



**Department of Pharmacology & Toxicology**

**2002 Annual Report**

**University of Louisville**

**School of Medicine**

UNIVERSITY of LOUISVILLE<sup>®</sup>  
*dare to be great*



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### INDIVIDUAL FACULTY REPORTS

Gavin E. Arteel  
Frederick W. Benz  
Theresa S. Chen  
Paul N. Epstein  
David Gozal  
Evelyne Gozal  
David W. Hein  
Harrell E. Hurst  
Y. James Kang  
W. Glenn McGregor  
Steven R. Myers  
Donald E. Nerland  
William M. Pierce, Jr.  
Peter P. Rowell  
Zhao-hui (Joe) Song  
J. Christopher States  
Leonard C. Waite  
Walter M. Williams

## I. Department Highlights

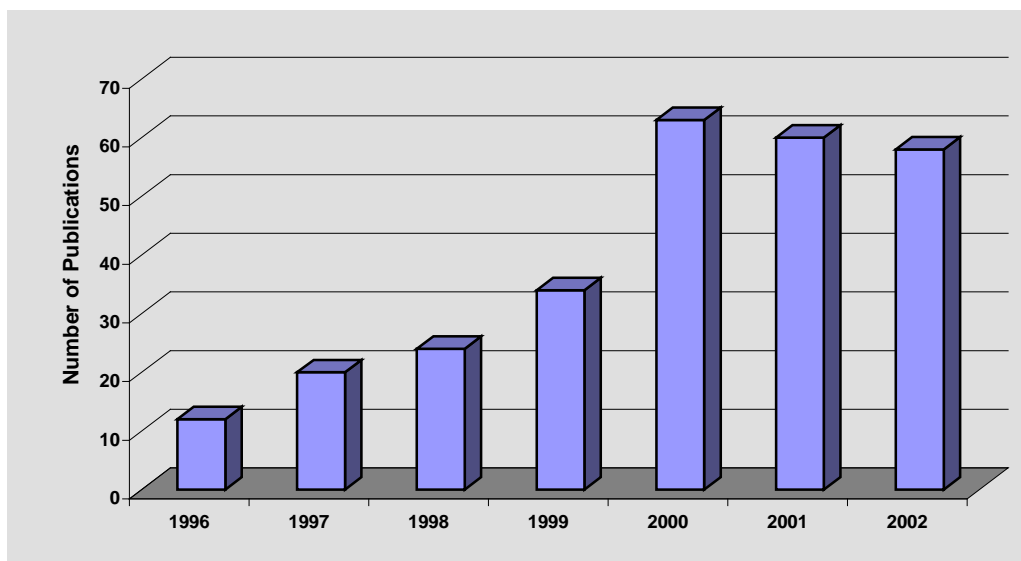
The Department of Pharmacology and Toxicology continued its efforts to foster excellence in graduate education and research as outlined in this annual report. Much of the details are provided in the individual faculty reports from each of the salaried faculty members in the Department. Some highlights of the year included:

- **Gavin Arteel, PhD** was appointed Assistant Professor (tenure track) in the Department of Pharmacology and Toxicology and the James Graham Brown Cancer Center. Dr. Arteel received his PhD in Toxicology from the University of North Carolina-Chapel Hill and was Assistant Professor there prior to his appointment here on July 1. Dr. Arteel transferred a well-funded and independent research program focusing on mechanisms of oxidative stress; mechanisms of alcohol-induced hepatitis, pancreatitis, and hepatocellular carcinoma. Our sincere thanks go to **Craig McClain, MD** and **Donald Miller, MD, PhD** for their assistance in the recruitment. As delineated later in this report, Dr. Arteel is already making key contributions to all aspects of the department's research, teaching, and service mission.
- Three outstanding faculty members received joint appointments as Professor of Pharmacology and Toxicology and are excellent additions to our teaching, research, and graduate programs. **Aruni Bhatnagar, PhD** heads the environmental cardiology initiative in the Institute for Molecular Cardiology with research interests in cardiovascular toxicology; oxidative mechanisms of cardiovascular disease; lipid peroxidation in atherosclerosis; gene expression; and secondary complications of diabetes. **Theodore Hagg, MD, PhD** is a principal investigator in the Kentucky Spinal Cord Injury Research Center with research interests in neurotrophic factor receptors and endogenous stem cells as drug targets to develop repair strategies for neurological disorders, including spinal cord injury. **Daniel Sessler, MD** is Director of the Outcomes Research Institute with research interests in 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.
- Two outstanding faculty members received associate appointments in the Department of Pharmacology and Toxicology. **Guang Jian Wang, PhD** is Assistant Professor in the Department of Pediatrics with research interests focusing on mechanisms and prevention of nerve cell death and neurodegeneration; role of glutamate neurotoxicity, calcium dysregulation and mitochondrial function in neuronal death in models of central nervous system injury, aging and neurodegenerative diseases. **William W. Young, PhD** is Professor in the Department of Molecular, Cellular & Craniofacial Biology with research interests focusing on molecular glycobiology; glycosyltransferase structure and expression. These new faculty are also outstanding additions to our teaching, research, and graduate programs.

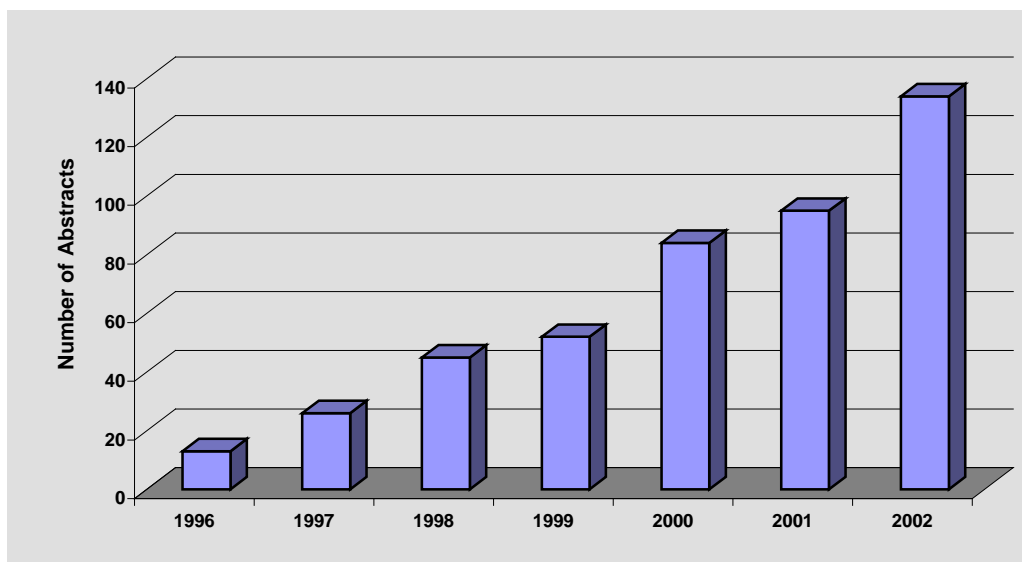
As described more fully in the annual report, numerous faculty and students in the Department received honors and awards. Of particular note:

- **William Pierce Jr, PhD** received the University of Louisville President's Distinguished Service Award and **Nicholas Delamere, PhD** received the University of Louisville President's Award for Outstanding Research, Scholarship, and Creative Activity.
- The medical pharmacology course continued to be one of the most highly rated courses by the medical students. In recognition of his outstanding teaching and course direction, **Mike Williams MD, PhD** received the Golden Apple Award by the School of Medicine, class of 2004.
- **Raymond Woosley MD, PhD**, a 1967 PhD graduate of our program, presented a lecture, met with faculty, and was honored as a University of Louisville Alumni Fellow.
- **William Pierce Jr. PhD** received a major NCCR-shared instrumentation grant that purchased a Hybrid Quadrupole-Time of Flight Mass Spectrometer for the Biomolecular Mass Spectrometry Core Facility.
- **Daniel Sessler, MD** received the Americal Society of Anesthesiology Excellence in Research Award, the Society's highest academic award.

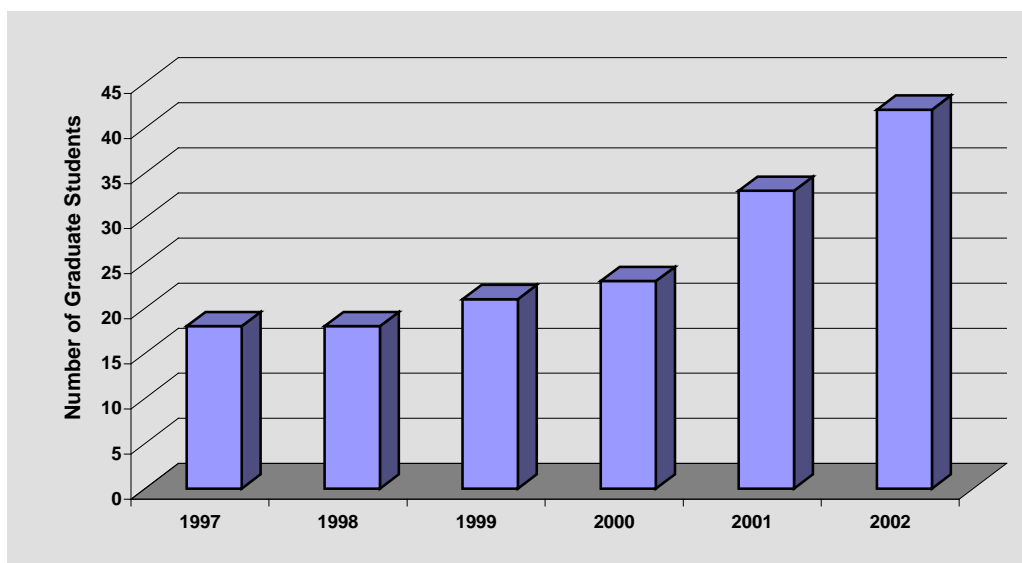
Departmental productivity measures such as publications (Fig. 1), abstracts (Fig. 2), number of graduate students (Fig. 3), number of graduates (Fig. 4) and number of research grants (Fig. 5) continued to suggest that the Department is well poised to continue to excel in its teaching, research, and service missions. Several outstanding new faculty members are joining the faculty in 2003 and will be introduced in next year's report.



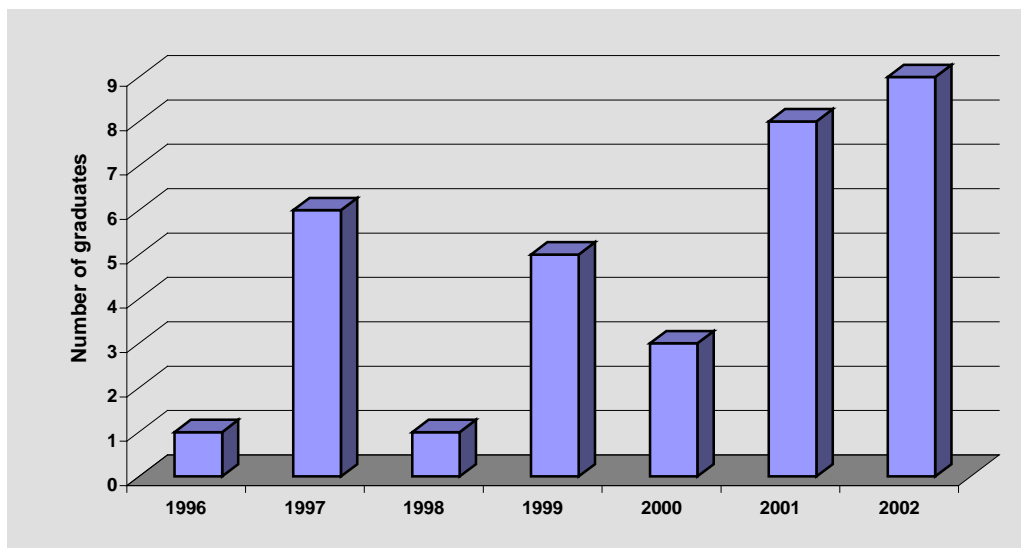
**Fig. 1. Number of department publications by salaried faculty and staff.**



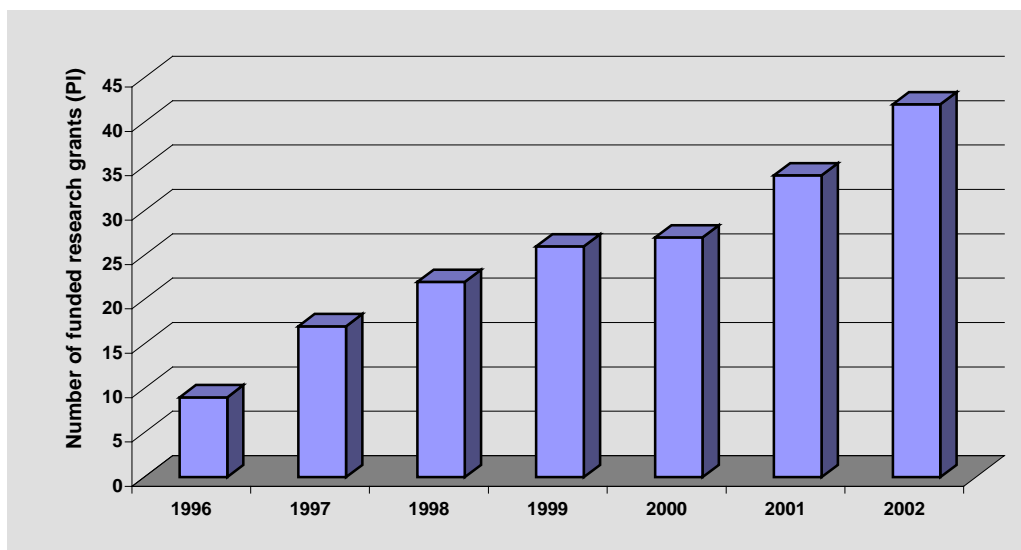
**Fig. 2. Number of department abstracts by salaried faculty and staff.**



**Fig. 3. Number of department graduate students.**



**Fig. 4. Number of department graduates.**



**Fig. 5. Number of research grants as PI by salaried faculty.**

## II. Mission Statement

The Department of Pharmacology and Toxicology is committed to academic excellence and to the attainment of regional, national, and international recognition for the quality of its educational, research, and service activities. Guided by the University of Louisville Challenge for Excellence to become a preeminent metropolitan research university, the Department Strategic Plan focuses on five broad objectives:

- Provide instruction in pharmacology and toxicology of the highest quality for the education and preparation of medical, dental, nursing, and other health care professional students. Emphasis will be placed on the fundamental principles necessary for life-long learning and the essential knowledge required for rational, effective, and safe use of drug therapy.
- Advance biomedical knowledge through active contribution to high quality research and other scholarly activities, particularly in pharmacology and toxicology and other areas of focus within the University of Louisville *Challenge for Excellence*.
- Provide high quality research and educational experiences in pharmacology and toxicology for the education and training of future biomedical scientists who can provide and advance biomedical education, research, and service.
- Provide instruction of the highest quality in pharmacology and toxicology that is appropriate for students at the undergraduate, graduate, and postgraduate levels.
- Provide high quality service to the School of Medicine, the Health Sciences Center, the University, the people of Louisville and the surrounding region, the Commonwealth of Kentucky, professional organizations, the nation, and the world.



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



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

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

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**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.

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**Shirish Barve, Ph.D. (University of Kentucky)**  
**Associate Professor**

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

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

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

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**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.

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**Haribabu Bodduluri (Indian Institute of Science)**  
**Associate Professor**

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

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**Theresa S. Chen, Ph.D. (University of Louisville)**  
**Professor**

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

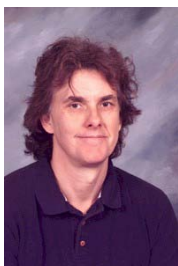
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**David E. Clouthier, Ph.D. (University of Texas Southwestern)**  
**Assistant Professor**

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

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

Electrolyte transport mechanisms in epithelia; second messenger regulation of aqueous humor secretion processes; the role of ion transport mechanisms in preserving transparency of the ocular lens.

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**John W. Eaton, Ph.D. (University of Michigan)**  
**James Graham Brown Professor**

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

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**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.

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**David Gozal, M.D. (Hebrew University of Jerusalem)**  
**Professor**  
**Children's Hospital Foundation Pediatric Research Chair**

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

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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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**David W. Hein, Ph.D. (University of Michigan)**  
**Peter K. Knoefel Professor and Chairman**

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

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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.

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**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.

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**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.

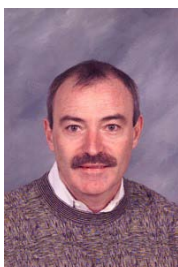
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**Craig J. McClain, M.D. (University of Tennessee - Memphis)**  
**Professor**

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

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**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.

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**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.

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**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.

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

Biochemical toxicology; metabolism of drugs and environmental pollutants.

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**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.

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

Molecular development toxicology; gene-environment interactions in normal and abnormal embryonic development; growth factor directed cellular signal transduction in embryonic cell growth and differentiation.

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**George C. Rodgers, Jr.**  
**(Yale University, Ph.D.; State University of New York, M.D.)**  
**Professor**

Toxicokinetics in drug overdoses and pharmacokinetics in pediatric disease states.

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

Neuropharmacology; effect of drugs on brain neurotransmitters and receptors.

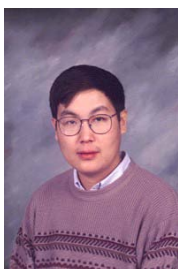
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**Daniel I. Sessler, M.D. (Columbia University)**  
**Professor**  
**Weakley Distinguished University Research Chair**

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.

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

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**J. Christopher States, Ph.D. (Albany Medical College)**  
**Associate Professor**

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

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

Clinical pharmacology with a focus on developmental pharmacokinetics and pharmacodynamics.

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

Occupational and Environmental Medicine; Occupational Toxicology; Molecular Epidemiology

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

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

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**Yang Wang**  
**(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.

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

Studies of drug elimination (metabolism and excretion).

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**John L. Wong, Ph.D. (University of California-Berkeley)**  
**Professor**

Biological chemistry; molecular dosimetry in environmental health; preparation of monoclonal antibodies in biomarker studies.

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**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

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## **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).

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

**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).

**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 Graduate Program Director; 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)**, Assistant 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 Chairman; 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).

**Clouthier, David**, 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).

**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).

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

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

**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**, Clinical Professor of Medicine (part-time), and Professor of Pharmacology and Toxicology; M.D., Mayo Medical School (1978); M.P.H., Harvard Medical School (1990).

**Wang, Yang**, Assistant Professor of Medicine (Cardiology), 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).

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

\* 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).

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

**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**, 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).

**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).

**Gruber, Scott A.**, Adjunct Associate Professor of Pharmacology and Toxicology; M.D., SUNY Downstate Medical School (1983); Ph.D., University of Minnesota (1991).

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

**Holthouser, Michael G.**, Adjunct Assistant Professor of Pharmacology and Toxicology; M.D., University of Kentucky (1971).

**Horowitz, Stuart**, Adjunct Assistant Professor of Pharmacology and Toxicology; Ph.D., University of Rochester (1986).

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

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

**Pinhas, Allan R.**, Visiting Assistant Professor of Pharmacology and Toxicology; Ph.D., Cornell University (1980).

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

### **New Faculty Appointments**

**Arteel, Gavin E.**, Assistant Professor, effective July 1, 2002

**Bhatnagar, Aruni**, Professor (joint appointment), effective September 1, 2002

**Hagg, Theo**, Professor (joint appointment), effective June 1, 2002

**Sessler, Daniel I.**, Professor (joint appointment), effective December 1, 2002

**Wang, Guang Jian**, Associate appointment, effective July 1, 2002

**Young, William**, Associate appointment, effective December 1, 2002

### **Staff**

**Barker, David**, Research Associate

**Beauerle, Brian**; Research Technologist I

**Burke, Tom**; Research Technologist II

**Cai, Jian**; Technical Director, Mass Spectrometry Lab

**Carpenter, Sharon**; Executive Secretary

**Doll, Mark**; Research Associate

**Greca, Edie**; Business Manager III

**Lederer, Paul**; Student Assistant

**Martini, Ben**; Student Assistant

**McNeely, Sam**; Research Technologist II

**Rubin-Teitel, Heddy**; Program Assistant III

**Smith, Leo**; Student Assistant

**Smith, Ned**; Senior Research Technologist

**Spurrier, Alexandra**; Student Assistant

**Suresh, Karthik**; Student Assistant

**Tucker, Alison**; Lab/Research Technician III

**Tucker, Lindsay**; Lab/Research Technician III

**Turner, Delano**; Student Assistant

**Xiao, Gong H.**; Research Associate

## Graduate Students

<b>Name</b>	<b>Advisor</b>
Brad Brewer	Peter Rowell
Cristian Campian	Fred Benz
Wendy Chang	Theresa Chen
Hainan Chen	Paul Epstein
Denise Clark	Glenn McGregor
Courtney Crume	Gavin Arteel
Chris Cunningham	Steve Myers
Chad Dumstorf	Glenn McGregor
Laila Elsherif	James Kang
April Hartford	Nick Delamere
Misty Holbrook	Evelyne Gozal
Prachi Hote	Shirish Barve
Yining Hou	Nick Delamere
Anwar Husain	David Hein
Felicia Jefferson	David Hein
Hana Khaled	Bill Pierce
Jason Lambert	James Kang
Jian Li	John Eaton
Nina Li	Paul Epstein
Jin Liu	Daniel Sessler
Jennifer Loehle	
Paula Logsdon	Chris States
Carson McCloud	Joe Song
Alixher McGee	
Kevyn Merten	James Kang
Kristin Metry	David Hein
Tanvi Modi	Shirish Barve
Jason Neale	Bill Pierce
Miranda Nebane	Joe Song
John Philipose	Michele Pisano
Paul Porter	Chris States
Stephen Reeves	David Gozal
Katie Richardson	Shirish Barve
Gilandra Russell	
Lebnan Saad	David Gozal
Clare Shen	Paul Epstein
Cindy Wang	David Gozal
Nick Watson	Glenn McGregor
Terry Wright	Steve Myers
Janet Zang	David Hein
Cathy Zeng	Paul Epstein
Yuanqi Zhu	David Hein

## **Postdoctoral Fellows**

Ali, Yeakub  
Feng, Wenke  
Jiang, Guo-hui  
Mukhopadhyay, Suparna  
Zhao, Shuang

## **New Graduate Students**

Crume, Courtney  
Dumstorf, Chad  
Husain, Anwar  
Liu, Jin  
Loehle, Jennifer  
Merten, Kevyn  
Metry, Kristin  
Nebane, Miranda  
Philipose, John  
Reeves, Stephen  
Saad, Lebnan  
Wright, Terry  
Zeng, Cathy

## Graduations

Name	Degree	Faculty Advisor	Dissertation/Thesis Title
Yuanqi Zhu	M.S.	David W. Hein, Ph.D.	Functional characterization of NAT gene polymorphisms
Xinoyan (Nina) Li	M.S.	Paul N. Epstein, Ph.D.	Metallothionein overexpression prolongs grafts survival in the early phase of pancreatic islet transplantation
Bradley G. Brewer	M.S.	Peter P. Rowell, Ph.D.	Short-term distribution of nicotine in the rat
Xia (Clare) Shen	M.S.	Paul N. Epstein, Ph.D.	Proteomics and morphology demonstrate mitochondrial changes in diabetic cardiomyopathy
Hana H. Khaled	M.S.	William M. Pierce, Ph.D.	Osteoporosis: An overview of prevention, genetics, and treatment
Hainan Chen	M.S.	Paul N. Epstein, Ph.D.	Metallothionein protection against streptozotocin induced pancreatic beta cell damage and diabetes
Jason R. Neale	Ph.D.	William M. Pierce, Ph.D.	Bone-targeted estrogens: Structure-activity relationships and mechanistic studies
Jian Li	M.S.	John W. Eaton, Ph.D.	Mitochondrial metabolism and oxygen toxicity
Yining Hou	Ph.D.	Nicholas A. Delamere, Ph.D.	The influence of cytoplasmic calcium on H <sup>+</sup> -ATPase; and the influence of H <sup>+</sup> -ATPase inhibition on sodium transport in non-pigmented ciliary epithelial cells



## V. Publications (salaried and emeritus faculty)

### Papers

1. Adams TB, Doull J, Feron VJ, Goodman JI, Marnett LJ, Munro IC, Newberne PM, Portoghese PS, Smith RL, Waddell WJ, and Wagner BM (2002) The FEMA GRAS assessment of pyrazine derivatives used as flavor ingredients. *Food and Chemical Toxicology* **40**:429-451.
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3. Arteel GE, Klotz LO, Buchczyk DP, and Sies H (2002) Selenoprotein P. *Protein Sensors and Reactive Oxygen Species, Pt A, Selenoproteins and Thioredoxin* **347**:121-125.
4. Arthur JM, Thongboonkerd V, Scherzer JA, Cai J, Pierce WM, and Klein JB (2002) Differential expression of proteins in renal cortex and medulla: A proteomic approach. *Kidney International* **62**:1314-1321.
5. Beebe DW and Gozal D (2002) Obstructive sleep apnea and the prefrontal cortex: towards a comprehensive model linking nocturnal upper airway obstruction to daytime cognitive and behavioral deficits. *Journal of Sleep Research* **11**:1-16.
6. Cai L, Li W, Wang GW, Guo LP, Jiang YC, and Kang YJ (2002) Hyperglycemia-induced apoptosis in mouse myocardium - Mitochondrial cytochrome c-mediated caspase-3 activation pathway. *Diabetes* **51**:1938-1948.
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14. Feng W, Cai H, Pierce WM, and Song ZH (2002) Expression of CB2 cannabinoid receptor in *Pichia pastoris*. *Protein Expression and Purification* **26**:496-505.
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46. Song CX, Vondriska TM, Wang GW, Klein JB, Cao XN, Zhang J, Kang YJ, D'Souza S, and Ping PP (2002) Molecular conformation dictates signaling module formation: example of PKC epsilon and Src tyrosine kinase. *American Journal of Physiology-Heart and Circulatory Physiology* **282**:H1166-H1171.
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58. O'Brien LM, Gozal D (2002) Behavioural and neurocognitive implications of snoring and obstructive sleep apnoea in children: facts and theory. *Paediatr Respir Rev.* 3:3-9.

### **Additional Publications of Faculty with Joint Appointments**

1. Akca O and Sessler DI (2002) Use of cerebral oximetry to detect and manage cerebral desaturation with a rapidly expanding neck hematoma. *Acta Anaesthesiologica Scandinavica* **46**:607-608.
2. Akca O, Doufas AG, Lin CM, and Sessler DI (2002) Comparison between tissue oxygen saturation as determined by near-infrared spectroscopy and direct measurements of subcutaneous tissue oxygen. *Anesthesiology* **97**:B15.
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5. Akca O, Liem EB, Suleman MI, Fisher J, and Sessler DI (2002) Intraoperative PCO<sub>2</sub> and tissue oxygenation. *Anesthesiology* **97**:B16.
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15. De Witte J and Sessler DI (2002) Perioperative shivering - Physiology and pharmacology. *Anesthesiology* **96**:467-484.
16. Deaciuc IV, D'Souza NB, Burikhanov R, Lee EY, Tarba CN, McClain CJ, and de Villiers WJS (2002) Epidermal growth factor protects the liver against alcohol-induced injury and sensitization to bacterial lipopolysaccharide. *Alcoholism-Clinical and Experimental Research* **26**:864-874.
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41. Morioka N, Akca O, Doufas AG, Chernyak G, and Sessler DI (2002) Electro-acupuncture at the Zusanli, Yanglingquan, and Kunlun points does not reduce anesthetic requirement. *Anesthesia and Analgesia* **95**:98-102.
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112. Purification and Characterization of CB<sub>2</sub> Cannabinoid Receptor Expressed in *Pichia Pastoris*. Z. H. Song, J. Cai, W. Pierce, and W. Feng, International Cannabinoid Research Society Conference, 2002.

113. Anterior segment CB1 and CB2 cannabinoid receptors. Z. H. Song, J. Jiang, A. Hemesath, and L. Zhong, The Association for Research in Vision and Ophthalmology Annual Meeting, 2002.
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123. Porter, PC and States, JC. Characterization Of Nucleotide Excision Repair In Telomerase Immortalized Human Fibroblasts. 4<sup>th</sup> Annual Midwest DNA Repair Symposium, Cincinnati, OH (2002).
124. Porter, PC and States, JC. Characterization of Nucleotide Excision Repair in Telomerase Immortalized Human Fibroblasts, James Graham Brown Cancer Center First Annual Retreat, Louisville, KY (2002).
125. Jiang, G, McNeely, S, Skorvaga, M, Van Houten, B, Geacintoc, N and States, JC. Preferential Incision of Cis-BPDE DNA Adducts by *B. Caldoteanax* UvrABC, James Graham Brown Cancer Center First Annual Retreat, Louisville, KY (2002).

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129. Porter, PC and States, JC. Characterization of Nucleotide Excision Repair in Telomerase Immortalized Human Fibroblasts, Research!Louisville, Louisville, KY (2002).
130. States, JC, McNeely, SC, Beauerle, BD, and McCabe, Jr, MJ. P53 Expression Modulates Arsenite Induced Mitotic Arrest, Research!Louisville, Louisville, KY (2002).
131. Jiang, GH, Skorvaga, M, Van Houten, B and States, JC. DNA Topology Affects BPDE Adduct Configuration At Low Adduct Densities. Ohio Valley Society of Toxicology, Louisville, KY (2002).
132. Porter, PC and States, JC. Characterization Of Nucleotide Excision Repair In Telomerase Immortalized Human Fibroblasts. Ohio Valley Society of Toxicology, Louisville, KY (2002).
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## **VII. Invited Scientific Presentations and Seminars (salaried faculty)**

### **Dr. Gavin Arteel**

Research seminar, 03/02, *Role of ROS and RNS in alcohol-induced tissue damage*, University of Louisville, Dept of Pharmacology and Toxicology, Louisville, KY.

Research symposium, 07/02, *Molecular mechanisms of alcohol-induced liver injury*, Research Society on Alcoholism annual meeting, San Francisco, CA.

Research symposium, 11/02, *Alcohol-induced liver injury: role of nitric oxide*, American Association for the Study of Liver Diseases annual meeting, Boston, MA.

### **Dr. David Gozal**

*Time Domains of Hypoxic Ventilatory Response: Developmental Aspects.*

Invited Speaker, 20<sup>th</sup> Annual Conference on Sleep Disorders in Infancy and Childhood, January 17-19, 2002, Rancho Mirage, CA.

*Platelet-Derived Growth Factor and Hypoxic Ventilatory Response: A Tale of Survival.*

Special Research Seminar, Department of Environmental Sciences, Division of Physiology, Bloomberg School of Public Health, The Johns Hopkins University, January 31, 2002, Baltimore, MD.

*Pathophysiology of Cardiorespiratory Control in CCHS.*

2<sup>nd</sup> International Symposium on Congenital Central Hypoventilation Syndrome, 15-16 February 2002, Faculté de Médecine Xavier Bichat, Université de Paris VII, Paris, France.

*Snoring in Children: Why Treat?*

Invited lecturer, V<sup>th</sup> International Congress in Pediatric Pulmonology, 19-22 February 2002, Nice, France.

*Morbidity in Pediatric Sleep Apnea.*

Invited lecturer, 8<sup>th</sup> Course of Pediatric Sleep Medicine, Stanford School of Sleep Medicine, 21 March, 2002, Palo Alto, CA.

*Pediatric Sleep Disorders.*

2<sup>nd</sup> Annual Conference on Sleep Disorders, Puerto Rico Chapter, American Thoracic Society, 23 March, 2002, San Juan, Puerto Rico.

*Obstructive Sleep Apnea: From Cell to Child.*

Research Seminar, Cincinnati Children's Hospital, April 9, 2002, Cincinnati, OH..

*Pediatric Obstructive Sleep Apnea.*

Keynote Speaker, IX Annual Congress of the Iberian Sleep Research Society, May 2-4, 2002, Zaragoza, Spain.

*Neural Response to Cyclical Hypoxia.*

Invited Speaker, Symposium on "Neurobehavioral Consequences of Sleep Apnea: Neural Substrate and Clinical Consequences", ATS International Conference, May 19, 2002, Atlanta, GA.

*Neurobehavioral Deficits of Sleep-Disordered Breathing: Evidence for Developmentally-Regulated Brain Injury, Inflammation, and Repair.*

- Amberson Lecture, keynote Speaker, ATS International Conference, May 19, 2002, Atlanta, GA.
- Intermittent vs. Sustained Hypoxia: Pre- and Post-natal Ventilatory Effects.*  
Invited Speaker, VIIIth Symposium on Sleep and Breathing, May 31-June 2, 2002, Reykjavik, Iceland.
- Structural and Functional Consequences of Intermittent Hypoxia During Development.*  
Invited Speaker, VIIIth Symposium on Sleep and Breathing, May 31-June 2, 2002, Reykjavik, Iceland.
- Neural Consequences of Intermittent Hypoxia: A Developmental Perspective.*  
Invited Speaker, 16<sup>th</sup> Annual APSS Meeting, June 8-13, 2002, Seattle, WA.
- Sleep and ADHD: A Hyperactive Web of Dreamless Nights.*  
Grand Rounds, Kosair Children's Hospital, Department of Pediatrics, University of Louisville, 9 August 2002, Louisville, KY.
- Sleep and ADHD: Any Relationship?*  
Keynote Speaker, 16<sup>th</sup> Annual Anna Zager Symposium on Pediatrics, 4 September 2002, Technion Faculty of Medicine, Haifa Israel.
- The Morbidity of Sleep Apnea: from Cell to Child.*  
Keynote Speaker, 16<sup>th</sup> Annual Anna Zager Symposium on Pediatrics, 4 September 2002, Technion Faculty of Medicine, Haifa Israel.
- SIDS: The Hypoxic Line Revisited.*  
Keynote Speaker, Israeli Pediatric Pulmonology Association Meeting, 5 September 2002, Jaffa, Israel.
- Neurobehavioral Consequences of Intermittent Hypoxia During Sleep.*  
Research Seminar, Department of Pharmacology and Toxicology, University of Texas at San Antonio, September 18, 2002, San Antonio, TX.
- Cardiovascular Implications of OSA in Children.*  
Keynote Symposium: Sleep Medicine 2002, September 20, 2002, Embassy Suites Hotel, Dublin, OH.
- Cognitive and Behavioral Sequelae of OSA During Development.*  
Keynote Symposium: Sleep Medicine 2002, September 20, 2002, Embassy Suites Hotel, Dublin, OH.
- Hypoxia During Sleep and Regulation of COX2 and NOS Expression.*  
Research Seminar, Center for Sleep and Respiratory Neurobiology and Division of Sleep Medicine, University of Pennsylvania, 8 October 2002, Philadelphia, PA
- Sleep Apnea and the Brain: Innocent, Guilty, or Both?*  
Plenary Speaker, DataBlitz, National Center for Sleep Disorders Research, Society for Neuroscience Meeting, 4 November, 2002, Orlando, FL.

### **Dr. Evelyne Gozal**

- Apoptosis, a.k.a. Programmed Cell Death.* Research Conference, Division of Pulmonary Medicine, Department of Medicine, University of Louisville, April 12, 2002.
- Hypoxia: Life or Death ?* Kentucky Spinal Cord Injury Research Center Internal Seminar. University of Louisville, November 15, 2002.

**Dr. David W. Hein**

*The Emerging Importance of Pharmacogenetics/genomics in Clinical Medicine.* University of Louisville. Pre-Medical/Pre-Health Honor Society (Alpha Epsilon Delta), Louisville, KY, January 2002.

*Pharmacogenomics.* 2002 Physician Champion Network Conference, “Genetics, Bridging the Gap Between Science and Medicine,” Louisville, Kentucky, August 2002.

*N-Acetyltransferase Genetic Polymorphisms and Cancer Risk.* Department of Pharmacology, University of Oxford, Oxford, UK, September 2002.

*N-Acetylation Polymorphisms and Cancer Risk: Past, Present, and Future.* Department of Pharmacology, University of Michigan School of Medicine, Ann Arbor, Michigan, October 2002.

*Genetic Predisposition for Cancer.* M.D./Ph.D. Program, University of Louisville, Louisville, Kentucky, November 2002.

*N-Acetyltransferase Polymorphisms and Cancer Susceptibility.* University of Medicine and Dentistry of New Jersey and Rutgers, The State University of New Jersey, Piscataway, New Jersey, December 2002.

*NAT2 In Vitro Studies/Data.* Toxicology Peer Review, Proctor and Gamble Company, Cincinnati, Ohio, December 2002.

**Dr. Y. J. Kang**

Nov. 1, 2002. Invited Seminar, Iowa State University, Department of Zoology and Genetics and Interdisciplinary Toxicology Program, *Oxidative cardiomyopathy and Prevention.*

Apr. 21, 2002. Invited Speaker, The Experimental Biology 2002, Am. Soc. Pharmacol. Exp. Ther. Symposium Molecular mechanisms and biomarkers of cardiotoxicity, *Molecular mechanisms of cardiotoxicity.*

Mar 17, 2002. Invited Lecture, The 41<sup>st</sup> Annual meeting of the Society of Toxicology, Continuing Education (PM 10), *Apoptosis and cardiotoxicity: Signaling mechanisms.*

**Dr. Steven R. Myers**

April 3, 2002: Seminar, University Hospital, Department of Obstetrics and Gynecology  
“*Biomarkers of Tobacco smoke exposure*”

April 24 – 26, 2002, University of Washington, EPA Particulate Matter Center (PM center).  
“*Molecular Markers in Toxicology*” and “*Assessing exposure to polycyclic aromatic hydrocarbons*”

May 23, 2002: Seminar, Norton’s Hospital Obstetrics and Gynecology Division, “*Biomarkers of maternal and fetal tobacco smoke exposure during pregnancy*”

July 16, 2002. Seminar, Suburban Hospital Labor and Delivery units, “*Biomarkers of tobacco smoke exposure*”

**Dr. Zhao-Hui Song**

Searching for “the pot of gold” -- *Molecular mechanisms for the actions of cannabinoids*.  
Department of Pharmacology and Toxicology, University of Louisville School of  
Medicine, Louisville, Kentucky, August, 2002.  
*New perspectives on cannabinoid signaling*. Department of Chemistry, Kennesaw State  
University, Kennesaw, Georgia, January, 2002.

**Dr. J. Christopher States**

*DNA Repair Induction In Acquired Resistance To Cisplatin*. James G. Brown Cancer Center,  
University of Louisville, Louisville, KY (4/19/02).  
*Disruption of Mitosis in Human Fibroblasts by Arsenite: A Role for p53?* NIEHS Environmental  
Health Sciences Center, University of Rochester, Rochester, NY (7/18/02).  
*Arsenic induced mitotic disruption: Carcinogenic or chemotherapeutic?* Department of  
Pharmacology and Toxicology, University of Louisville, Louisville, KY  
(8/15/02).  
*Arsenite induced mitotic arrest*, Department of Molecular and Biomedical Pharmacology,  
University of Kentucky, Lexington, KY (9/16/02).  
*DNA repair gene regulation in cisplatin-resistant ovarian carcinoma cells*, Department of  
Microbiology, Southern Illinois University, Carbondale, IL (11/22/02).

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

	<u>Agency</u>	<u>Budget Requested</u>
<b>Dr. Gavin E. Arteel</b>		
Prevention of hepatic ischemia reperfusion injury by liposomal delivery of ATP (Co-I; W. Ehringer, PI) 01/01/03 – 12/31/03	Intramural IRIG	\$10,000
Mechanisms of alcoholic hepatocellular carcinoma (PI) 01/01/03 – 12/31/06	Damon Runyon Foundation	\$300,000
SAMe enhanced IL-10 expression; protective role in ALD (Co-I; S. Barve, PI) 10/01/02 – 09/30/05	NIH (NIAAA)	\$429,000
Platelet-endothelial responses during lung reperfusion (Collaborator; A. Roberts, PI) 07/01/03 – 06/30/08	NIH	\$1,475,000
Untersuchungen zur rolle reaktiver sauerstoffspezies in der pathogenese der alkoholbedingten lebererkrankungen (investigation of the role of reactive oxygen species in the pathogenesis of alcoholic liver injury) (Mentor (postdoctoral fellowship application, Ina Bergheim, Ph.D.) 06/01/03 – 05/31/04	Alexander von Humboldt Stiftung (Germany)	
Stem cell reconstitution of alcoholic livers (Collaborator; L. Reid, PI) 09/28/02 – 09/27/07	NIH (NIAAA)	
Egr-1: A candidate molecular target for treating ALD (Collaborator; L. Nagy, PI) 07/01/03 – 06/30/08	NIH (NIAAA)	
Endothelium, hypoxia and hepatotoxicity (Collaborator; R. Roth, PI) 04/01/03 – 03/3/08	NIH	
<b>Dr. Frederick Benz</b>		
Characterization of vinyl monomer-protein adducts (Co-I; D.E. Nerland, PI)	NIEHS	\$475,000
Acrylonitrile, a smoke-borne toxicant: covalent binding to lung tissue proteins and effects on signal transduction pathways (PI)	Philip Morris External Research Program	\$512,806

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	<u>Agency</u>	<u>Budget Requested</u>
<b>Dr. Theresa Chen</b>		
Nutritional modulation of glutathione status and longevity (PI) 01/01/02 - 12/31/02	Kentucky Science & Technology Corporation	\$15,000
Oral antioxidant/anticytokine therapy for ALD (Co-I; D. Hill, PI) 05/01/02 – 04/30/06	NIH (NIAAA)	\$1,000,000
Mechanisms of alcohol-induced immunosuppression (Co-I; S. Barve, PI) 07/01/03 – 06/30/08	NIH (NIAAA)	\$1,651,500
Adomet and carinii pneumonitis (Co-I; H. Oz, PI) 07/01/03 – 06/30/05	NIH	\$366,250
<b>Dr. Paul N. Epstein</b>		
Antioxidant transgenes in diabetic cardiomyopathy (PI) 08/01/03 – 07/30/08	NIH/NHLBI	\$1,642,500
Metabolomic analysis of cardiac ischemia using cardiac transgenes, NMR and mass spectrometry (PI) 07/01/03 – 06/30/05	Kentucky Science and Engineering Foundation	\$90,910
Antioxidant transgenes and diabetic nephropathy (PI) 12/01/02 – 11/30/07	NIH/NHLBI	\$833,750
Antioxidant transgenes and diabetic nephropathy (PI) 02/01/03 – 1/31/04	Juvenile Diabetes Foundation	\$50,000
Sources and targets of reactive oxygen species in diabetic cardiomyopathy (PI) 02/01/03 – 01/31/06	Juvenile Diabetes Foundation	\$450,000
<b>Dr. David Gozal</b>		
Aging, episodic hypoxia, and vagal cardiac projections (Co-I; Z. Cheng, PI) 06/01/02 – 05/31/07	NIH	\$1,225,000
Sleep problems/Patterns in autistic children (Co-I; P.G. Williams, PI) 07/01/02 – 06/30/04	NIH	\$200,000
Sleep and psychophysiological function in children (Co-I; D. Molfese, PI) 07/01/02 – 06/30/04	NIH	\$1,250,000

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	<u>Agency</u>	<u>Budget Requested</u>
<b>Dr. David Gozal (continued)</b>		
Cardiac efferents: Circuitry and regeneration (Co-I; Z. Cheng, PI) 07/01/02 – 06/30/04	NIH	\$1,150,000
Role of vagal afferents in hyperpnea (Co-I; J. Yu, PI) 06/01/02 – 05/31/07	NIH	\$1,100,000
ROS in intermittent hypoxia-mediated neuronal cell death (Co-I; R. Liu, PI)	NIH	\$1,150,000
MCT, intermittent hypoxia, and stroke (PI)	SCORE Project 2	
Neurocognitive function in snoring children (PI) 09/01/03 – 08/31/08	NIH/NHLBI	\$2,030,000
Monocarboxylate transporter in hypoxic preconditioning (Co-I; Y. Wang, PI)	NIH/NHLBI	\$1,000,000
<b>Dr. Evelyne Gozal</b>		
Hypoxia-induced akt signaling module in neuronal cells (PI) 07/01/03 – 06/30/08	NIH	\$1,250,000
Platelet-endothelial responses during lung reperfusion (Co-I; A.M. Roberts, PI) 07/01/03 – 06/30/08	NIH	\$1,000,000
<b>Dr. David W. Hein</b>		
Pharmacogenetics of drug and carcinogen metabolism (PI) 04/01/03 – 03/31/08	NCI	\$1,833,750
Molecular epidemiology of environmental/occupational diseases (PI) 07/01/03 - 06/30/08	NIH/NIEHS	\$1,240,452
Cardiovascular toxicity of environmental aldehydes (Co-I; A. Bhatnagar, PI; R. Prough, Project PI) 07/01/03 – 06/30/08	NIH/NIEHS	\$8,265,311
Biomarkers of maternal and fetal tobacco smoke exposure (Co-I; S.R. Myers, PI) 07/01/02 – 06/30/05	Kentucky Lung Cancer Research Program	\$294,392

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	<u>Agency</u>	<u>Budget Requested</u>
<b>Dr. David W. Hein</b>		
Metabolism and Detoxification of Base Propenals (Collaborator; S. Srivastava, PI) 04/01/03 – 03/31/08	NIH	\$1,650,750
Nashville Breast Health Study (Subproject PI; W. Zheng, PI) 05/01/06 – 04/30/08	NIH	\$210,840
Metabolism and toxicity of aromatic amines associated with hair dyes (PI) 07/01/02 – 06/30/04	Proctor and Gamble Company	\$310,885
Research in support of Amonafide study (PI) 07/01/02 – 06/30/03	Chemgenex Therapeutics	\$2,394
James Graham Brown P20 application (Project Director) 08/02/02 – 07/31/07	NIH/NCI	\$1,328,613
Construction of genetically engineered CHO cells and development of methods to quantitate DNA damage (PI) 07/01/02 – 06/30/03	Charlotte Geyer Foundation	\$100,000
Biomarkers for the assessment of exposure and toxicity in children (Co-I; S. Myers, PI) 11/01/02 – 10/31/04	USEPA	\$720,147
Comprehensive biological training for dentists (Research Mentor; D. Kinane, PI) 08/01/03 – 07/31/08)	NIH	\$2,246,642
Genetic polymorphisms in manganese superoxide dismutase (MnSOD) as a predictor of lung cancer (Co-I; R. Martin, PI) 01/01/03 – 12/31/05	Kentucky Lung Cancer Research Program	\$300,000
Biomarkers of in utero tobacco exposure (Co-I; S. Myers, PI) 04/01/03 – 03/31/06	NIH	\$1,926,996
Functional genomics of the human N-acetyltransferase 1 polymorphism (Research Mentor; Y. Zhu, PI) 07/01/02 – 06/30/03	Center for Genetics and Molecular Medicine	\$10,000
Functional genomics of human N-acetyltransferase 2 (NAT2) (Research Mentor; A. Husain, PI) 07/01/02 – 06/30/03	Center for Genetics and Molecular Medicine	\$10,000



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	<u>Agency</u>	<u>Budget Requested</u>
<b>Dr. David W. Hein (continued)</b>		
Genetic polymorphisms in 5'-UTR of human NAT1 and NAT2 (Research Mentor; A. Husain, PI) 05/02/03 – 04/30/05	NIH	\$49,040
Single nucleotide polymorphisms: Mechanisms for functional changes in N-acetyltransferase 2 (NAT2) (Research Mentor; Y. Zang, PI) 07/01/02 – 06/30/03	Center for Genetics and Molecular Medicine	\$10,000
Use of NAT1 and 2 SNP analysis and functional genomics to determine susceptibility to smoking-induced cancer (Collaborator; K. Mitchell, PI) 03/01/03 – 02/28/06	Philip Morris External Research Program	\$773,073
Transcriptional regulation of human NAT1 and 2 genes (Collaborator; K. Mitchell, PI) 07/01/03 – 06/30/08	NIH	\$1,400,990
Anonymous testing of pancreatic cancers for predictive genetic polymorphisms (Collaborator; K. Mitchell, PI) 07/01/03 – 06/30/05	American Association for Cancer Research	\$100,000
<b>Dr. Harrell E. Hurst</b>		
Eicosanoids, nitric oxide and experimental autoimmune anterior uveitis (Co-I; P.S. Kulkarni, PI)	NIH	\$1,000,000
Cardiovascular toxicity of environmental aldehydes (Co-I; A. Bhatnagar, PI) 07/01/03 – 06/30/08	NIH/NIEHS	\$8,265,311
<b>Dr. Y. James Kang</b>		
Metallothionein and adriamycin cardiotoxicity (PI) 12/01/02 – 11/30/07	NIH/NHLBI	\$1,455,000
Arsenic trioxide cardiotoxicity and prevention (PI) 04/01/02 – 03/31/07	NIH/NIEHS	\$1,634,000
Molecular mechanisms of cadmium cardiotoxicity (PI) 07/01/03 – 06/30/08	NIH/NIEHS	\$1,835,000

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	<u>Agency</u>	<u>Budget Requested</u>
<b>Dr. Glenn McGregor</b>		
Shared genomic responses to space flight and aging (Project Leader; E. Wang, PI) 05/01/03 – 04/30/04	NASA Cell Science Program	\$1,450,000
Molecular mechanisms of DNA damage-induced mutagenesis (PI) 04/01/02 – 03/31/06	NIH/NCI	\$700,000
Development of molecular gene therapy approach for the prevention of UV-induced skin cancer (PI) 01/01/02 – 12/31/04	Kentucky Science and Engineering Foundation	\$100,200
Health effects of occupational exposures in PGDP workers (Project leader; D. Tollerud, PI) 02/01/02 – 01/31/04	NIOSH	\$1,399,443
Age-dependent attenuation of responses to environmental toxin insults (Project Leader; E. Wang, PI) \$5,033,466	NIH/NIA	\$5,033,466
<b>Dr. Steven R. Myers</b>		
Biomarkers of in utero tobacco exposure (PI) 04/03 – 03/06	NIH	\$1,926,996
Biomarkers of air quality assessment in West Louisville (PI) 04/03 – 03/06	NIH	\$1,811,020
<b>Dr. Donald E. Nerland</b>		
Characterization of vinyl monomer-protein adducts (PI)	NIEHS	\$475,000
Acrylonitrile, a smoke-borne toxicant: covalent binding to lung tissue proteins and effects on signal transduction pathways (Co-I; F. Benz, PI) 07/01/03 – 06/30/06	Philip Morris External Research Program	\$512,806
<b>Dr. William M. Pierce, Jr.</b>		
Cardiovascular toxicity of environmental aldehydes (Co-I; A. Bhatnagar, PI) 07/01/03 – 06/30/08	NIH/NIEHS	\$8,265,311
Molecular Adaptation of the Skeletal Muscle Calcium Pump in the Wood Frog (Co-I; W. Dean, PI) 2002-2005	NSF	\$221,696

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	<u>Agency</u>	<u>Budget Requested</u>
<b>Dr. William M. Pierce, Jr. (continued)</b>		
DNA Sequences impact Estrogen and Antiestrogen Activity (Co-I; C.M. Klinge, PI) 01/01/03 – 12/31/07	NIH	\$1,744,218
Proteomic Analysis of Diabetic Nephropathy (Co-I; J.B. Klein, PI) 2002 - 2004	NIH	\$200,000
A Proteome Map of Neutrophil Membranes (Co-I; K.R. McLeish, PI) 2002 - 2007	NIH	\$1,400,000
Arsenic-Induced Mitotic Arrest Associated Apoptosis (Co-I, J.C. States, PI) 07/01/02 - 06/30/07	NIH	\$1,779,760
DNA sequences impact estrogen and antiestrogen activity (Co-I; CM Klinge, PI) 07/01/03 – 06/30/08	NIH	\$1,744,218
A proteome map of neutrophil membranes (Co-I; KR McLeish, PI) 2002 – 2007	NIH	\$1,400,000
Arsenic-induced mitotic arrest associated apoptosis (Co-I; J.C. States, PI) 2002 – 2007	NIH	\$1,779,760
Nucleolin as a target for drug discovery (Co-I; P. Bates, PI) 2003 – 2008	NIH	\$1,529,500
Mechanisms of alcohol-induced immunosuppression (Co-I; S. Barve, PI)	NIH	\$1,651,500
Cardiovascular toxicity of environmental aldehydes (Co-I; A. Bhatnagar, PI) 07/01/03 – 06/30/08	NIH	\$5,015,729
<b>Dr. Zhao-hui (Joe) Song</b>		
Structure and function of CB2 cannabinoid receptor (PI) 09/30/02 – 09/30/03	NIH	\$100,000
Cannabinoid receptors-potential targets for novel antiglaucoma drugs (PI) 07/01/03 – 06/30/08	NIH	\$1,468,000
CB2 receptor purification and structural characterization (PI) 04/01/03 – 03/31/05	NIH	\$286,000
Purification and characterization of CB1 (PI) 04/01/03 – 03/31/05	NIH	\$286,000

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	<u>Agency</u>	<u>Budget Requested</u>
<b>Dr. J. Christopher States</b>		
Functional Analysis of Variant DNA Repair Genes (PI) 04/01/02 - 03/31/06	NCI	\$1,035,200
Arsenic Induced Mitotic Arrest Associated Apoptosis (PI) 07/01/03 – 06/30/08	NIEHS	\$1,000,000
Health Effects of Occupational Exposures in PGDP Workers (Co-I; D. Tollerud, PI) 02/01/02 - 01/31/04	NIOSH	\$1,399,443
Arsenic Induced Mitotic Arrest Associated Apoptosis (PI) 07/01/02 - 06/30/07	NIEHS	\$1,150,000
Pharmacogenetics of drug and carcinogen metabolism (Co-I; D.W. Hein, PI) 04/01/03 - 03/31/08	NCI	\$1833,750
Metabolism and Detoxification of Base Propenals (Collaborator; S. Srivastava, PI) 04/01/02 – 03/31/06	NIH	\$1,833,750
Gene therapy to combat cisplatin resistant ovarian cancer (PI) 07/01/02 – 06/30/04	Mary Kay Ash Charitable Foundation	\$100,000
DNA repair gene regulation and chemoresistant ovarian cancer (PI) 12/01/02 – 11/30/06	Department of Defense	\$375,000
Dose effects on specificity of DNA damage and repair (PI) 01/03 – 12/05	Kentucky Lung Cancer Research Program	\$300,000
Effects of DNA repair variants on mutagenesis (PI) 12/01/02 – 11/30/07	Charlotte Geyer Foundation	\$86,648
Biomarkers of air quality assessment in West Louisville (Co-I; S. Myers, PI) 04/01/03 – 03/31/06	NIH	\$1,363,636
Biomarkers of <i>in utero</i> tobacco exposure (Co-I; S. Myers, PI) 04/01/03 – 03/31/06	NIH	\$1,292,458
Molecular epidemiology – Environmental/occupational diseases (Faculty Mentor; D. Hein, PI) 07/01/03 – 06/30/08	NIEHS	\$1,223,590

	<i>Agency</i>	<i>Budget Requested</i>
<b>Dr. J. Christopher States (continued)</b>		
Functional analysis of variant DNA repair genes (PI) 06/01/03 – 05/31/07	NCI	\$800,000
Cisplatin resistance and DNA repair gene regulation (PI) 06/01/02 – 05/31/08	NCI	\$875,000
Dose dependence of stereospecificity of benzo[a]pyrene-diol-epoxide DNA adduct formation and DNA repair response (PI) 03/03 – 02/06	Philip Morris External Research Program	\$684,797
Construction of genetically engineered CHO cells and development of methods to quantitate DNA damage (PI) 07/01/02 – 06/30/03	Charlotte Geyer Foundation	\$100,000

**IX. Research Grants and Contracts in Force (salaried faculty)**

	<u>Agency</u>	<u>Project Award</u>
<b>Dr. Gavin E. Arteel</b>		
Hypoxia and free radicals in alcoholic pancreatitis (PI) 08/01/01-07/31/06	NIH (NIAAA)	\$555,846
Control of drug and ethanol metabolism (PI) 11/01/01-04/30/04	NIH (NIAAA)	594,413
Molecular and cellular pathogenesis of alcoholism (Collaborator) 12/01/02-11/30/07 (Fulton Crews, UNC-Chapel Hill, PI)	NIH (NIAAA Alcohol Research Center Grant)	
<b>Dr. Theresa S. Chen</b>		
Mechanism of <i>p</i> -Aminophenol induced hepatotoxicity (PI) 07/01/01 – 06/30/02	UofL Intramural Research Incentive Grants	\$3,668
Nutritional Modulation of Glutathione Status and Longevity (PI) 01/05/02-4/30/03	Kentucky Science and Technology Corporation	\$ 15,000
Oral Antioxidant/Anticytokine Therapy for ALD (Co-PI), Dr. Dan Hill (PI) 05/01/02 – 04/30/06	NIAAA	\$250,000
<b>Dr. Paul N. Epstein</b>		
$\beta$ -cell antioxidant transgenes in diabetes and transplantation (PI) 09/01/00 – 08/31/04	NIH/NIDDK	\$712,000
Reducing diabetic cardiomyopathy by increasing glycolysis (PI) 09/01/00 – 08/31/04	NIH/NHLBI	\$959,930
Antioxidant transgenes in diabetic cardiomyopathy (PI) 08/01/99 – 07/30/02	NIH/NHLBI	\$692,139
Testing the role of acetaldehyde in alcoholic cardiomyopathy using transgenic mice (PI) 07/01/99 – 06/30/02	AHA	\$164,000
Analysis of diabetic nephropathy (Co-I); Jon Klein (PI) 7/1/02-6/30/04	NIH/NIDDK	\$100,000

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	<u>Agency</u>	<u>Project Award</u>
<b>Dr. David Gozal</b>		
Neurocognitive function in snoring children (PI) 10/01/99 - 07/31/2003	NHLBI	\$1,000,000
Sleep episodic hypoxia and memory deficit in aging rats: Protection by platelet-activating factor antagonists (PI) 01/00-12/02	American Heart Association	\$214,500
REM sleep deprivation, hypoxia, and hippocampal function (PI) 09/01/00 -6/30/2004	NHLBI	\$900,000
Proteomic analysis of hippocampal hypoxic vulnerability (Co-I; J.B. Klein, P.I.) 10/01/00 - 06/30/04	NHLBI	\$700,000
Sleep Associated Learning Morbidity in 3-4 Year Old Children (PI) 07/01/01 - 09/30/02	Department of Education	\$921,000
Pulse Arterial Tonometry in Sleeping Children (PI) 08/01/01 - 07/31/03	Itamar Ltd.	\$60,000
CPAP vs. BiPAP in Children with OSA (PI) 10/1/01-9/30/02	ResMed Corporation	\$7,800
Postnatal Brain Susceptibility to Intermittent Hypoxia (PI) 03/01/02 - 02/28/06	NHLBI	\$1,250,000
Reversal of Learning Deficits in 3-4 Year Old Children with Obstructive Sleep Apnea (PI) 07/01/02 - 06/30/03	Department of Education	\$500,000
Neurocognitive Function in Snoring Children (PI) 03/01/02-07/31/03	Minority Supplement Grant	\$200,000
Whole-Body Hypoxic Pre-Conditioning (Co-I) (Yang Wang, M.D., Ph.D., P.I.) 06/01/02-05/31/03	Department of Defense	\$150,000
Role of Vagal Afferents in Hyperpnea (Co-I) (Jerry Yu, Ph.D., P.I.) 1/1/03-12/31/07	NHLBI	\$1,100,000
<b>Dr. Evelyne Gozal</b>		
Signaling pathways in neuronal susceptibility to hypoxia (PI) 10/01/00 – 09/30/04	Project 1, COBRE NIH	\$895,786

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	<u>Agency</u>	<u>Project Award</u>
<b>Dr. Evelyne Gozal (continued)</b>		
Proteomic analysis of hippocampal hypoxic vulnerability (Co-I; Jon B. Klein, PI) 10/01/00 – 09/30/04	NHLBI	\$700,000
Postnatal brain susceptibility to intermittent hypoxia (Co-I; D. Gozal, PI) 04/01/02 – 03/31/06	NHLBI	\$1,000,000
<b>Dr. David W. Hein</b>		
Pharmacogenetics of drug and carcinogen metabolism (PI) 09/01/97 – 03/31/03	NCI	\$1,859,936
Effect of acetylator genotype on genotoxicity from aromatic and heterocyclic amine carcinogens (PI) July 1, 2002 to June 30, 2005	Philip Morris External Research Program	\$615,848
Environmental genomics and molecular epidemiology of lung cancer (PI) October 1, 2001 to September 30, 2003	Kentucky Lung Cancer Research Program	\$199,966
Metabolism and toxicity of aromatic amines associated with hair dyes (PI) July 1, 2002 to June 30, 2004	Proctor and Gamble Company	\$310,885
Research in support of Amonafide study (PI) July 1, 2002 to June 30, 2003	Chemgenex Therapeutics	\$2,394
Education in genetics ethics (EDGE) (Co-I); Mark Rothstein (PI) May 3, 2002 to March 31, 2005	NIH	\$1,360,592
Hybrid quadrupole – Time of flight mass spectrometer (Major user and member of technical advisory committee); William M. Pierce, Jr. (PI) April 1, 2002 to March 31, 2003	NIH	\$500,000
Biomarkers of maternal and fetal tobacco smoke exposure (Co-I); Steven R. Myers (PI) July 1, 2002 to June 30, 2003	Kentucky Lung Cancer Research Program	\$93,016
James Graham Brown P20 Application (Project Director); Donald M. Miller (PI) August 2, 2002 to July 31, 2007	NIH/NCI	\$1,328,613



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	<u>Agency</u>	<u>Project Award</u>
<b>Dr. David W. Hein (continued)</b>		
Cancer Education Grant Program (Mentor); Norbert J. Burzynski (PI) August 1, 2002 to July 31, 2007	NIH/NCI	\$557,437
Genetic analysis of prostate cancer in Nigerian men (Collaborator); B. Folasade Iyun (PI) January 1, 2002 to December 31, 2002	University of Louisville	\$4,000
Functional genomics of the human N-acetyltransferase 1 polymorphism (Research Mentor); Yuanqi Zhu (PI) July 1, 2002 to June 30, 2003	Center for Genetics and Molecular Medicine	\$10,000
Single nucleotide polymorphisms: Mechanisms for functional changes in N-acetyltransferase 2 (NAT2) (Research Mentor); Yu Zang (PI) July 1, 2002 to June 30, 2003	Center for Genetics and Molecular Medicine	\$10,000
Pharmacogenetics of drug and carcinogen metabolism (minority supplement) (PI) 12/01/00 – 03/31/03	NCI	\$16,183
<b>Dr. Harrell E. Hurst</b>		
Biomarkers for air pollutants (PI) 10/01/01 – 09/30/03	USEPA	\$753,654
Review of records, procedures, and analytical data for measurement of volatile organic compounds using EPA method TO-15A (Co-I; R. Barnett, PI) 07/01/00 – 06/30/02	Kentucky Department of Environmental Sciences	\$200,000
<b>Dr. Y. James Kang</b>		
Metallothionein and adriamycin cardiotoxicity (PI) 04/01/99 – 03/31/02	NHLBI	\$623,000
Oxidative stress and heart failure by copper deficiency (PI) 04/01/01 – 03/31/05	NHLBI	\$1,312,200
Cardiomyopathy induced by marginal copper deficiency (Co-I; D. Schuschke, PI) 11/15/01 – 11/14/03	USDA-CSREES	\$155,971

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	<u>Agency</u>	<u>Project Award</u>
<b>Dr. Y. James Kang (continued)</b>		
TNF Alpha dependent myocyte apoptosis (PI) 04/01/00 – 03/31/02	Jewish Hospital Foundation	\$50,000
Metallothionein protection against diabetic cardiomyopathy (Co-I; Lu Cai, PI) 11/01/01 – 10/31/03	Jewish Hospital Founcation	\$50,000
Prevention by MT of chronic alcoholic liver injury (Co-I; PI: Zhanxiang Zhou) 08/01/02-07/31/05	NIH-NIAAA	\$432,000
Myocardial protection by MT from diabetes (Co-I; Lu Cai, PI) 08/01/02-07/31/05	Philip Morris Ext. Research Program	\$516,465
Diabetic cardiomyopathy and its prevention by MT (Co-I; Lu Cai, PI) 07/01/02-06/30/05	American Diabetes Association	\$414,000
Identification of apoptotic pathways and antiapoptotic mechanisms in the metaplasia- dysplasia-adenocarcinoma sequence of Berrett's esophagus (Co-I; John Wo, PI) 05/14/02-05/14/03	AstraZeneca LP	\$54,679
<b>Dr. Glenn McGregor</b>		
Mechanisms of mutagenic processing of DNA damage, CA 73984 (PI) 08/01/97 – 07/31/03	NCI	\$350,000
Mechanisms of BPDE-induced mutagenesis and mutation avoidance (PI) 10/01/01 – 09/30/04	Kentucky Lung Cancer Research Program	\$150,000
DNA replication proteins as potential therapeutic targets (PI) 03/01/01 – 02/28/02	University of Louisville School of Medicine	\$15,000
Cancer Education Grant Program (Participating mentor); Norbert Burzynski (PI) 9/01/2002- 8/31/2007	NIH/NCI	\$557,437
Molecular Strategies to Avoid Mutagenesis by Cigarette Smoke-Associated Carcinogens (PI) 6/01/2002-5/31/2005	Philip Morris External Research Program	\$349,700
Biacore 3000 Shared Instrument Grant (Participating Investigator); Donald Miller PI)	National Center for Research Resources	\$270,000

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	<u>Agency</u>	<u>Project Award</u>
<b>Dr. Steven R. Myers</b>		
Characterization of polycyclic aromatic hydrocarbons and their metabolites in urine samples (PI) 07/01/01 – 06/30/02	USEPA	\$50,000
In utero and postnatal tobacco smoke exposure and its effect on infant lung function and respiratory illness (Co-I); George Rodgers (PI) 01/01/95 – 6/30/03	Alliant Community Trust	\$204,890
Biomarkers for air pollutants: Development of hemoglobin adduct methodology for assessment of exposure to butadienes and polycyclic aromatic hydrocarbons (Co-I; H.E. Hurst, PI) 10/01/01 – 09/30/03	Kentucky EPSCoR Program	\$753,654
Biomarkers of maternal and fetal tobacco smoke exposure (PI) 07/01/02 – 06/30/03	Kentucky Lung Cancer Research Foundation	\$93,016
<b>Dr. William M. Pierce, Jr.</b>		
Proteomic Analysis of Diabetic Nephropathy (Co-I) 2002-2004	NIH/NIDDK	\$200,000
P450 Metabolites of Arachidonic Acid and DOCA-Salt Hypertension (Co-I); B. Adeagbo (PI) 2000-2003	American Heart Association	\$75,000
Hybrid Quadrupole Time of Flight Mass Spectrometer (PI) 4/2002 – 3/2003	NIH /NCRR	\$500,000
Proteomic analysis of hippocampal hypoxic vulnerability (Co-I; J.B. Klein, PI) 10/00-9/04	NIH	\$1,000,800
Central nervous system injury and repair (Co-I; S. Whittemore, PI) 2000-2006	NIH	\$8,500,000
Evolution of a pheromone signaling system: From molecules to mating (Co-I; L. Houck, Richard C. Feldhoff, PI) 07/15/01 - 07/14/04	NSF-Subcontract to UofL from Oregon State University.	\$700,546

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	<u>Agency</u>	<u>Project Award</u>
<b>Dr. William M. Pierce, Jr. (continued)</b>		
Blood Lead Monitoring (Lab Director) 01/01/02 – 12/31/02	Analytical chemistry service for local and regional medical practitioners	\$32,000
Regulation of Neutrophil Activation (Collaborator; K. McLeish, PI) 1999-2002	VA Merit Review	\$407,000
Toxicity and Detoxification of 4-hydroxyalkenals in Heart (Co-I; A. Bhatnagar, PI) 10/00-9/04	NIH	\$1,220,000
Cardioprotective effects of ethanol (Co-I; A. Bhatnagar, PI) 10/00-9/04	NIH	\$143,000
Regulatory Kinase Signal Transduction Pathways in Human Neutrophils (Co-I; K.R. McLeish, PI) 2000-2002	American Heart Association - Ohio Valley	\$89,300
Mechanisms of Chemoresistance in Ovarian Cancer (Co-I; J.C. States, PI) 2001-2003	Elsa Pardee Foundation	\$128,418
Gene Expression of Persistent Chlamydia (Co-I; J.T. Summersgill, PI) December 2001 – November 2006	NIH	\$1,200,000
Analysis of PTH and Dopamine Receptor Signaling in Proximal Tubules (Co-I; Eleanor Lederer, PI) August 2001 - July 2005	Veterans Administration	\$464,500
<b>Dr. Peter P. Rowell</b>		
Functional activity of mesolimbic nicotinic receptors (PI) 09/01/99 – 06/30/03	NIH	\$299,508
Effects of self-administered versus noncontingent nicotine (Co-I; A.R. Caggiula, PI) 10/01/00 – 09/30/05	NIH	\$819,469
The neuromolecular and neurochemical basis of nicotine's variable effects on behavior (Consultant; J.A. Rosecrans, PI) 06/01/01 – 05/31/04	Virginia Commonwealth University	\$23,503

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	<u>Agency</u>	<u>Project Award</u>
<b>Dr. Peter P. Rowell (continued)</b>		
The effects of nicotine on alpha-adrenergic receptors in bone arterioles (Co-I); C.S. Roberts (PI) 01/01/2002 – 12/31/2002	Fischer-Owen Orthopaedic Trust Fund	\$7,922
Postnatal brain susceptibility to intermittent hypoxia (CoI); D.A. Gozal (PI) 03/01/2002 – 02/28/2007	NIH (NHLBI)	\$1,250,000
<b>Dr. Zhao-Hui (Joe) Song</b>		
Structure and function of CB2 cannabinoid receptor, DA11551 (PI) 09/30/98 – 09/30/03	NIH	\$507,304
<b>Dr. J. Christopher States</b>		
DNA Damage by Bioactivated Xenobiotics (PI) 03/01/97 - 06/30/02	NIEHS	\$862,845
Mechanisms of Chemoresistance in Ovarian Cancer (PI) 06/01/01 - 05/31/03	Elsa U. Pardee Foundation	\$128,418
Pharmacogenetics of drug and carcinogen metabolism 09/01/97 - 03/31/03 (Co-I; David W. Hein, PI)	NCI	\$1,859,936
Candidate genes for the molecular target(s) of arsenite induced mitotic arrest and associated apoptosis (PI) 01/01/02 - 06/30/02	J. G. Brown Cancer Center	\$4,500
Cancer Education Grant Program (Participating mentor); Norbert J. Burzynski (PI) 12/01/02 - 11/30/07	NCI	\$557,437
Gene therapy to sensitize ovarian cancer cells to cisplatin (PI) 06/01/02 – 08/31/02	ULSoM Dean's Office Medical Student Summer Research program	\$2,800

## **X. Teaching**

### **School of Medicine**

The Department team-taught the Medical Pharmacology course to second year medical students. Dr. Mike Williams served as course director. In addition, Dr. Laurence Carr served as co-director of the interdisciplinary Clinical Neuroscience course. Individual faculty contributions are identified in the Appendix.

### **School of Dentistry**

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

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

### **School of Nursing**

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

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

### **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)  
Introduction to Environmental Health (Dr. Steve Myers)  
Frameworks in Environmental Science and Technology (Dr. Steve Myers)  
Molecular Mechanisms of Drug and Xenobiotic Action (Dr. Glenn McGregor and Dr. Joe Song)

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

## **XI. Honors and Awards**

### **Graduate Students and Postdoctoral Fellows**

**Raymond Woosley**, a 1967 PhD graduate of our program was honored as a University of Louisville Alumni Fellow.

**Jason Neale** was selected as the KC Huang Outstanding graduate student in the department.

**Hainan Chen, Paul Porter, Clare Shen, Janet Zang,** and **Yuanqi Zhu** received graduate student fellowships from the Center for Genetics and Molecular Medicine.

**Ray Zhang** received a travel award from the International Cannabinoid Research Society.

**Tanvi Modi** and **Nina Li** received second and third place awards for their research posters at Research!Louisville.

**Prachi Hote** (first place), **Janet Zang** (second place) and **Clare Shen** (honorable mention) received awards for their research posters at the Ohio Valley Society of Toxicology meeting.

**Wenke Feng** was a winner of a James A. Bain young scientist travel award from the American Society for Pharmacology and Experimental Therapeutics.

**John Philipose** received an NIH Mentored Clinical Scientist Award.

### **Faculty**

**William Pierce** received the 2002 President's Distinguished Service Award.

**Nicholas Delamere** received the 2002 President's Award for Outstanding Research, Scholarship, and Creative Activity.

**Len Waite** was selected as the School of Medicine nominee for the 2003 President's Distinguished Service Award.

**David Hein** and **Michele Pisano** were selected as nominees by the School of Medicine and the School of Dentistry, respectively, for the 2003 President's Outstanding Research, Scholarship, and Creative Activity Award.

**Mike Williams** received the Golden Apple Award for teaching from the School of Medicine class of 2004.

**Michele Pisano** was promoted to Professor.

**Theresa Chen** received an award for her research in the category of "Potential for Clinical Application" at Research!Louisville.

**Yang Wang** was promoted from term to tenure track.

**David Hein** was recipient of the Outstanding Alumnus Award, Department of Pharmacology, University of Michigan Medical School.

**Don Nerland** and **Peter Rowell** were honored for 25 years of service to the University.

**David Gozal** gave two named lectureship presentations: J. Burners Amberson Lecturer and Anna Zager Lecturer.

**James Kang** organized and chaired a symposium on “Molecular Mechanisms and Biomarkers of Cardiotoxicity” at the annual meeting of the American Society for Pharmacology and Experimental Therapeutics.

**Gavin Arteel** presented an abstract selected for the “President’s choice” award at the annual meeting of the American Association for the Study of Liver Diseases.

**William Pierce Jr.** received a major NCCR-shared instrumentation grant that purchased a Hybrid Quadrupole-Time of Flight Mass Spectrometer for the Biomolecular Mass Spectrometry Core Facility.

**Daniel Sessler** received the American Society of Anesthesiology Excellence in Research Award, the Society’s highest academic award.

**David Clouthier** received an NIH Research Career Development Award.

**Craig McClain** received an NIH Merit Award and was appointed University Distinguished Chair in Hepatology.



## **XII. Standing Committees**

### **Graduate Program Committee**

Dr. William Pierce (Chair)  
Dr. Len Waite (2004)  
Dr. Peter Rowell (2003)  
Dr. Chris States (2002)  
April Hartford / Paul Porter (student representatives)

### **PBSI/Grievance Committee**

Dr. Peter Rowell (Chair)  
Dr. Harrell Hurst (2004)  
Dr. Mike Williams (2003)  
Dr. Don Nerland (2002)

### **Teaching Evaluation Committee**

Dr. Mike Williams (Chair)  
Dr. Fred Benz (2004)  
Dr. Harrell Hurst (2003)  
Dr. Len Waite (2002)

### **Seminar Committee**

Dr. Don Nerland (Chair)  
Dr. Steve Myers (2004)  
Dr. Evelyne Gozal (2003)  
Dr. Fred Benz (2002)

### **Core Laboratories/Research Development Committee**

Dr. Chris States (Chair)  
Dr. Theresa Chen (2004)  
Dr. Steve Myers (2003)  
Dr. Glenn McGregor (2002)

### **Tier 1 Support Committee**

Dr. Gavin Arteel  
Dr. Fred Benz  
Dr. Harrell Hurst