for cancer prevention (PI) 07/01/04 – 06/30/05

James Graham Brown Cancer Center pilot Grant

$40,000
<table>
<thead>
<tr>
<th><strong>Dr. W. Glenn McGregor (continued)</strong></th>
<th><strong>Agency</strong></th>
<th><strong>Budget Requested</strong></th>
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<tbody>
<tr>
<td>Mutagenesis as a novel target for cancer prevention (PI) 01/05 – 12/31/08</td>
<td>NIH/NCI</td>
<td>$700,000</td>
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<tr>
<td>Novel strategies to prevent lung cancer (PI) 7/01/05-6/30/07</td>
<td>NIH/NCI</td>
<td>$100,000</td>
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<tr>
<td>Novel strategies to prevent lung cancer (PI) 01/01/05 – 12/21/06</td>
<td>NIH/NCI</td>
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<tr>
<td>Estrogen receptor expression and activity in lung cancer (Co-I; C Klinge, PI) 03/01/05 – 02/28/08</td>
<td>NIH/NCI</td>
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<tr>
<th><strong>Dr. Steven R. Myers</strong></th>
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<tbody>
<tr>
<td>Establishment of Breast Milk Bank in Louisville/Carcinogens in Breast Milk (Co-I; D Adamkin, PI) 07/01/05 – 06/30/06</td>
<td>American Breastfeeding Institute</td>
<td>$189,871</td>
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<tr>
<th><strong>Dr. Donald E. Nerland</strong></th>
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<tr>
<td>Inhibition of lung cancer cell growth by PPARγ (PI) 08/01/04 – 07/31/05</td>
<td>James Graham Brown Cancer Center</td>
<td>$40,000</td>
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<tr>
<td>Transcriptional control mechanisms in chemoprevention (PI) 07/01/05 – 06/30/07</td>
<td>NCI</td>
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<tr>
<th><strong>Dr. William M. Pierce, Jr.</strong></th>
<th><strong>Agency</strong></th>
<th><strong>Budget Requested</strong></th>
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<tbody>
<tr>
<td>Biomarkers of Human Cervical Cancer Development (Co-I, R Gupta, PI) 11/1/2004 – 10/31/09</td>
<td>NIH/NIA</td>
<td>$2,548,734</td>
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<tr>
<td>Center for Regulatory Metabolomics: From Molecules to Communities (Co-I; T Fan, PI) 2005 - 2008</td>
<td>NSF/EPSCoR</td>
<td>$2,827,167</td>
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<tr>
<td>Signaling Pathways of Replicative Senescence (Co-I; E Wang, PI) 10/1//2004 – 9/30/09</td>
<td>NIH/NIA</td>
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<tr>
<td>NanoLC – Linear Q-trap Mass Spectrometer (PI) 4/1/05 – 3/31/06</td>
<td>NIH/NCRR</td>
<td>$500,000</td>
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</table>
## Dr. William M. Pierce Jr. (continued)

<table>
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<tr>
<th>Project Description</th>
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<tbody>
<tr>
<td>Discovery of Protein Biomarkers for Heart Failure (Co-I; S Jortani, PI) 10/1/05 – 9/30/10</td>
<td>NIH/NHLBI</td>
<td>$1,837,500</td>
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<tr>
<td>Cellular and Molecular Bases for Iron Toxicity (Co-I; J Eaton, PI) 4/1/05 – 3/31/2010</td>
<td>NIH/NIDDK</td>
<td>$1,653,750</td>
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<tr>
<td>Kinase Pathways in Diabetic Nephropathy (Co-I; K McLeish, PI) 4/1/05 – 3/31/2010</td>
<td>NIH/NIDDK</td>
<td>$1,837,500</td>
</tr>
<tr>
<td>Estrogen expression and activity in lung cancer (Co-I; CKlinge) 7/1/05 – 6/31/2010</td>
<td>NIH/NCI</td>
<td>$1,837,500</td>
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<tr>
<td>Hormones, hypogravity and endothelial cells (Co-I; C Klinge, PI) 7/1/05 – 6/31/2010</td>
<td>NASA</td>
<td>$449,820</td>
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<tr>
<td>MT prevents diabetic protein nitration in the heart (Co-I; L Cai, PI) 4/1/05 – 3/31/2007</td>
<td>NIH/NIDDK</td>
<td>$404,250</td>
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<tr>
<td>Regulation of NaPi IIa Trafficking by NHERF-1 (Co-I; E Lederer, PI) 7/1/05 – 6/30/09</td>
<td>NIN/NIDDK</td>
<td>$1,453,550</td>
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<tr>
<td>Proteomic Analysis of Persistent <em>Chlamydia pneumoniae</em> (Co-I; J Summersgill, PI) 7/1/05 – 6/31/10</td>
<td>NIH</td>
<td>$2,842,755</td>
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## Dr. Zhao-hui (Joe) Song

<table>
<thead>
<tr>
<th>Project Description</th>
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<tbody>
<tr>
<td>Cannabinoid receptors-Potential targets for novel antiglaucoma drugs (PI) 08/01/03 – 07/31/07</td>
<td>NIH</td>
<td>$1,174,166</td>
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## Dr. J. Christopher States

<table>
<thead>
<tr>
<th>Project Description</th>
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<tbody>
<tr>
<td>Molecular mechanisms of arsenic enhancement of benzo[a]pyrene genotoxicity in human cells (PI) 09/01/04 – 08/31/05</td>
<td>Kentucky Science and Engineering Foundation</td>
<td>$15,000</td>
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<tr>
<td>Genetic Polymorphisms in 5’-UTR of human NAT1 and NAT2 (Co-I) 12/01/03 – 11/30/04</td>
<td>UofL CGeMM Pilot Project</td>
<td>$30,000</td>
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</table>
Dr. J. Christopher States (continued)

<table>
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<tr>
<th>Project Description</th>
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<tbody>
<tr>
<td>Murine Model for Arsenic Induced Atherogenesis (PI) 12/01/03 – 06/30/05</td>
<td>UofL CGeMM Pilot Project</td>
<td>$30,000</td>
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<tr>
<td>Mechanism of Arsenic Induced Atherogenesis (PI) 12/01/04 – 11/30/06</td>
<td>NIH/NIEHS</td>
<td>$404,250</td>
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<tr>
<td>Effect of fetal arsenic exposure on vascular disease (PI) 04/01/05 – 03/31/08</td>
<td>NIH/NIEHS</td>
<td>$441,000</td>
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<tr>
<td>Aneuploidy &amp; apoptosis: Ying &amp; yang of arsenic toxicity (PI) 07/01/05-06/30/08</td>
<td>NIH / Fogarty International Center</td>
<td>$196,000</td>
</tr>
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</table>
## XI. Research Grants and Contracts in Force (salaried faculty)

<table>
<thead>
<tr>
<th>Dr. Gavin E. Arteel</th>
<th>Agency</th>
<th>Project Award</th>
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<tbody>
<tr>
<td>Hypoxia and free radicals in alcoholic pancreatitis (PI) 08/01/01-07/31/06</td>
<td>NIH (NIAAA)</td>
<td>$555,846</td>
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<tr>
<td>Control of drug and ethanol metabolism (PI) 11/01/01-06/30/05</td>
<td>NIH (NIAAA)</td>
<td>$594,413</td>
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<tr>
<td>Prevention of hepatic ischemia reperfusion injury by liposomal delivery of ATP (PI) 07/01/03 – 06/30/04</td>
<td>Intramural IRIG Grant</td>
<td>$10,000</td>
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<tr>
<td>Oval cells in alcoholic hepatocellular carcinoma (Mentor; J Lambert, PI) 07/01/03 – 06/30/04</td>
<td>James Graham Brown Cancer Center</td>
<td>$28,000</td>
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<tr>
<td>Probiotic trefoil therapy for IBD-induced colorectal carcinoma (PI) 07/01/04 – 06/30/05</td>
<td>James Graham Brown Cancer Center</td>
<td>$36,307</td>
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<tr>
<th>Dr. Jian Cai</th>
<th>Agency</th>
<th>Project Award</th>
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<tbody>
<tr>
<td>Cardiovascular toxicity of environmental aldehydes (Co-I; A Bhatnagar, PI) 07/01/03 – 06/30/08</td>
<td>NIH</td>
<td>$6,986,000</td>
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<table>
<thead>
<tr>
<th>Dr. Theresa S. Chen</th>
<th>Agency</th>
<th>Project Award</th>
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<tbody>
<tr>
<td>Glutathione intervention in diabetes mellitus (PI) 06/01/04 – 05/31/05</td>
<td>Kentucky Science and Technology Corporation</td>
<td>$15,000</td>
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<tr>
<td>Mechanisms of alcohol-induced immunosuppression (Co-I; S Barve, PI) 09/01/04 – 06/30/09</td>
<td>NIAAA</td>
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<tr>
<td>Adomet and carinii pneumonitis (Co-I; Dr. Oz, PI) 07/01/03 – 06/30/05</td>
<td>NIH</td>
<td>$366,250</td>
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<tr>
<td>Oral Antioxidant/Anticytokine Therapy for ALD (Co-I; D Hill, PI) 08/01/02 – 07/31/06</td>
<td>NIAAA</td>
<td>$1,000,000</td>
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<tr>
<td><strong>Dr. Paul N. Epstein</strong></td>
<td><strong>Agency</strong></td>
<td><strong>Project Award</strong></td>
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<tr>
<td>Podocyte specific antioxidant protection in diabetic nephropathy (PI) 03/01/05 – 02/28/08</td>
<td>Juvenile Diabetes Res. Foundation</td>
<td>$149,000</td>
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<tr>
<td>Cardiac neuropathy in Type I diabetic and aging mice (PI) 09/30/04 – 08/31/08</td>
<td>NIH/NHLBI</td>
<td>$250,000</td>
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<tr>
<td>A causative role for nucleolin in malignant transformation? (Co-I; P Bates, PI) 08/01/04 – 07/31/06</td>
<td>NIH/NCI</td>
<td>$100,000</td>
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<tr>
<td>Altered glucose homeostasis by sleep impairment (PI) 09/30/03 – 06/30/07</td>
<td>NIH/NHLBI</td>
<td>$225,000</td>
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<tr>
<td>β-cell antioxidant transgenes in diabetes and transplantation (PI) 09/01/00 – 08/31/04</td>
<td>NIH/NIDDK</td>
<td>$125,000</td>
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<tr>
<td>Reducing diabetic cardiomyopathy by increasing glycolysis (PI) 09/01/00 – 08/31/04</td>
<td>NIH/NHLBI</td>
<td>$172,000</td>
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<tr>
<td>Antioxidant transgenes in diabetic cardiomyopathy (PI) 08/01/99 – 07/30/07</td>
<td>NIH/NHLBI</td>
<td>$200,000</td>
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<tr>
<td>Molecular determinants of developmental defects (Co-I; Ye Qi Liu, PI) 09/30/02 – 09/29/07</td>
<td>NIH/NGA</td>
<td>$150,000</td>
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<tr>
<td>Analysis of diabetic nephropathy (Co-I; J Klein, PI) 7/1/02-6/30/04</td>
<td>NIH</td>
<td>$100,000</td>
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<thead>
<tr>
<th><strong>Dr. David Gozal</strong></th>
<th><strong>Agency</strong></th>
<th><strong>Project Award</strong></th>
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<tbody>
<tr>
<td>Neurocognitive function in snoring children (PI) 9/01/03 – 6/30/08</td>
<td>NHLBI</td>
<td>$1,200,000</td>
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<tr>
<td>REM sleep deprivation, hypoxia, and hippocampal function (PI) 09/01/00 -6/30/05</td>
<td>NHLBI</td>
<td>$900,000</td>
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<tr>
<td>Proteomic analysis of hipocampal hypoxic vulnerability (Co-I; J Klein, PI) 10/01/00 – 9/30/05</td>
<td>NHLBI</td>
<td>$700,000</td>
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<tr>
<td>Postnatal Brain Susceptibility to Intermittent Hypoxia (PI) 03/01/02 - 02/28/06</td>
<td>NHLBI</td>
<td>$1,000,000</td>
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<tr>
<td><strong>Dr. David Gozal (continued)</strong></td>
<td><strong>Agency</strong></td>
<td><strong>Project Award</strong></td>
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<tr>
<td>Reversal of Learning Deficits in 3-4 Year Old Children with Obstructive Sleep Apnea (PI) 07/01/02 - 06/30/04</td>
<td>Centers for Disease Control</td>
<td>$494,000</td>
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<tr>
<td>Whole-Body Hypoxic Pre-Conditioning (Co-I; Y Wang, PI) 06/01/02-05/31/04</td>
<td>Department of Defense</td>
<td>$350,000</td>
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<tr>
<td>Role of Vagal Afferents in Hyperpnea (Co-I; J Yu, PI) 01/01/03-12/31/07</td>
<td>NHLBI</td>
<td>$1,100,000</td>
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<tr>
<td>ROS in intermittent hypoxia-mediated neuronal cell death (Co-I; R Liu, PI) 2/1/03 – 1/31/07</td>
<td>NINDS</td>
<td>$1,150,000</td>
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<tr>
<td>Aging, episodic hypoxia, and vagal cardiac projections (Co-I; Z Cheng, PI) 5/1/03 – 4/30/08</td>
<td>NIA</td>
<td>$1,225,000</td>
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<tr>
<td>Cancer Education Grant Program (student mentor) 08/01/02 – 07/31/07</td>
<td>NCI</td>
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<tr>
<td>Altered glucose homeostasis by sleep impairment (Co-I; P Epstein, PI) 10/1/03 – 6/30/07</td>
<td>NHLBI</td>
<td>$900,000</td>
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<tr>
<th><strong>Dr. Evelyne Gozal</strong></th>
<th><strong>Agency</strong></th>
<th><strong>Project Award</strong></th>
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<tbody>
<tr>
<td>Hypoxia-induced Akt signaling module in neuronal cells (PI) 07/01/03 – 06/30/08</td>
<td>NIH</td>
<td>$1,000,000</td>
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<tr>
<td>Postnatal brain susceptibility to intermittent hypoxia (Co-I; D Gozal, PI) 04/01/02 – 03/31/06</td>
<td>NHLBI</td>
<td>$1,000,000</td>
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<tr>
<td>Proteomic analysis of hippocampal hypoxic vulnerability (Co-I; J Klein, PI) 10/01/00 – 09/30/04</td>
<td>NHLBI</td>
<td>$700,000</td>
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<tr>
<td>Altered glucose homeostasis by sleep impairment (Co-I; P Epstein, PI) 10/1/03 – 6/30/07</td>
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<tr>
<td>ROS in episodic hypoxia-induced cardiovascular dysfunction (Co-I; R Liu, PI) 10/1/03 – 6/30/07</td>
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### Dr. Evelyne Gozal (continued)

<table>
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<tr>
<th>Project Description</th>
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<tr>
<td>MCT, intermittent hypoxia, and stroke (Co-I; J Siegel, PI) 6/1/03 – 5/31/08</td>
<td>NHLBI</td>
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### Dr. Ramesh Gupta

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<tr>
<th>Project Description</th>
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<tbody>
<tr>
<td>Superfund chemicals: Transport, metabolism and toxicity (Co-I; B Henning, PI) 04/97 – 03/05</td>
<td>NIEHS</td>
<td>$215,670</td>
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<tr>
<td>Breast cancer etiology (PI) 11/01 – 10/05</td>
<td>NCI</td>
<td>$1,093,925</td>
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<td>Chemoprevention of experimental tobacco tumorigenesis (PI) 06/02 – 04/05</td>
<td>NCI</td>
<td>$1,461,364</td>
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<td>Role of antioxidants in breast cancer prevention (PI) 04/02 – 03/04</td>
<td>NCI</td>
<td>$112,684</td>
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### Dr. David W. Hein

<table>
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<tr>
<th>Project Description</th>
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<th>Project Award</th>
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<tr>
<td>Pharmacogenetics of drug and carcinogen metabolism (PI) 07/01/03 – 06/30/08</td>
<td>NIH/NCI</td>
<td>$1,724,900</td>
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<td>Effect of acetylator genotype on genotoxicity from aromatic and heterocyclic amine carcinogens (PI) 07/01/02 – 06/30/05</td>
<td>Philip Morris USA</td>
<td>$615,848</td>
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<tr>
<td>Environmental genomics and molecular epidemiology of lung cancer (PI) 10/1/01 – 09/30/05</td>
<td>Kentucky Lung Cancer Research Program</td>
<td>$299,949</td>
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<tr>
<td>Education in genetics ethics (EDGE) (Co-I; M Rothstein, PI) 5/3/02 – 03/31/05</td>
<td>NIH</td>
<td>$1,360,592</td>
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<td>Hybrid quadrupole – Time of flight mass spectrometer (Major user and member of technical advisory committee; W Pierce, Jr., PI) 04/01/02 – 03/31/04</td>
<td>NIH</td>
<td>$500,000</td>
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<td>Center for Pediatric Pharmacology Research (Co-I; J Sullivan, PI) 01/01/04 – 12/31/08</td>
<td>NIH</td>
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<tr>
<td>Biomarkers of maternal and fetal tobacco smoke exposure (Co-I; S Myers, PI) 07/01/02 – 06/30/04</td>
<td>Kentucky Lung Cancer Research Program</td>
<td>$93,016</td>
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<tr>
<td>James Graham Brown P20 Application (Project Director; D Miller, PI) 08/02/02 – 07/31/05</td>
<td>NIH/NCI</td>
<td>$1,328,613</td>
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<tr>
<td>Cancer Education Grant Program (Mentor; N Burzynski, PI) 08/01/02 – 07/31/07</td>
<td>NIH/NCI</td>
<td>$557,437</td>
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<tr>
<td>Pharmacogenetics of drug and carcinogen metabolism (minority supplement) (PI) 07/01/04 – 06/30/08</td>
<td>NIH/NCI</td>
<td>$509,635</td>
</tr>
<tr>
<td>Cardiovascular toxicity of environmental aldehydes (Co-I; A Bhatnagar, PI; R. Prough, Project PI) 07/01/03 – 06/30/08</td>
<td>NIH/NIEHS</td>
<td>$6,986,060</td>
</tr>
<tr>
<td>Metabolism and Detoxification of Base Propenals (Collaborator; S Srivastava, PI) 06/01/03 – 03/31/08</td>
<td>NIH</td>
<td>$1,559,485</td>
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<tr>
<td>Metabolism and toxicity of aromatic amines associated with hair dyes (PI) 07/01/02 – 09/30/05</td>
<td>Procter and Gamble Inc.</td>
<td>$310,885</td>
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<tr>
<td>Research in support of Amonafide study (PI) 07/01/02 – 12/31/04</td>
<td>Chemgenex Therapeutics</td>
<td>$8,064</td>
</tr>
<tr>
<td>Genetic polymorphisms in manganese superoxide dismutase (MnSOD) as a predictor of lung cancer (Co-I; R. Martin, PI) 03/01/03 – 02/28/04</td>
<td>James Graham Brown Cancer Center</td>
<td>$30,000</td>
</tr>
<tr>
<td>Histamine pharmacogenetics in children with atopic dermatitits (Collaborator/Mentor; MJ Kennedy, PI) 07/01/03 – 06/30/05</td>
<td>Research Institute of the American College of Pharmacy</td>
<td>$12,500</td>
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<tr>
<td>Genetic polymorphisms in the 5’-UTR of human NAT1 and NAT2 (PI) 01/01/04 – 12/31/04</td>
<td>CGeMM</td>
<td>$30,000</td>
</tr>
<tr>
<td>Genetic polymorphisms in the 5’-UTR of human NAT1 and NAT2 (Mentor) NRSA Fellowship for Anwar Husain 07/01/03 – 06/30/07</td>
<td>NIEHS</td>
<td>$145,022</td>
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<tr>
<td><strong>Dr. David W. Hein (continued)</strong></td>
<td><strong>Agency</strong></td>
<td><strong>Project Award</strong></td>
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<tr>
<td>Characterization of NAT1 overexpression in breast tumors (PI) 07/01/04 – 06/30/06</td>
<td>NIH/NCI</td>
<td>$113,749</td>
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<tr>
<td>UofL Environmental Health Sciences Training Program (PI) 07/01/04 – 06/30/09</td>
<td>NIH/NIEHS</td>
<td>$697,188</td>
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<tr>
<td>Nashville Breast Health Study (Subproject Principal Investigator; W Zheng, PI) 06/01/04 – 05/31/09</td>
<td>NCI</td>
<td>$189,035</td>
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<tr>
<td>Kosair Charities Birth Defects Research Fellowship (Mentor/Co-investigator; Jason Neale, PI) 01/01/04 – 12/31/04</td>
<td>Kosair Charities</td>
<td>$25,000</td>
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<tr>
<td>Mechanistic studies on the NAT2 genetic polymorphism: a potential factor that modifies individual breast cancer risk (Mentor/Co-investigator; Yu Zang, PI) 05/01/04 – 04/30/06</td>
<td>Susan G. Komen Breast Cancer Foundation</td>
<td>$30,000</td>
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<td>Human hepatocyte characterization (PI) 03/01/04 – 12/31/04</td>
<td>Tissue Transformation Technologies</td>
<td>$1,386</td>
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<td>NAT1 and NAT2 genotype determinations in cancer patients and controls (PI) 01/01/04 – 12/31/09</td>
<td>MD Anderson Cancer Center</td>
<td>$20,000</td>
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<tr>
<td>International conference on tobacco induced diseases (Co-I; D Kinane, PI) 09/08/04 – 09/07/05</td>
<td>NCI</td>
<td>$3,500</td>
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<tr>
<td>Xenobiotic metabolizing genes and prostate cancer (Co-I) 07/01/04 – 06/30/05</td>
<td>James Graham Brown Cancer Center</td>
<td>$40,000</td>
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<thead>
<tr>
<th><strong>Dr. Harrell E. Hurst</strong></th>
<th><strong>Agency</strong></th>
<th><strong>Project Award</strong></th>
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</thead>
<tbody>
<tr>
<td>Biomarkers for air pollutants (PI) 10/01/04 – 09/30/05</td>
<td>USEPA/EPSCoR</td>
<td>$371,571</td>
</tr>
<tr>
<td>Center for Pediatric Pharmacology Research (Co-I; J Sullivan, PI) 01/01/04 – 12/31/08</td>
<td>NIH/NICHD</td>
<td>$1,862,408</td>
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</table>
### Dr. Harrell E. Hurst (continued)

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<thead>
<tr>
<th>Project Description</th>
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<th>Project Award</th>
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<tbody>
<tr>
<td>Cardiovascular toxicity of environmental aldehydes (Co-I; A Bhatnagar, PI) 07/01/03 – 06/30/08</td>
<td>NIH/NIEHS</td>
<td>$5,015,729</td>
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### Dr. Y. James Kang

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<thead>
<tr>
<th>Project Description</th>
<th>Agency</th>
<th>Project Award</th>
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<tbody>
<tr>
<td>Metallothionein and adriamycin cardiotoxicity (PI) 12/01/02 – 11/30/06</td>
<td>NIH/NHLBI</td>
<td>$1,086,560</td>
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<tr>
<td>Oxidative stress and heart failure by copper deficiency (PI) 07/01/01 – 06/30/05</td>
<td>NIH/NHLBI</td>
<td>$1,312,188</td>
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<tr>
<td>Prevention by MT of chronic alcoholic liver injury (Co-I; Z Zhou, PI) 08/01/02 – 07/31/05</td>
<td>NIH/NIAAA</td>
<td>$432,000</td>
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<tr>
<td>Myocardial protection by MT from diabetes (Co-I; L Cai, PI) 08/01/02 – 07/31/05</td>
<td>Philip Morris External Research Program</td>
<td>$516,465</td>
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### Dr. La Creis Kidd

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<thead>
<tr>
<th>Project Description</th>
<th>Agency</th>
<th>Project Award</th>
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<tbody>
<tr>
<td>Polymorphic xenobiotic metabolizing genes and prostate cancer (PI) 07/04 – 07/05</td>
<td>James Graham Brown Cancer Center Pilot Research Grant</td>
<td>$40,000</td>
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<tr>
<td>Polymorphic N-acetyltransferase genes and prostate cancer susceptibility among African-American men (Co-I; D Hein, PI) 07/01/04 – 06/30/08</td>
<td>NCI</td>
<td>$509,635</td>
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### Dr. W. Glenn McGregor

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<tr>
<th>Project Description</th>
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<tr>
<td>Molecular strategies to avoid mutagenesis by cigarette smoke-associated carcinogens (PI) 06/01/02 – 05/31/05</td>
<td>Philip Morris External Research Program</td>
<td>$349,700</td>
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<tr>
<td>Mechanisms of BPDE-induced mutagenesis and mutation avoidance (PI) 10/01/01 – 09/30/05</td>
<td>Kentucky Lung Cancer Research Program</td>
<td>$225,000</td>
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<tr>
<td>Shared genomic responses to space flight and aging (Co-I; E Wang, PI) 05/01/03 – 04/30/06</td>
<td>NASA Cell Science Program</td>
<td>$115,000</td>
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<tr>
<td><strong>Dr. W. Glenn McGregor (continued)</strong></td>
<td><strong>Agency</strong></td>
<td><strong>Project Award</strong></td>
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<tr>
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<tr>
<td>Inflammation and mutagenesis in lung carcinogenesis (PI) 12/01/03 – 06/30/05</td>
<td>CGeMM</td>
<td>$30,000</td>
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<tr>
<td>Mutagenesis as a novel target for cancer prevention (PI) 07/01/04 – 06/30/05</td>
<td>James Graham Brown Cancer Center Pilot Grant</td>
<td>$40,000</td>
</tr>
<tr>
<td>Role of chemoattractant-mediated inflammation in development and progression of lung cancer (Co-I with H Bodduluri) 10/01/03 – 9/30/06</td>
<td>Kentucky Lung Cancer Research Board</td>
<td>$300,000</td>
</tr>
<tr>
<td>Cancer Education Grant Program (Participating mentor; N Burzynski, PI) 9/01/2002-8/31/2007</td>
<td>NIH/NCI</td>
<td>$516,145</td>
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<tr>
<td>Biacore 3000 Shared Instrument Grant (Participating Investigator; D Miller, PI)</td>
<td>National Center for Research Resources</td>
<td>$270,000</td>
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<tr>
<td>Lung Cancer Research Consortium (Co-I; H Bodduluri, PI)</td>
<td>James Graham Brown Cancer Research Consortium</td>
<td>$40,000</td>
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<table>
<thead>
<tr>
<th><strong>Dr. Steven R. Myers</strong></th>
<th><strong>Agency</strong></th>
<th><strong>Project Award</strong></th>
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</thead>
<tbody>
<tr>
<td>Biomarkers for air pollutants: Development of hemoglobin adduct methodology for assessment of exposure to butadienes and polycyclic aromatic hydrocarbons (Co-I; H Hurst, PI) 10/01/01 – 09/30/05</td>
<td>Kentucky EPSCoR Program</td>
<td>$753,654</td>
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<tr>
<td>Analysis of urine samples for carcinogenic PAHs (PI) 02/04/04 – 02/03/05</td>
<td>USEPA</td>
<td>$89,935</td>
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<table>
<thead>
<tr>
<th><strong>Dr. William M. Pierce, Jr.</strong></th>
<th><strong>Agency</strong></th>
<th><strong>Project Award</strong></th>
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<tbody>
<tr>
<td>Proteomic analysis of diabetic nephropathy (Co-I; J Klein, PI) 2002 2004</td>
<td>NIH</td>
<td>$200,000</td>
</tr>
<tr>
<td>Hybrid Quadrupole Time of Flight Mass Spectrometer (PI) 4/1/02 – 3/31/04</td>
<td>NIH</td>
<td>$500,000</td>
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</table>
### Dr. William M. Pierce, Jr. (continued)

<table>
<thead>
<tr>
<th>Project Description</th>
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<th>Project Award</th>
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<tbody>
<tr>
<td>Proteomic analysis of hippocampal hypoxic vulnerability (Co-I; J Klein, PI) 10/00-9/04</td>
<td>NIH</td>
<td>$1,000,800</td>
</tr>
<tr>
<td>Evolution of a pheromone signaling system (Co-I; L Houck and R Feldhoff, PI) 07/15/01 - 07/14/04</td>
<td>NSF</td>
<td>$3,022,625</td>
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<tr>
<td>Toxicity and Detoxification of 4-hydroxyalkenals in Heart (Co-I; A Bhatnagar, PI) 10/00-9/04</td>
<td>NIH</td>
<td>$1,220,000</td>
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<tr>
<td>Cardioprotective effects of ethanol (Co-I; A Bhatnagar, PI) 4/1/01 – 03/31/04</td>
<td>NIH</td>
<td>$144,000</td>
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<tr>
<td>Analysis of PTH and Dopamine Receptor Signaling in Proximal Tubules (Co-I; Eleanor Lederer, PI) August 2001 - July 2005</td>
<td>Veterans Administration</td>
<td>$464,500</td>
</tr>
<tr>
<td>Cardiovascular toxicity of environmental aldehydes (Co-I; A Bhatnagar, PI) 07/01/03 – 06/30/08</td>
<td>NIH</td>
<td>$5,015,729</td>
</tr>
<tr>
<td>Bone anabolic agents (PI) 12/01/04 – 11/30/07</td>
<td>Kentucky Science and Technology Corporation</td>
<td>$225,000</td>
</tr>
<tr>
<td>Bone targeting of pharmaceuticals (PI) 09/01/04 – 08/31/05</td>
<td>Kentucky Science and Technology Corporation</td>
<td>$16,500</td>
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<tr>
<td>Mechanistic studies of oligonucleotide aptamers with potent antiproliferative and pro-apoptotic activity against prostate cancer cells (Co-I; P Bates, PI) October 2003 – August 2006</td>
<td>Department of Defense</td>
<td>$375,000</td>
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<tr>
<td>Rabbit model for in vivo monitoring of bone structure (Co-I; M Voor, PI) September 2003 – August 2004</td>
<td>NIH</td>
<td>$50,000</td>
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<tr>
<td>Center for Pediatric Pharmacological Research (Co-I; J Sullivan, PI) 07/01/03 – 06/30/08</td>
<td>NIH</td>
<td>$1,862,408</td>
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<tr>
<td>Pharmacogenetics of drug and carcinogen metabolism (Co-I; D Hein, PI) 07/01/03 – 06/30/08</td>
<td>NIH</td>
<td>$1,724,900</td>
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### Dr. William M. Pierce, Jr. (continued)

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<tr>
<th>Project Description</th>
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<th>Project Award</th>
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<tbody>
<tr>
<td>A proteome map of neutrophil granules (Co-I; K McLeish, PI) 07/01/03 – 06/30/04</td>
<td>NIH</td>
<td>$100,000</td>
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### Dr. Peter P. Rowell

<table>
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<tr>
<th>Project Description</th>
<th>Agency</th>
<th>Project Award</th>
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<tbody>
<tr>
<td>Effects of self-administered versus noncontingent nicotine (Co-I; A Caggiula, PI) 10/01/00 – 09/30/05</td>
<td>NIH</td>
<td>$819,469</td>
</tr>
<tr>
<td>Postnatal brain susceptibility to intermittent hypoxia (Co-I; D Gozal, PI) 04/01/2002 – 03/31/2007</td>
<td>NIH (NHLBI)</td>
<td>$1,250,000</td>
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<tr>
<td>Dose and time dependent effects of nicotine on bone blood flow (Co-I; C. Roberts, PI) 01/01/03 – 6/25/06</td>
<td>Fischer-Owen Orthopaedic Trust Fund</td>
<td>$8,517</td>
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<tr>
<td>The neuromolecular and neurochemical basis of nicotine’s variable effects on behavior (PI) 06/01/01 – 03/31/05</td>
<td>Subcontract from Virginia Commonwealth University</td>
<td>$27,614</td>
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### Dr. Zhao-Hui (Joe) Song

<table>
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<tr>
<th>Project Description</th>
<th>Agency</th>
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<tr>
<td>Structure and function of CB2 cannabinoid receptor (PI) 09/30/98 – 04/30/04</td>
<td>NIH</td>
<td>$507,304</td>
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<tr>
<td>Structure and function of CB2 cannabinoid receptor (PI) 05/01/04 – 04/30/09</td>
<td>NIH</td>
<td>$1,286,104</td>
</tr>
<tr>
<td>Cannabinoid receptors-potential targets for novel antiglaucoma drugs (PI) 08/01/03 – 07/31/07</td>
<td>NIH</td>
<td>$1,174,166</td>
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<tr>
<td>The characterization of the human CB1 receptor (Mentor; Brandon Kellie, PI) 09/15/03 – 08/15/04</td>
<td>UofL Research Scholar Program</td>
<td>$3,000</td>
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<tr>
<td>Molecular epidemiology – Environmental/occupational diseases (Faculty mentor; D Hein, PI) 07/01/04 – 06/30/09</td>
<td>NIEHS</td>
<td>$1,240,452</td>
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### Dr. J. Christopher States

<table>
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<tr>
<th>Project Description</th>
<th>Agency</th>
<th>Project Award</th>
</tr>
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<tbody>
<tr>
<td>Pharmacogenetics of drug and carcinogen metabolism 07/01/02 - 06/30/07 (Co-I; D Hein, PI)</td>
<td>NCI</td>
<td>$2,510,251</td>
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### Dr. J. Christopher States (continued)

<table>
<thead>
<tr>
<th>Project Description</th>
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<tr>
<td>Cancer Education Program (Faculty mentor)</td>
<td>NCI</td>
<td>$557,437</td>
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<tr>
<td>05/01/02 – 04/30/07</td>
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<tr>
<td>Arsenic induced mitotic arrest associated apoptosis (PI)</td>
<td>NIEHS</td>
<td>$1,385,869</td>
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<td>07/01/03 – 06/30/08</td>
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<tr>
<td>Murine model for arsenic induced atherogenesis (PI)</td>
<td>CGeMM</td>
<td>$30,000</td>
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<tr>
<td>12/1/03 – 06/30/05</td>
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<tr>
<td>Metabolism and detoxification of base propenals (Co-I; S Srivastava, PI)</td>
<td>NIEHS</td>
<td>$1,650,750</td>
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<tr>
<td>06/01/03 – 03/31/08</td>
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<tr>
<td>Genetic polymorphisms in 5’-UTR of human NAT1 and NAT2 (Co-I)</td>
<td>CGeMM</td>
<td>$30,000</td>
</tr>
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<td>12/01/03 – 11/30/04</td>
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<tr>
<td>Molecular mechanisms of arsenic enhancement of benzo[a]pyrene genotoxicity in human cells (PI)</td>
<td>Kentucky Science and Engineering Foundation</td>
<td>$15,000</td>
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<tr>
<td>09/01/04 – 08/31/05</td>
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<tr>
<td>Arsenic inhibition of mitotic progression (Mentor)</td>
<td>NIH/NIEHS</td>
<td>$81,884</td>
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<td>05/01/04 – 07/31/07</td>
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<tr>
<td>UofL Environmental Health Sciences Training Program (Faculty mentor)</td>
<td>NIH/NIEHS</td>
<td>$667,160</td>
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<td>07/01/04 – 06/30/09</td>
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### Dr. Leonard C. Waite

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<thead>
<tr>
<th>Project Description</th>
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</tr>
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<tbody>
<tr>
<td>Bone anabolic agents (Co-I, W Pierce, PI)</td>
<td>Kentucky Science and Technology Corporation</td>
<td>$225,000</td>
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<tr>
<td>12/01/04 – 11/30/07</td>
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</tr>
<tr>
<td>Bone targeting of pharmaceuticals (Co-I; W Pierce, PI)</td>
<td>Kentucky Science and Engineering Foundation</td>
<td>$16,500</td>
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<tr>
<td>09/01/04 – 08/31/05</td>
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XII. **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.

Dr. Myers developed and implemented a new online version of this course presented to students throughout the Commonwealth.

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.

**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.
XIII. Standing Committees

Graduate Program Committee

Dr. William Pierce (Chair)
Dr. Evelyne Gozal (2006)
Dr. Chris States (2005)
Dr. Gavin Arteel (2004)
Yu “Janet” Zang (student representative)

SIBUP/Grievance Committee

Dr. Peter Rowell (Chair)
Dr. Joe Song (2006)
Dr. Don Nerland (2005)
Dr. Harrell Hurst (2004)

Teaching Evaluation Committee

Dr. Mike Williams (Chair)
Dr. Harrell Hurst (2006)
Dr. Len Waite (2005)
Dr. Fred Benz (2004)

Seminar Committee

Dr. Don Nerland (Chair)
Dr. Ramesh Gupta (2006)
Dr. Fred Benz (2005)
Dr. Steve Myers (2004)

Core Laboratories/Research Development Committee

Dr. Chris States (Chair)
Dr. Jian Cai (2006)
Dr. Glenn McGregor (2005)
Dr. Theresa Chen (2004)

Information Technology Committee

Dr. Gavin Arteel
Dr. Fred Benz
Dr Harrell Hurst
May 21, 2004

Dr. David Hein, Chair
Department of Pharmacology and Toxicology
University of Louisville
School of Medicine
Room 1319
Louisville, KY 40292

Dear Dr. Hein:

I wish to commend you and the Department of Pharmacology and Toxicology for the excellent job you’ve done this year. I want to reiterate the Committee’s laudatory comments about the department’s steady growth in its sponsored research funding. Equally distinctive is its extensive engagement in collaborative activities with faculty members of other departments. I am particularly impressed with the level and extent to which faculty serve in joint appointments, thus, providing core research service to other units.

To reiterate Professors Wiegman’s and Schweitzer’s observations of your leadership as chair, the department has radically changed, but is stronger and has changed for the better under your leadership. We are indeed fortunate to have such a fine administrator as yourself at the University of Louisville.

In addition, the department’s efforts in the recruitment of African American students and tenure-track faculty are to be congratulated, too.

Again, I want to thank you for your support of the Department of Pharmacology and Toxicology and the program review process. If you have any questions about my comments, please call me for clarification.

Sincerely,

/ Shirley C. Willihnganz
Executive Vice President and
University Provost

SCW/gh

cc: David Weigman, Associate Vice President, School of Medicine
Laura Schweitzer, Acting Dean, School of Medicine
Professor William Pierce, Department of Pharmacology, School of Medicine
University Program Review Committee
Faculty Senate Academic Programs Committee