



*Department of Pharmacology & Toxicology*

*2003 Annual Report*

*University of Louisville*

*School of Medicine*

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**Department of Pharmacology and Toxicology-2003**

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## **I. Department Highlights**

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

### **Primary Appointment in the Department of Pharmacology & Toxicology**

- **Jian Cai PhD** was appointed Instructor of Pharmacology and Toxicology. Dr. Cai received his M.Sc. in Pharmaceutical Chemistry from the Shanghai Institute of Pharmaceutical Industry in Shanghai and his PhD in Pharmacology and Toxicology at the University of Louisville. He received further postdoctoral training in the Mass Spectrometry Core Laboratory and was appointed technical director of the facility.
- **Ramesh Gupta PhD** was appointed Professor of Pharmacology and Toxicology. Agnes Brown Duggan Chair in Oncological Research, and Distinguished University Scholar. Dr. Gupta received his PhD in Chemistry at the University of Roorkee (India). He completed a postdoctoral fellowship, and then was promoted to faculty status and received appointments as Instructor Assistant Professor and Associate Professor in the Department of Pharmacology at Baylor College of Medicine. In 1989, he was recruited as Professor in the Department of Preventive Medicine and the Graduate Center for Toxicology at the University of Kentucky. His research includes development and identification of intermediate biomarkers to investigate etiology and prevention of human cancers resulting from both environmental and endogenous exposures.

### **Joint Appointment in the Department of Pharmacology & Toxicology**

- **Jason Chesney, MD, PhD** was appointed Assistant Professor of Pharmacology and Toxicology. Dr. Chesney received both MD and PhD degrees in the NIH Medical Scientist Training Program at the University of Minnesota. He subsequently received further clinical and postdoctoral research training at Memorial Sloan-Kettering Cancer Center, New York-Presbyterian Hospital and Weill Medical College of Cornell University. He is presently Assistant Professor in the Department of Medicine (Division of Hematology/Oncology) and Deputy Director of the Molecular Targets Program at the James Graham Brown Cancer Center.
- **Teresa Whei-Mei Fan, PhD** was appointed Associate Professor of Pharmacology and Toxicology. She received her MS in Food Science from the University of Hawaii at Manoa and her PhD in Biochemistry from the University of California, Davis. She received further postdoctoral research training at Stanford University and at University of California, Davis. She is presently Associate Professor in the Department of Chemistry and a scientist in the Structural Biology Program at the James Graham Brown Cancer Center.

- **Michal Hetman, MD, PhD** was appointed Assistant Professor of Pharmacology and Toxicology. He received his MD from the Warsaw Medical School (Poland) and his PhD in Experimental and Clinical Medicine from the Polish Academy of Sciences in Warsaw. He completed postdoctoral studies in the Department of Pharmacology at the University of Washington and returned to Poland where he served as Assistant Professor in the Laboratory of Molecular Neurobiology at the International Institute of Molecular and Cellular Biology in Warsaw. He is assistant professor in the Department of Neurological Surgery and holds an endowed chair in molecular neurosignaling.
- **Mary Jayne Kennedy, PharmD** was appointed Assistant Professor of Pharmacology and Toxicology. She received the Doctor of Pharmacy from the Medical University of South Carolina. She completed a Pediatric Pharmacy Practice Specialty Residency at Ohio State University and Children's Hospital, a Pediatric Pharmacotherapy Fellowship at the University of North Carolina, and a post-doctoral fellowship in pediatric clinical pharmacology at the Children's Mercy Hospital in Kansas City, MO. Dr. Kennedy is Assistant Professor of Pediatrics and Associate Director of the Kosair Charities Pediatric Clinical Research Unit.

#### **Associate Appointment in the Department of Pharmacology & Toxicology**

- **Ye Qi Liu MD, PhD** was appointed Associate in Pharmacology and Toxicology. He received his MD from Guangxi Medical University in China and his Ph.D. in pharmacology from Osaka University Graduate School of Medicine in Japan. He completed postdoctoral fellowship training in the Department of Biochemistry at the University of Texas Southwestern Medical Center and in the Department of Medicine at the University of Vermont. He was promoted to a junior faculty member at the University of Vermont prior to his appointment here last March as Assistant Professor in the Department of Pediatrics.

#### **Adjunct Appointment in the Department of Pharmacology & Toxicology**

- **Jun-Yan Hong, PhD** was appointed Adjunct Professor of Pharmacology and Toxicology. He received his B.M. from Shanghai Medical University in 1977 and his Ph.D. in Biochemistry from the University of Medicine and Dentistry of New Jersey (UMDNJ). Following a brief postdoctoral appointment at UMDNJ, he moved to the Department of Chemical Biology and Pharmacognosy at Rutgers, where he completed a postdoctoral fellowship. He is presently professor in the School of Public Health and the Robert Wood Johnson School of Medicine at UMDNJ.
- **Kent Mitchell, PhD** was appointed Adjunct Assistant Professor of Pharmacology and Toxicology. He received his B.S. and M.S. from North Dakota State University and his Ph.D. in Biochemistry from Clemson University. Dr. Mitchell completed a postdoctoral fellowship in the Department of Environmental Health at the University of Cincinnati Medical Center and subsequently was appointed adjunct assistant professor. Dr. Mitchell is Senior Staff Scientist at the Wood Hudson Cancer Research Laboratory in Newport, Kentucky.

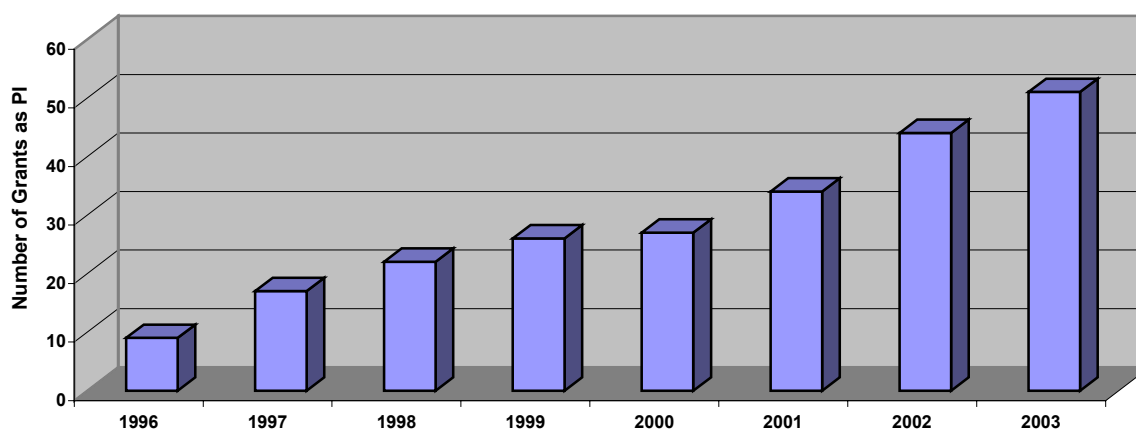
As described more fully in their annual reports, numerous faculty and students in the Department received honors and awards. Of particular note:

- 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 2005. It was the 13<sup>th</sup> time he has received this prestigious award.
- **Ramesh C. Gupta** was appointed Agnes Brown Duggan Chair in Oncological Research and Distinguished University Scholar.
- **Zhao-hui Song, PhD** and **J. Christopher States, PhD** were approved for tenure.
- **Zhao-hui Song, PhD** was promoted to associate professor.
- **Aruni Bhatnagar PhD** was promoted to Distinguished University Scholar and is principal investigator on the first NIH program project grant awarded to UofL. **William M Pierce, Jr., PhD** was director of the core laboratory for the award.
- **Donald M. Miller MD, PhD, John W. Eaton PhD** and **Jason Chesney MD, PhD** are investigators on the largest NIH COBRE grant ever awarded to UofL. Dr. Miller also received the Mint Jubile Life Achievement Award.
- **Janice Sullivan MD** and **Mary Jayne Kennedy PharmD** are Director and Co-Director for the Pediatric Pharmacology Research Unit, a program funded by NIH beginning January, 2004.
- **Frederick W. Benz PhD** and **Harrell E. Hurst PhD** were honored for 25 years of service to the University of Louisville.
- **M. Michele Pisano PhD** and **Leonard C. Waite PhD** were selected as nominees by the School of Dentistry and the School of Medicine, respectively, for University of Louisville President Awards.
- **Daniel Sessler, MD** was elected “Distinguished Faculty” by the Alpha Omega Alpha Medical Honor Society.
- **Craig J. McClain, MD** was appointed to the NIH Center for Scientific Review Advisory Committee.
- **David W. Hein PhD** received the University of Louisville President’s Award for Outstanding Research, Scholarship, and Creative Activity and was selected for the Aster Visiting Professorship at the University of Oxford.
- **Jason Lambert, PhD** was selected for the KC Huang Outstanding Graduate Student Award.

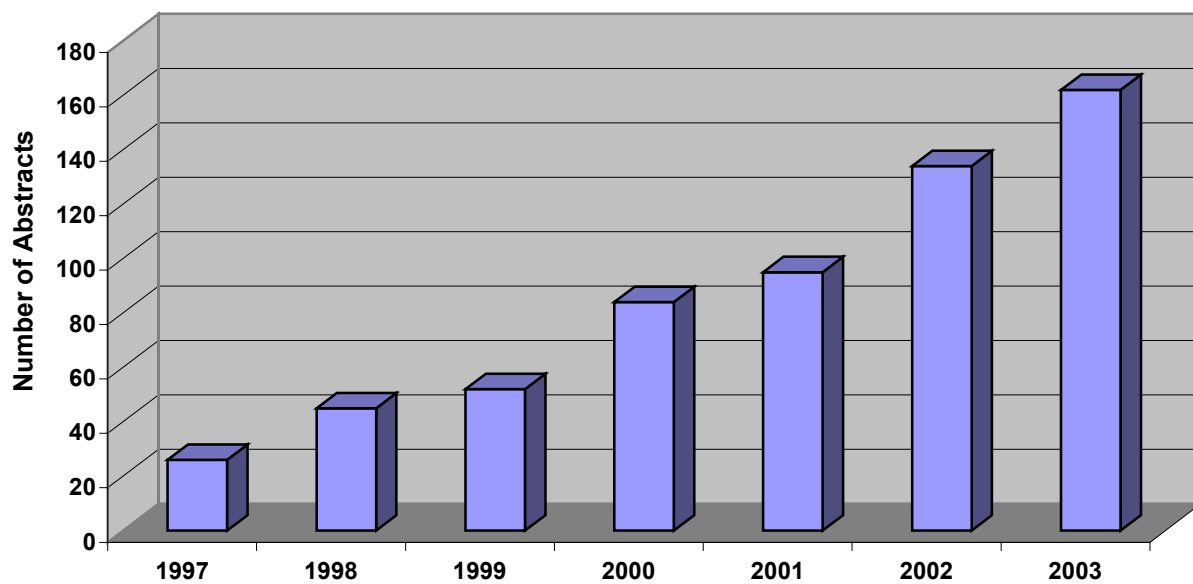
- **Anwar Husain** (MD/PhD student in the laboratory of **David W. Hein, PhD**) received an individual NRSA fellowship for his dissertation research
- **Frazier Taylor** (MD/PhD student in the laboratory of **J. Christopher States, PhD**) received first place in medical student research competition at Research!Louisville.
- **Brandon Kellie** (undergraduate student in the laboratory of **Zhao-hui Song, PhD**) received first place in research poster competition at the Kentucky Academy of Science.
- **Yu (Janet) Zang** (graduate student in the laboratory of **David W. Hein, PhD**) received second place award at the annual meeting of the Ohio Valley Society of Toxicology.

We received an excellent score on our NIEHS predoctoral training grant proposal (in partnership with the Department of Biochemistry and Molecular Biology) and have been notified it will be funded effective July 1, 2004. This represents the first predoctoral training grant awarded to UofL. Department faculty were instrumental in the first program project grant, the first Pediatric Pharmacology Research Unit and the largest COBRE awards to UofL during the past year. The Department underwent a successful program review. Several outstanding new faculty members are joining the faculty in 2004 and will be introduced in next year's report.

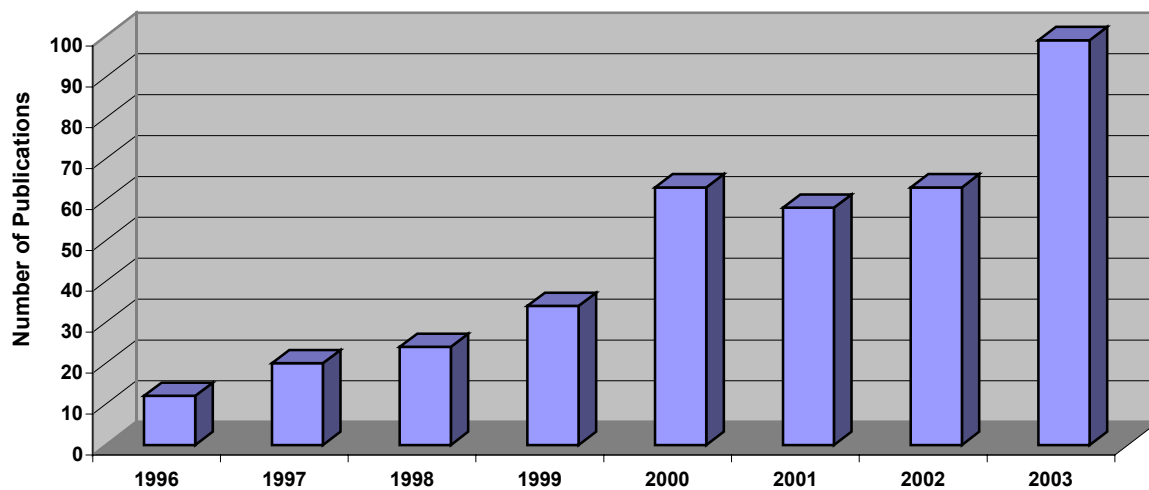
Departmental productivity measures such as number of research grants (Fig. 1), abstracts (Fig. 2) publications (Fig. 3), number of graduate students (Fig. 4), and number of graduates (Fig. 5) suggest that the Department is progressing towards its goal to excel in its teaching, research, and service missions.



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

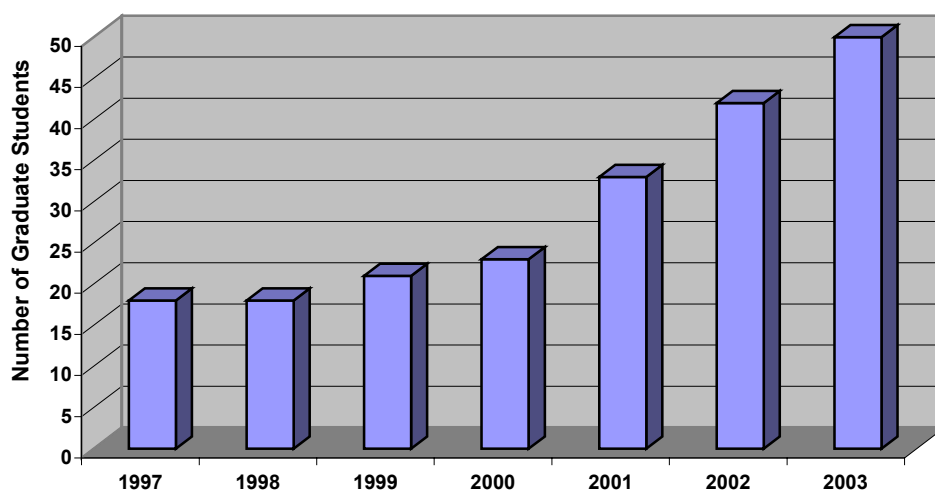


**Figure 2. Department abstracts by year**

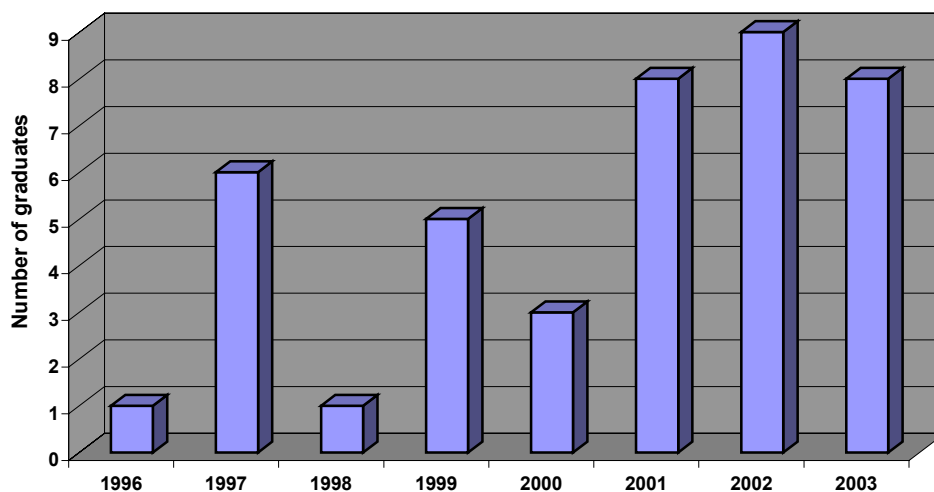


**Figure 3. Department publications by year.**





**Figure 4. Department graduate students by year.**



**Figure 5. Department graduates by year.**

## **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, Ph.D. (Indian Institute of Science)**

**Associate Professor**

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

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**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.

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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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**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.

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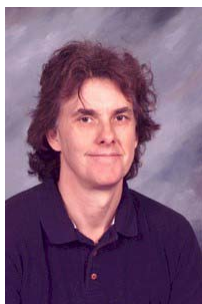


**David E. Clouthier, Ph.D. (University of Texas Southwestern)**

**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 Na,K-ATPase activity; fluorescence imaging studies on cytoplasmic calcium; cellular proton transport.

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

**Associate Professor**

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

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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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**Evelyn 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.

---



**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.

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**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.

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**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.

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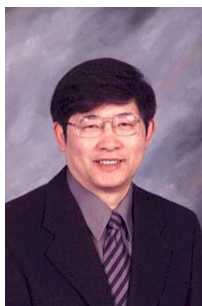


**Harrell E. Hurst, Ph.D. (University of Kentucky)**

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

**Assistant Professor**

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

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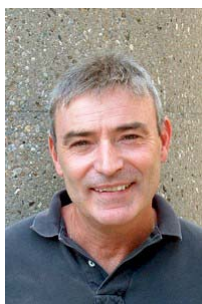
**Craig J. McClain, M.D. (University of Tennessee, Memphis)**

**Professor**

**University Distinguished Chair in Hepatology**

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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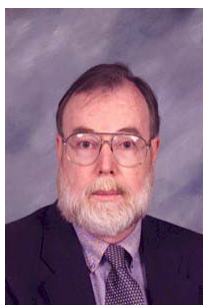


**Steven R. Myers, Ph.D.** (University of Kentucky)

**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 developmental 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. 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.

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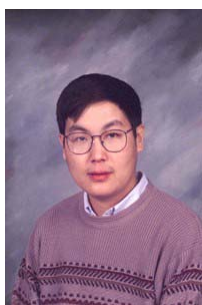
**Daniel I. Sessler, M.D.** (Columbia University)

**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)

**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.

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**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.

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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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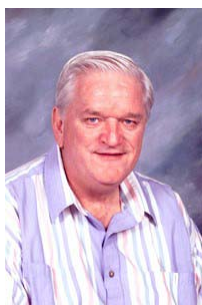


**David J. Tollerud, M.D., M.P.H.**  
(M.D., Mayo Medical School; M.P.H., Harvard University)

**Professor**

Occupational and environmental health; 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. 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.

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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).

**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).

**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**, 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**, 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).

**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; M.D., Warsaw Medical School (1994); Ph.D., Experimental and Clinical Medicine, Polish Academy of Sciences (1997).

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

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

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

**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 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).

**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).

**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**, 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).

**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).

**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).

**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, Jian**, Instructor, effective February 1, 2003

**Chesney, Jason**, Assistant Professor (joint appointment), effective March 1, 2003

**Fan, Theresa**, Associate Professor (joint appointment), effective February 1, 2003

**Gupta, Ramesh**, Professor of Pharmacology and Toxicology, and Agnes Brown Duggan Chair of Oncological Research, effective April 1, 2003

**Hetman, Michal**, Assistant Professor (joint appointment), effective April 1, 2003

**Hong, Jun-Yan**, Adjunct Professor, effective January 1, 2003

**Kennedy, Mary Jayne**, Assistant Professor-term (joint appointment), effective February 1, 2003



**Liu, Ye**, Associate appointment, effective May 1, 2003

**Mitchell, Kent**, Adjunct Assistant Professor, effective February 1, 2003

### **Staff**

**Aiyer, Harini**, Research Assistant  
**Arteel, Maia**, Laboratory Assistant  
**Barker, David**, Research Associate  
**Baumgarten, Sara**, Student Assistant  
**Buck, Joshua**, Student Assistant  
**Burke, Tom**, Research Technologist II  
**Carpenter, Sharon**, Executive Secretary  
**Doll, Mark**, Research Associate  
**Greca, Edie**, Business Manager III  
**Kellie, Brandon**, Student Assistant  
**Lederer, Paul**, Student Assistant  
**Liu, Marcia**, Research Associate  
**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  
**Vadhanam, Manicka**, Senior Research Associate  
**Venugopal, Kamal**, Research Associate  
**Wright, Terry**, Research Associate

## Continuing Graduate Students

<b>Name</b>	<b>Advisor</b>
Cristian Campian	Fred Benz
Wendy Chang	Theresa Chen
Hainan Chen	Paul Epstein
Denise Clark	Glenn McGregor
Chris Cunningham	Steve Myers
Chad Dumstorf	Glenn McGregor
Laila Elsherif	James Kang
April Hartford	Nick Delamere
Prachi Hote	Shirish Barve
Anwar Husain	David Hein
Aleksandr Krivtsov	Len Waite
Jason Lambert	James Kang
Jian Li	John Eaton
Nina Li	Paul Epstein
Jin Liu	Michael Brier
Jennifer Loehle	David Hein
Kevyn Merten	James Kang
Kristin Metry	David Hein
Tanvi Modi	Shirish Barve
Miranda Nebane	Joe Song
John Philipose	Michele Pisano
Paul Porter	Chris States
Stephen Reeves	David Gozal
Katie Richardson	Gavin Arteel
Lebnan Saad	David Gozal
Clare Shen	Paul Epstein
Cindy Wang	David Gozal
Nick Watson	Glenn McGregor
Terry Wright	Steve Myers
Janet Zang	David Hein
Rundong Zhang	Joe Song
Yuanqi Zhu	David Hein

## **New Graduate Students**

Balasubramanian Manickam  
Barr, Johnny  
Carrasquer, Alex  
Davis, Molly  
Habas, Agata  
McNeely, Sam  
Mosley, Lasharon  
Mullins, Sheila  
Nebane, Miranda  
Njie, YaFatou  
Reeves, Steve  
Russell, Gilandra  
Taylor, Frazier  
Thornburg, Joshua  
Wang, Lipeng  
Walraven, Jason  
Wiegand, Christina  
Zhang, Susan

## **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

**Jian Li**, Ph.D., 2003.

Mentor: John W. Eaton, Ph.D.

Dissertation Title: Oxygen toxicity and mitochondrial metabolism

**Yu (Janet) Zang**, M.S., 2003

Mentor: David W. Hein, Ph.D.

Thesis Title: Mechanistic studies on the T341C (Ile114Thr) single nucleotide polymorphism of human N-acetyltransferase 2

**Rundong (Ray) Zhang**, M.S., 2003

Mentor: Zhao-Hui (Joe) Song, Ph.D.

Thesis Title: Cysteine 89(2.69) in the second transmembrane domain of human CB2 receptor is exposed in the ligand binding crevice

**Hainan Chen**, Ph.D., 2003

Mentor: Paul N. Epstein, Ph.D.

Dissertation Title: Studies on the effects of pancreatic beta cell antioxidant transgenes on experimental models of diabetes

**Terry L. Wright, Jr.**, M.S., 2003

Mentor: Gavin E. Arteel, Ph.D.

Thesis Title: The TNFalpha paradox in ischemic heart disease

**Denise R. Clark**, M.S., 2003

Mentor: W. Glenn McGregor, M.D.

Thesis Title: Ribozyme-mediated *REVIL* inhibition reduces UV-induced mutations in the human *HPRT* gene

**Paul C. Porter**, M.S., 2003

Mentor: J. Christopher States, Ph.D.

Thesis Title: Detection and functional analysis of polymorphic XPA alleles

**Jason C. Lambert**, Ph.D., 2003

Mentor: Y. James Kang, Ph.D.

Dissertation Title: Zinc inhibition of acute ethanol-induced liver injury

## VI. Publications (salaried and emeritus faculty)

### Papers

1. Arif JM and Gupta RC (2003) Artifactual formation of 8-oxo-2'-deoxyguanosine: role of fluorescent light and inhibitors. *Oncology Reports* **10**:2071-2074.
2. Arif JM, Lehmler HJ, Robertson LW, and Gupta RC (2003) Interaction of benzoquinone- and hydroquinone derivatives of lower chlorinated biphenyls with DNA and nucleotides in vitro. *Chemico-Biological Interactions* **142**:307-316.
3. Arteel GE (2003) Oxidants and antioxidants in alcohol-induced liver disease. *Gastroenterology* **124**:778-790.
4. Arteel GE, Marsano L, Mendez C, Bentley F, and McClain CJ (2003) Advances in alcoholic liver disease. *Best Practice and Research Clinical Gastroenterology* **17**:625-647.
5. Brosseau OEF, Mahdjoub R, Seurin MJ, Thiriet P, Gozal D, and Briguet A (2003) Kinetics of anaerobic metabolism in human skeletal muscle: influence of repetitive high-intensity exercise on sedentary dominant and non-dominant forearm. A P-31 NMR study. *Biochimie* **85**:885-890.
6. Bukaveckas BL, Pierce WM, and Steffen JM (2003) Birds as bioindicators of urban lead pollution. *Sustain* **8**:32-40.
7. Cai L and Kang YJ (2003) Cell death and diabetic cardiomyopathy. *Cardiovascular Toxicology* **3**:219-228.
8. Carlson EC, Audette JL, Veitenheimer NJ, Risan JA, Laternus DI, and Epstein PN (2003) Ultrastructural morphometry of capillary basement membrane thickness in normal and transgenic diabetic mice. *Anatomical Record Part A-Discoveries in Molecular Cellular and Evolutionary Biology* **271A**:332-341.
9. Carr L, Tucker A, and Fernandez-Botran R (2003) The enhancement of T cell proliferation by L-dopa is mediated peripherally and does not involve interleukin-2. *Journal of Neuroimmunology* **142**:166-169.
10. Carr L, Tucker A, and Fernandez-Botran R (2003) In vivo administration of L-dopa or dopamine decreases the number of splenic IFN gamma-producing cells. *Journal of Neuroimmunology* **137**:87-93.
11. Cheng, Z.J., Zhang, H., Guo, S.Z., Wurster, R., and Gozal, D. (2003) Differential control over postganglionic neurons in rat cardiac ganglia by NA and DmnX neurons: anatomical evidence. *Am. J. Physiol. Regul. Integr. Comp. Physiol.* 11-26.

12. Cheng, Z.J., Zhang, H., Yu, J., Wurster, R.D., and Gozal, D. (2003) Attenuation of baroreflex sensitivity after domoic acid lesion of the nucleus ambiguus of rats. *J. Appl. Physiol.* 11-14.
13. Clark DR, Zacharias W, Panaitescu L, and McGregor WG (2003) Ribozyme-mediated REV1 inhibition reduces the frequency of UV-induced mutations in the human HPRT gene. *Nucleic Acids Research* **31**:4981-4988.
14. Crabtree VM, Ivanenko A, and Gozal D (2003) Clinical and parental assessment of sleep in children with attention-deficit/hyperactivity disorder referred to a pediatric sleep medicine center. *Clinical Pediatrics* **42**:807-813.
15. Crabtree VM, Ivanenko A, O'Brien LM, and Gozal D (2003) Periodic limb movement disorder of sleep in children. *Journal of Sleep Research* **12**:73-81.
16. Diaz M, Watson NB, Turkington G, Verkoczy LK, Klinman NR, and McGregor WG (2003) Decreased frequency and highly aberrant spectrum of ultraviolet-induced mutations in the hprt gene of mouse fibroblasts expressing antisense RNA to DNA polymerase zeta. *Molecular Cancer Research* **1**:836-847.
17. Doll, M. A., Zang, Y., Yeager, M., Welch, R., Chanock, S., and Hein, D. W. Homo sapiens N-acetyltransferase 2 (NAT2) gene, NAT2\*12D allele, complete cds. AY23051 . 2003. Ref Type: Electronic Citation
18. Doll, M. A., Zang, Y., Yeager, M., Welch, R., Chanock, S., and Hein, D. W. Homo sapiens N-acetyltransferase 2 (NAT2) gene, NAT2\*5I allele, complete cds. AY23052 . 2003. Ref Type: Electronic Citation
19. Duan JH, Zhang HY, Adkins SD, Ren BH, Norby FL, Zhang XC, Benoit JN, Epstein PN, and Ren J (2003) Impaired cardiac function and IGF-I response in myocytes from calmodulin-diabetic mice: role of Akt and RhoA. *American Journal of Physiology-Endocrinology and Metabolism* **284**:E366-E376.
20. Elsherif L, Ortines RV, Saari JT, and Kang YJ (2003) Congestive heart failure in copper-deficient mice. *Experimental Biology and Medicine (Maywood.)* **228**:811-817.
21. Feitelson JBA, Rowell PP, Roberts CS, and Fleming JT (2003) Two week nicotine treatment selectively increases bone vascular constriction in response to norepinephrine. *Journal of Orthopaedic Research* **21**:497-502.
22. Feng W and Song ZH (2003) Effects of D3.49A, R3.50A, and A6.34E mutations on ligand binding and activation of the cannabinoid-2 (CB2) receptor. *Biochemical Pharmacology* **65**:1077-1085.
23. Fretland AJ, Devanaboyina US, Doll MA, Zhao S, Xiao GH, and Hein DW (2003) Metabolic activation of 2-hydroxyamino-1-methyl-6-phenylimidazo[4,5-b]pyridine in

- Syrian hamsters congenic at the N-acetyltransferase 2 (NAT2) locus. *Toxicological Sciences* **74**:253-259.
24. Gago-Dominguez M, Bell DA, Watson MA, Yuan JM, Castelao JE, Hein DW, Chan KK, Coetzee GA, Ross RK, and Yu MC (2003) Permanent hair dyes and bladder cancer: risk modification by cytochrome P4501A2 and N-acetyltransferases 1 and 2. *Carcinogenesis* **24**:483-489.
  25. Goldbart A, Row BW, Kheirandish L, Schurr A, Gozal E, Guo SZ, Payne RS, Cheng Z, Brittian KR, and Gozal D (2003) Intermittent hypoxic exposure during light phase induces changes in cAMP response element binding protein activity in the rat CA1 hippocampal region: Water maze performance correlates. *Neuroscience* **122**:585-590.
  26. Goldbart A, Cheng ZJ, Brittian KR, and Gozal D (2003) Intermittent hypoxia induces time-dependent changes in the protein kinase B signaling pathway in the hippocampal CA1 region of the rat. *Neurobiology of Disease* **14**:440-446.
  27. Golden R, Doull J, Waddell W, and Mandel J (2003) Potential human cancer risks from exposure to PCBs: a tale of two evaluations. *Critical Reviews in Toxicology* **33**:543-580.
  28. Gozal D, Reeves SR, Row BW, Neville JJ, Guo SZ, and Lipton AJ (2003) Respiratory effects of gestational intermittent hypoxia in the developing rat. *American Journal of Respiratory and Critical Care Medicine* **167**:1540-1547.
  29. Gozal D, Row BW, Gozal E, Kheirandish L, Neville JJ, Brittian KR, Sachleben LR, and Guo SZ (2003) Temporal aspects of spatial task performance during intermittent hypoxia in the rat: evidence for neurogenesis. *European Journal of Neuroscience* **18**:2335-2342.
  30. Gozal D, Row BW, Kheirandish L, Liu R, Guo SZ, Qiang F, and Brittian KR (2003) Increased susceptibility to intermittent hypoxia in aging rats: changes in proteasomal activity, neuronal apoptosis and spatial function. *Journal of Neurochemistry* **86**:1545-1552.
  31. Gozal D (2003) Respiratory control: an esoteric zebra or a day-to-day workhorse? *Rev. Mal. Respir.* **20**:37-40.
  32. Gozal D (2003) Sleeping figures and daytime tales: Will they become the last bedtime story for our children? *Sleep* **26**:504-505.
  33. Gozdz A, Habas A, Jaworski J, Zielinska M, Albrecht J, Chlystun M, Jalili A, and Hetman M.(2003) Role of N-methyl-D-aspartate receptors in the neuroprotective activation of Extracellular Signal Regulated Kinase1/2 by Cisplatin. *Journal of Biological Chemistry* **278**:43663-43671.
  34. Hartford AK, Messer ML, Moseley AE, Lingrel JB, and Delamere NA (2003) Na,K-ATPase 2 inhibition alters calcium responses in optic nerve astrocytes. *GLIA* **45**:229-237.

35. Hein DW, Doll MA, Xiao GH, and Feng Y (2003) Prostate expression of N-acetyltransferase 1 (NAT1) and 2 (NAT2) in rapid and slow acetylator congenic Syrian hamster. *Pharmacogenetics* **13**:159-167.
36. Hein DW (2003) Pharmacogenomics: Social, Ethical, and Clinical Dimensions (book review). *Environmental Health Perspectives-Toxicogenomics* **11**:A360.
37. Hintz KK, Relling DP, Saari JT, Borgerding AJ, Duan JH, Ren BH, Kato K, Epstein PN, and Ren J (2003) Cardiac overexpression of alcohol dehydrogenase exacerbates cardiac contractile dysfunction, lipid peroxidation, and protein damaged after chronic ethanol ingestion. *Alcoholism-Clinical and Experimental Research* **27**:1090-1098.
38. Hui AS, Striet JB, Gudelsky G, Soukhova GK, Gozal E, Beitner-Johnson D, Guo SZ, Sachleben LR, Haycock JW, Gozal D, and Czyzyk-Krzeska MF (2003) Regulation of catecholamines by sustained and intermittent hypoxia in neuroendocrine cells and sympathetic neurons. *Hypertension* **42**:1130-1136.
39. Isayama F, Froh M, Bradford BU, Mckim SE, Kadiiska M, Connor HD, Mason RP, Koop DR, Wheeler MD, and Arteel GE (2003) The CYP inhibitor 1-aminobenzotriazole does not prevent oxidative stress associated with alcohol-induced liver injury in rats and mice. *Free Radical Biology and Medicine* **35**:1568-1581.
40. Ivanenko A, Crabtree VM, Tauman R, and Gozal D (2003) Melatonin in children and adolescents with insomnia: A retrospective study. *Clinical Pediatrics* **42**:51-58.
41. Ivanenko A, Tauman R, and Gozal D (2003) Modafinil in the treatment of excessive daytime sleepiness in children. *Sleep Medicine* **4**:579-582.
42. Jaworski J, Mioduszezewska B, Sanchez-Capelo A, Figiel I, Habas A, Gozdz A, Proszynski T, and Hetman M (2003) Inducible cAMP early repressor, an endogenous antagonist of cAMP responsive element-binding protein, evokes neuronal apoptosis in vitro. *Journal of Neuroscience* **23**:4519-4526.
43. Jiang GH, Skorvaga M, Van Houten B, and States JC (2003) Reduced sulfhydryls maintain specific incision of BPDE-DNA adducts by recombinant thermoresistant *Bacillus caldotenax* UvrABC endonuclease. *Protein Expression and Purification* **31**:88-98.
44. Jones KL, Krous HF, Nadeau J, Blackbourne B, Zielke HR, and Gozal D (2003) Vascular endothelial growth factor in the cerebrospinal fluid of infants who died of sudden infant death syndrome: Evidence for antecedent hypoxia. *Pediatrics* **111**:358-363.
45. Kang YJ (2003) New understanding in cardiotoxicity. *Current Opinion Drug Discovery and Development* **6**:110-116.
46. Kang YJ, Li Y, Sun X, and Sun X (2003) Antiapoptotic effect and inhibition of ischemia/reperfusion-induced myocardial injury in metallothionein-overexpressing transgenic mice. *American Journal of Pathology* **163**:1579-1586.



47. Kang, YJ, Li Y, Zhou Z, Roberts AM, Cai L, Meyers SR, Wang L and Schuschke DA (2003) Elevation of serum endothelins and cardiotoxicity induced by particulate matter (PM<sub>2.5</sub>) in rats with myocardial infarction. *Cardiovascular Toxicology* **2**:253-262.
48. Klein JB, Gozal D, Pierce WM, Thongboonkerd V, Scherzer JA, Sachleben LR, Guo SZ, Cai J, and Gozal E (2003) Proteomic identification of a novel protein regulated in CA1 and CA3 hippocampal regions during intermittent hypoxia. *Respiratory Physiology & Neurobiology* **136**:91-103.
49. Lambert JC, Zhou Z, and Kang YJ (2003) Suppression of Fas-mediated signaling pathway is involved in zinc inhibition of ethanol-induced liver apoptosis. *Experimental Biology and Medicine (Maywood.)* **228**:406-412.
50. Lambert JC, Zhou Z, Wang L, Song Z, McClain CJ, and Kang YJ (2003) Prevention of alterations in intestinal permeability is involved in zinc inhibition of acute ethanol-induced liver damage in mice. *Journal of Pharmacology and Experimental Therapeutics* **305**:880-886.
51. Lan Q, Rothman N, Chow WH, Lissowska J, Doll MA, Xiao GH, Zatonski W, and Hein DW (2003) No apparent association between NAT1 and NAT2 genotypes and risk of stomach cancer. *Cancer Epidemiology Biomarkers & Prevention* **12**:384-386.
52. Lee KM, Park SK, Kim SU, Doll MA, Yoo KY, Ahn SH, Noh DY, Hirvonen A, Hein DW, and Kang D (2003) N-acetyltransferase (NAT1, NAT2) and glutathione S-transferase (GSTM1, GSTT1) polymorphisms in breast cancer. *Cancer Letters* **196**:179-186.
53. Lehnert M, Arteel GE, Smutney OM, Conzelmann LO, Zhong Z, Thurman RG, and Lemasters JJ (2003) Dependence of liver injury after hemorrhage/resuscitation in mice on NADPH oxidase-derived superoxide. *Shock* **19**:345-351.
54. Li BL, Xu W, Luo C, Gozal D, and Liu RG (2003) VEGF-induced activation of the PI3-K/Akt pathway reduces mutant SOD1-mediated motor neuron cell death. *Molecular Brain Research* **111**:155-164.
55. Li RC, Row BW, Gozal E, Kheirandish L, Fan QA, Brittian KR, Guo SZ, Sachleben LR, and Gozal D (2003) Cyclooxygenase 2 and intermittent hypoxia-induced spatial deficits in the rat. *American Journal of Respiratory and Critical Care Medicine* **168**:469-475.
56. Li Y, Wo JM, Cai L, Zhou Z, Rosenbaum D, Mendez C, Ray MB, Jones WF, and Kang YJ (2003) Association of metallothionein expression and lack of apoptosis with progression of carcinogenesis in Barrett's esophagus. *Experimental Biology and Medicine (Maywood.)* **228**:286-292.
57. Lipton AJ and Gozal D (2003) Treatment of obstructive sleep apnea in children: do we really know how? *Sleep Medicine Reviews* **7**:61-80.

58. Martin, R. C. G., Hughes, K., Doll, M. A., Rothman, N., and Hein, D. W. Homo sapiens manganese superoxide dismutase gene, 5' flanking sequence. AY397775 . 2003. Ref Type: Electronic Citation
59. Mckim SE, Gabele E, Isayama F, Lambert JC, Tucker LM, Wheeler MD, Connor HD, Mason RP, Doll MA, Hein DW, and Arteel GE (2003) Inducible nitric oxide synthase is required in alcohol-induced liver injury: Studies with knockout mice. *Gastroenterology* **125**:1834-1844.
60. Mckim SE, Uesugi T, Raleigh JA, McClain CJ, and Arteel GE (2003) Chronic intragastric alcohol exposure causes hypoxia and oxidative stress in the rat pancreas. *Archives of Biochemistry and Biophysics* **417**:34-43.
61. Montgomery-Downs HE, Jones VF, Molfese VJ, and Gozal D (2003) Snoring in preschoolers: Associations with sleepiness, ethnicity, and learning. *Clinical Pediatrics* **42**:719-726.
62. Myers SR (2003) Public and environmental health concerns in the 21st century. *Sustain* **9**:44-53.
63. Nerland DE, Cai J, and Benz FW (2003) Selective covalent binding of acrylonitrile to Cys 186 in rat liver carbonic anhydrase III in vivo. *Chemical Research in Toxicology* **16**:583-589.
64. O'Brien LM, Holbrook CR, Mervis CB, Klaus CJ, Bruner JL, Raffield TJ, Rutherford J, Mehl RC, Wang M, Tuell A, Hume BC, and Gozal D (2003) Sleep and neurobehavioral characteristics of 5-to 7-year-old children with parentally reported symptoms of attention-deficit/hyperactivity disorder. *Pediatrics* **111**:554-563.
65. O'Brien LM, Ivanenko A, Crabtree VM, Holbrook CR, Bruner JL, Klaus CJ, and Gozal D (2003) Sleep disturbances in children with attention deficit hyperactivity disorder. *Pediatric Research* **54**:237-243.
66. O'Brien LM, Ivanenko A, Crabtree VM, Holbrook CR, Bruner JL, Klaus CJ, and Gozal D (2003) The effect of stimulants on sleep characteristics in children with attention deficit/hyperactivity disorder. *Sleep Medicine* **4**:309-316.
67. Pierce WM, Jr. (2003) Introduction to proteomics: Tools for the new biology (book review). *Environmental Health Perspectives* **111**:A850.
68. Powell DW, Rane MJ, Joughin BA, Kalmukova R, Hong JH, Tidor B, Dean WL, Pierce WM, Klein JB, Yaffe MB, and McLeish KR (2003) Proteomic identification of 14-3-3 zeta as a mitogen-activated protein kinase-activated protein kinase 2 substrate: Role in dimer formation and ligand binding. *Molecular and Cellular Biology* **23**:5376-5387.

69. Reeves SR, Gozal E, Guo SZ, Sachleben LR, Brittian KR, Lipton AJ, and Gozal D (2003) Effect of long-term intermittent and sustained hypoxia on hypoxic ventilatory and metabolic responses in the adult rat. *Journal of Applied Physiology* **95**:1767-1774.
70. Row BW, Liu RG, Xu W, Kheirandish L, and Gozal D (2003) Intermittent hypoxia is associated with oxidative stress and spatial learning deficits in the rat. *American Journal of Respiratory and Critical Care Medicine* **167**:1548-1553.
71. Row BW, Goldbart A, Gozal E, and Gozal D (2003) Spatial pre-training attenuates hippocampal impairments in rats exposed to intermittent hypoxia. *Neuroscience Letters* **339**:67-71.
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74. Simakajornboon N, Gozal D, Vlasic V, Mack C, Sharon D, and McGinley BM (2003) Periodic limb movements in sleep and iron status in children. *Sleep* **26**:735-738.
75. Singh S, Powell DW, Rane MJ, Millard TH, Trent JO, Pierce WM, Klein JB, Machesky LM, and McLeish KR (2003) Identification of the p16-Arc subunit of the Arp 2/3 complex as a substrate of MAPK-activated protein kinase 2 by proteomic analysis. *Journal of Biological Chemistry* **278**:36410-36417.
76. Smith RL, Cohen SM, Doull J, Feron VJ, Goodman JI, Marnett LJ, Portoghesi PS, Waddell WJ, Wagner BM, and Adams TB (2003) GRAS flavoring substances 21. *Food Technology* **57**:46-59.
77. Song Y, Song Z, Zhang L, McClain CJ, Kang YJ, and Cai L (2003) Diabetes enhances lipopolysaccharide- induced cardiac toxicity in the mouse model. *Cardiovascular Toxicology* **3**:363-372.
78. Song Z, Zhou Z, Chen T, Hill D, Kang J, Barve S, and McClain C (2003) S-adenosylmethionine (SAME) protects against acute alcohol induced hepatotoxicity in mice. *Journal of Nutritional Biochemistry* **14**:591-597.
79. Song Z, Barve S, Chen T, Nelson W, Uriarte S, Hill D, and McClain C (2003) S-adenosylmethionine (AdoMet) modulates endotoxin stimulated interleukin-10 production in monocytes. *American Journal of Physiology Gastrointestinal Liver Physiology* **284**:G949-G955.
80. Tampal N, Myers S, and Robertson LW (2003) Binding of polychlorinated biphenyls/metabolites to hemoglobin. *Toxicology Letters* **142**:53-60.

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82. Vadhanam MV, Horn J, Flesher JW, and Gupta RC (2003) Detection of benzylic adducts in DNA and nucleotides from 7-sulfooxymethyl-12-methylbenz[a]anthracene and related compounds by P-32-postlabeling using new TLC systems. *Chemico-Biological Interactions* **146**:81-87.
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84. Waddell WJ (2003) Untitled - Reply to Gaylor. *Toxicologic Pathology* **31**:711.
85. Waddell WJ (2003) Rebuttal to Haseman. *Toxicologic Pathology* **31**:712-713.
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### **VIII. Abstracts (salaried faculty and staff, and emeritus)**

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125. Cheng Z, Zhang H, Soukhova GK, Gozal D. (2003) Morphological changes of nucleus ambiguus (NA) projections to the cardiac ganglia in rats following postnatal intermittent hypoxia (IH). Presented at: *33rd Annual Meeting of the Society for the Neurosciences*, New Orleans, LA, Program No. **501.7**.
126. Xu W, Luo C, Qiu M, Gozal D, Liu R. (2003) Increased reactive oxygen species production contributes to neuronal cell apoptosis in the compression injured mouse spinal cord. Presented at: *33rd Annual Meeting of the Society for the Neurosciences*, New Orleans, LA. Program No. **553.1**.
127. Kheirandish L, Row BW, Gozal D. (2003) Post-natal intermittent hypoxia (IH) induces long-term impairment of spatial working memory and decreased dendritic branching in the frontal cortex of the rat. Presented at: *33rd Annual Meeting of the Society for the Neurosciences*, New Orleans, LA, Program No. **616.10**.
128. Row BW, Kheirandish L, Gozal D. (2003) Chronic intermittent hypoxia (cih) decreases choline acetyltransferase (CHAT) immunoreactivity in basal forebrain and impairs spatial working memory in the rat. Presented at: *33rd Annual Meeting of the Society for the Neurosciences*, New Orleans, LA, Program No. **616.11**.
129. Wang GJ, Pham CD, Gozal D. (2003) alteration of calcium homeostasis induced by intermittent hypoxia in cultured rat hippocampal neurons. Presented at: *33rd Annual Meeting of the Society for the Neurosciences*, New Orleans, LA, Program No. **616.12**.
130. Xu W, Row BW, Chi L, Xu B, Luo C, Kheirandish L, Gozal D, Liu R. (2003) Increased oxidative stress is associated with chronic intermittent hypoxia-mediated brain cortical neuronal cell apoptosis in a mouse model. Presented at: *33rd Annual Meeting of the Society for the Neurosciences*, New Orleans, LA, Program No. **776.8**.

131. Gozal D, Vega C, Fan Q, Gozal E. (2003) Metabolic Adaptations to Sustained Hypoxia in Primary Rat Astrocyte Cultures: Evidence for Time-dependent Regulation of Glucose and Lactate Transport. Presented at : *2003 ALA/ATS International Conference*, Seattle, WA. Abstracted in: *Am. J. Resp. Crit. Care Med.* **A174**.
132. Goldbart AD, Schurr A, Brittian KR, Gozal E, Guo SR, Payne RS, Gozal D. (2003) Intermittent Hypoxia During Sleep Elicits Time-dependent Changes in Protein Kinase B/Akt and CREB Phosphorylation in Rat CA1 Region of the Hippocampus : Implications for Long-term Potentiation. Presented at : *2003 ALA/ATS International Conference*, Seattle, WA. Abstracted in: *Am. J. Resp. Crit. Care Med.* **A15**.
133. Anna Hui, Justin B. Striet Dana Beitner-Johnson, Evelyne Gozal, David Gozal and Maria F. Czyzyk-Krzeska. (2003) Regulation of catecholaminergic synthesizing enzymes in carotid bodies, superior cervical ganglia and adrenal glands by intermittent and sustained hypoxia. Presented at: *Experimental Biology Meeting*, San Diego, CA. Abstracted in: *FASEB J.***17:A952**.
134. Maria F. Czyzyk-Krzeska, Phillip O. Schnell, Justin B. Striet, Anna Hui, Marc G. Wathélet, David Gozal, Evelyne Gozal (2003) Role of hypoxia and calcium in regulation of p300/CBP transcription co-activators in carotid body and pheochromocytoma PC12 cells. Presented at: *Experimental Biology Meeting*, San Diego, CA. Abstracted in: *FASEB J.***17:A17**.
135. S.Z.Guo, J.B. Klein, Rane M.J., Butt W., Mc Leish K.R., Gozal E., Gozal D. (2003) Baclofen increases neutrophil influx following brain ischemia/reperfusion: A role for GABA B receptor dependent neutrophil chemotaxis. Presented at: *33th Annual Meeting of the Society for Neuroscience*, New Orleans, LA. Vol 29, abstract # 101.3.
136. M.S. DeMatteis, E. Gozal, D. Gozal. (2003) Both sleep fragmentation and intermittent hypoxia are associated with altered glucoregulatory mechanisms in the mouse. Presented at: *33th Annual Meeting of the Society for Neuroscience*, New Orleans, LA. Vol 29, abstract # 341.3.
137. Z.A. Shah, E. Gozal, L.R. Sachleben Jr., S.Z. Guo, S.R. Reeves, D. Gozal. (2003) Intermittent and sustained hypoxia differentially regulate PKC isoform translocation in dorsocaudal brainstem of the rat. Presented at: *33th Annual Meeting of the Society for Neuroscience*, New Orleans, LA. Vol 29, abstract # 241.4.
138. S.X.L. Zhang, M. Rane, L.R. Sachleben, Jr., R. Wu, Y. Wang, D. Gozal, E. Gozal. (2003) Hypoxia induction of Heme oxygenase-1 is Akt-dependent and protects PC-12 cells from apoptosis. Presented at: *33th Annual Meeting of the Society for Neuroscience*, New Orleans, LA. Vol 29, abstract # 346.7.
139. E. Gozal, S.X.L. Zhang, L.R. Sachleben, Jr., R. Wu, D. Gozal, M. Rane. (2003) Hypoxia induces binding to Akt signaling module and phosphorylation of heat shock proteins in PC-12

cells. Presented at: *33th Annual Meeting of the Society for Neuroscience*, New Orleans, LA. Vol 29, abstract # 346.6.

140. L.R. Sachleben, Jr., M. Rane, S.X.L. Zhang, R. Wu, D. Gozal, E. Gozal. (2003) Akt/PKA cross-talk modulates hypoxia-induced survival response in PC-12 cells. Presented at: *33th Annual Meeting of the Society for Neuroscience*, New Orleans, LA. Vol 29, abstract # 346.8.
141. Rane, M., Butt, W., Guo S. Z., Gozal E. (2003) Thongboonkerd, V., McLeish, K. R., Gozal D. Klein J. B. Baclofen Increases Neutrophil Influx Following Ischemia/reperfusion: a Role for Gaba<sub>B</sub> Receptor Dependent Neutrophil Chemotaxis in Organ Damage. Presented at: *ASN/ISN World Congress*, San Diego, CA.
142. E.C. Carlson, J.L. Audette, D.I. Laturus, N.J. Veitenheimer, J.A. Risan, and P.N. Epstein (2003) Capillary Basement Membrane Thickening in Normal and Transgenic (OVE26) Diabetic Mice: Different Rates in Different Tissues. *Experimental Biology*.
143. G. Ye, N. S. Metreveli, E. C. Carlson, P. N. Epstein (2003) Catalase Prevents Diabetes Induced Deficits in Cardiomyocytes by Inhibiting ROS Production *American Diabetes Association National Meeting*.
144. R. V. Donthi, T. W. Fan, C. Haodong Wu, A. J. Lange and P. N. Epstein (2003) Over-Expression of Kinase Deficient 6-Phosphofructo-2-Kinase/Fructose-2,6-Bisphosphatase Alters Cardiac Metabolism and Induces Mild Hypertrophy.. *American Diabetes Association National Meeting*.
145. X. Shen, S. Zheng, V. Thongboonkerd, E. C. Carlson, W. M. Pierce, J. Klein, P. N. Epstein (2003) Mitochondrial Damage in Diabetic Heart and Protection by MnSOD *American Diabetes Association National Meeting*.
146. X. LI , H. Chen and P. N. Epstein (2003) Metallothionein Overexpression Improves Graft Function During the Early Phase of Pancreatic Islet Transplantation, *American Diabetes Association National Meeting*.
147. H. Chen, X. Li, & P. N. Epstein (2003) Overexpression of MnSOD and catalase synergistically protects transgenic mouse beta cells from oxidative damage but not from cytokine-induced beta cell toxicity *American Diabetes Association National Meeting*.
148. S. Zheng, W. T. Noonan N, N Metreveli1, P.M. Kralik, Edward C. Calson, P. N. Epstein (2003) OVE26 Mice Are a Useful Model of Diabetic Nephropathy, *American Diabetes Association National Meeting*.
149. V. Thongboonkerd1, M. Barati1, K. R. McLeish, B. H. Rovin, W. M. Pierce, P. N. Epstein, and J. B. Klein (2003) Increased Renal Expression of Elastin in Type 2 Diabetes: A Proteomic Analysis. *American Society of Nephrology National Meeting*.

150. Shi-Yan Li, M. Gomelski, J. Duan, Z. Zhang, L. Gomelski, X. Zhang, P. N. Epstein, J. Ren (2003) Over-Expression of Aldehyde Dehydrogenase-2 Transgene Attenuates Acetaldehyde-Induced Apoptosis in Human Umbilical Vein Endothelial Cells: Role of ERK and p38 MAP Kinase. *AHA Scientific Sessions*.
151. Kang, Y. J. and Waalkes, M. P. (2003). Molecular mechanisms of cardiovascular toxicity of metals and metalloids. *Toxicol Sci* **72** (*The Toxicologist*): **166** (Abstract 807).
152. Kang, Y. J., Li, Y. and Sun, X. (2003). Myocardial apoptosis and cardiomyopathy induced by arsenic. *Toxicol Sci* **72** (*The Toxicologist*): **167** (Abstract 810).
153. Elsherif, L., Ortines, R., Saari, J. T. and Kang, Y. J. (2003). Oxidative stress and heart failure in a mouse model of copper deficiency. *FASEB J.* **17** (5): Abstract #150.11.
154. Kannan, M., Wang, L., and Kang, Y. J. (2003). Oxidative stress is involved in alcoholic cardiomyopathy. *FASEB J.* **17** (5): Abstract #575.11.
155. Elsherif, L., Ortines, R., Saari, J. T. and Kang, Y. J. (2003). Hypertrophy and heart failure in a mouse model of copper deficiency. *FASEB J.* **16** (5): Abstract #701.3.
156. Li, Y., Cai, L., Zhou, Z. and Kang, Y. J. (2003). Up-regulation of endotheline system is involved in nicotine-induced cardiotoxicity in rats with acute myocardial infarction. *Toxicol Sci* **72** (*The Toxicologist*): **34** (Abstract 163).
157. Cai, L., Sun, X., Li, Y., Wang, L. and Kang, Y. J. (2003). Inhibition of peroxynitrite-induced damage in involved in metallothionein prevention of diabetic cardiomyopathy. *Toxicol Sci* **72** (*The Toxicologist*): **36** (Abstract 173).
158. Cai, L., Li, Y., Wang, L. and Kang, Y. J. (2003). Suppression by metallothionein of early phase myocardial cell death prevents the late development of diabetic cardiomyopathy. *Diabetes* **52** (Suppl 1) 172.
159. Zhou, Z., Wang, L., Song, Z., Lambert, J. C., McClain, C. J. and Kang, Y. J. (2003). Endotoxin, not oxidative stress, mediates acute ethanol-induced hepatic TNF-alpha production. *Toxicol Sci* **72** (*The Toxicologist*): 202 (Abstract 978).
160. Zhou, Z., Wang, L., Song, Z., Saari, J. T., McClain, C. J. and Kang, Y. J. (2003). A critical involvement of oxidative stress in acute alcohol-induced hepatic TNF-alpha production. *Hepatology* **38** (Suppl 4): 603A.
161. Zhou, Z., Wang, L., Song, Z., Saari, J. T., McClain, C. J. and Kang, Y. J. (2003). Modulation of redox signaling is involved in zinc inhibition of lipopolysaccharide-induced tumor necrosis factor production and liver injury. *Gastroenterology* **124** (Suppl 1): A723.
162. Rane M. J., Wu, R., Khundmiri S. J., Klein, J.B., and Gozal, E. (2003) Akt mediated PKA phosphorylation in HK-11 cells requires Akt/Hsp27 interaction. Presented at: *ASN/ISN*

*World Congress*, San Diego, CA.

163. Wu, R., Butt, W., Powell, D.W., McLeish, K.R., Gozal, E., Klein, J.B., and Rane M.J. (2003)  
Silencing Hsp27 Expression Inhibits Akt and 14-3-3 Interaction in HEK-293 Cells.  
Presented at: *ASN/ISN World Congress*, San Diego, CA.

## **IX. Invited Scientific Presentations and Seminars (salaried faculty)**

### **Dr. Gavin Arteel**

- 01/03, "*Alcohol, oval cells, and HCC; is there a connexin?*", University of Louisville, James Graham Browne Cancer Center, Louisville, KY.
- 02/03, "*Oxidants and antioxidants in ALD*", University of Louisville, Dept of Medicine, Louisville, KY.
- 02/03, "*Molecular mechanisms of alcoholic liver injury*", University of Louisville, Center for Genetics and Molecular Medicine, Louisville, KY.
- 03/03, "*Inflammatory cell-derived oxidants in alcoholic liver disease: studies in vivo*" SOT annual meeting, Salt Lake City, UT.
- 05/03, "*Oxidative stress in chronic ALD*", University of Louisville, CVRC, Louisville, KY.
- 09/03, "*Oxidants, antioxidants and alcoholic liver disease*", National Institutes of Health, NIAAA, Bethesda, MD.
- 10/03, "*Enteral models of ALD*", Texas A&M University, Dept of Pathobiology, College Station, TX.
- 12/06, "*Prevention of primary nonfunction by vesicular delivery of ATP*", University of Louisville/Jewish Hospital, AASLD wrap-up, Louisville, KY.

### **Dr. Frederick Benz**

- 05/29/03, Department of Pharmacology and Toxicology, University of Louisville, KY.

### **Dr. Ramesh Gupta**

- Molecular Epidemiology Group of the Cancer Prevention & Control Program, James Graham Brown cancer Center.

### **Dr. David W. Hein**

- 01/03, "*Pharmacogenetics and Pharmacogenomics in Medicine and Public Health*". American Association of University Women, Louisville, KY.
- 02/03, "*Characterization of N-acetyltransferase-1 and -2 Genetic Polymorphisms.*" Kentucky Lung Cancer Research Program 2003 Scientists Seminar, Frankfort, KY.
- 03/03, "*Environmental Health Sciences at the University of Louisville.*" Life Sciences without Boundaries, Bridges to Collaboration Conference, Cincinnati, OH.
- 05/03, "*Functional Characterization and Epidemiological Significance of N-Acetyltransferase Genetic Polymorphisms,*" Environmental Cardiology Group, University of Louisville, Louisville, KY.
- 06/03, "*Genes and the Environment in Cancer Risk,*" Optimists Club of Louisville, Louisville, KY.
- 09/03, "*Syrian Hamster and Rat Models of the N-Acetylation Polymorphism,*"

Department of Pharmacology, University of Oxford, United Kingdom.

- 09/03, "*Pharmacogenetics: N-Acetyltransferase Genotype/phenotype Relationships and Implications for Chemical Carcinogenesis*," Department of Pharmacology, University of Oxford, United Kingdom.
- 09/03, "*Genetic Polymorphisms in N-Acetyltransferases: A Possible Role in Cancer Predisposition*", Wellcome Trust Centre for Human Genetics, Oxford, United Kingdom.
- 11/03, "*Functional Genomics of the N-acetyltransferases: Improving Cancer Risk Assessments from Environmental Toxicants*," Annual Meeting of the Ohio Valley Society of Toxicology, Cincinnati, OH.
- 12/03, "*Pharmacogenomics of N-acetyltransferases: Implications for Cancer Risk*," Center for Genetics and Molecular Medicine, University of Louisville, Louisville, KY.

### **Dr. Y. James Kang**

- 11/17/03, "*Toxicologic cardiomyopathy and its prevention by metallothionein*" Department of Pharmacology and Cell Biophysics, University of Cincinnati.
- 09/06/03, "*Gene Therapy: Future Development in Clinical Application*" Shenyang Pharmaceutical University, Shenyang, China.
- 09/05/03, "Biotechnology and Biomedical Research: Current State and Future Development" Annual Meeting of China Scientific Associations, Shenyang, China.
- 08/26/03, "*Copper deficiency-induced heart hypertrophy: Transition to heart failure and reversibility*" US Department of Agriculture, Grand Forks Human Nutrition Research Center.
- 05/08 /03, "*Zinc dynamic changes and the progression of cardiomyopathy.*" "Zinc Signals 2003" Grand Cayman Islands.
- 05/07/03 "*Zinc inhibition of liver apoptosis induced by acute exposure to ethanol.*" "Zinc Signals 2003" Grand Cayman Islands.
- 04/04/03, "*Metallothionein protection from oxidative myocardial injury*" University of Michigan School of Public Health Environmental Health Sciences Toxicology Program.
- 02/19/03, "*Integrated biotechnology and regenerative medicine.*" China New Century Forum on Life Sciences: Nobel Day. Beijing China, "

### **Dr. W. Glenn McGregor**

- 03/03, "*Promiscuous polymerases and the price of infidelity. Biology of Aging Gordon.*"

### **Dr. Steven R. Myers**

- 03/04/03, "*Assessing Environmental Exposures to Polycyclic Aromatic Hydrocarbons: Relationship between Personal Exposure to Polycyclic Aromatic Hydrocarbons and Biomarkers of Internal Dose*," University of Louisville, Center for Birth Defects.

- 04/16/03, *"Influence of GSTM1 and NAT Genotypes on the Relationship between Personal exposure to Polycyclic Aromatic Hydrocarbons and Biomarkers of Internal Dose,"* University of Illinois Chicago.
- 04/16/03, *"Assessing Environmental Exposures to Polycyclic Aromatic Hydrocarbons: Relationship between Personal Exposure to Polycyclic Aromatic Hydrocarbons and Biomarkers of Internal Dose,"* University of Illinois Chicago.
- 05/05/03, *"Hemoglobin adducts as biomarkers of maternal and fetal tobacco exposure assessment,"* Johns Hopkins University.
- 05/06/03, *"Assessing Environmental Exposures to Polycyclic Aromatic Hydrocarbons: Relationship between Personal Exposure to Polycyclic Aromatic Hydrocarbons and Biomarkers of Internal Dose,"* Johns Hopkins University.
- 10/13/03, *"Polycyclic Aromatic Hydrocarbons – Biomarkers of Assessment,"* Murray State University Department of Chemistry,.
- 10/28/03, *"Biomarkers of Environmental Carcinogens,"* University of Louisville Brown Cancer Center, Cancer Prevention Group,.

**Dr. Donald E. Nerland**

- 04/18/03, *"A unified theory for coordinated transcriptional regulation of thiol antioxidants by chemoprotectants,"* presented to the Cancer Prevention Group, University of Louisville.
- 07/21/03, *"Is There Cross Talk Between the ARE/Nrf2 and NF- $\kappa$ B Signaling Pathways?"* presented to the Liver Group, University of Louisville.

**Dr. J. Christopher States**

- 07/15/03, *"Arsenic; Carcinogen or Chemotherapeutic"* MD/Ph.D. Program, University of Louisville, Louisville, KY.



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

	<u><b>Agency</b></u>	<u><b>Budget Requested</b></u>
<b>Dr. Gavin E. Arteel</b>		
Optimizing direct ATP delivery to ischemic tissues (Co-I; Sufan Chien, PI) 10/01/03 – 09/30/08	NIH	\$6,237,563
Platelet-endothelial responses during lung reperfusion (Co-I; Andrew Roberts, PI) 07/01/03 – 06/30/08	NIH	\$1,475,000
Recovery from ALD with ebselen (PI) 04/01/04 – 03/31/07	NIH	\$447,500
Green tea polyphenol therapy for ALD (PI) 04/01/04 – 03/31/07	NIH	\$447,500
Role of SAME in priming of macrophages due to alcohol (Co-I; Katherine Richardson, PI) 03/01/04 – 02/28/06	NIH	\$63,824
Prevention of liver transplant nonfunction with ATP vesicles (PI) 07/01/04 – 06/30/09	NIH	\$1,837,500
Gene expression in alcoholic liver (Co-I; Ion Deaciuc, PI) 09/01/03 – 08/31/05	NIH (NIAAA)	\$630,000
Egr-1: A candidate molecular target for treating ALD (Co-I; Laura Nagy, PI) 07/01/03 – 06/30/08	NIH (NIAAA)	
Endothelium, hypoxia and hepatotoxicity (Co-I; Robert Roth, PI) 04/01/03 – 03/31/08	NIH	
<b>Dr. Jian Cai</b>		
Characteristic proteom following degradation of periodontal and cardiovascular tissues by the bacteria <i>Porphyromonas gingivalis</i> (Co-I; Saeed A. Jortani, PI) 04/01/04 – 03/31/06	NIDCR	\$403,875

	<b><u>Agency</u></b>	<b><u>Budget Requested</u></b>
<b>Dr. Theresa S. Chen</b>		
Glutathione intervention in diabetes mellitus (PI)	KSEF	\$16,500
Mechanisms of alcohol-induced immunosuppression (Co-I; Shirish Barve, PI)	NIAAA	
Adomet and carinii pneumonitis (Co-I; Dr. Oz, PI)	NIH	
Green tea polyphenols: A novel approach to IBD (Co-I; Dr. Oz, PI)	NIH	
<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
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 pre-conditioning (Co-I; Y. Wang, PI)	NIH/NHLBI	\$1,000,000

	<b><u>Agency</u></b>	<b><u>Budget Requested</u></b>
<b>Dr. Evelyne Gozal</b>		
Role of Hsp27 in regulation of PMN apoptosis (Co-I; Madhavi Rane, PI) 04/01/04 – 03/31/09	NIH/NIAID	\$1,250,000
Diet and susceptibility to intermittent hypoxia (Co-I; B.W. Row, PI) 04/01/04 – 03/30/09	NIH/NHLBI	\$1,000,000
<b>Dr. Ramesh Gupta</b>		
Dose effects on repair of chemical-induced DNA damage (Co-I; Christopher States, PI)	NIH	\$748,250
Molecular analysis of human cervical cancer development (PI)	NCI	\$1,947,142
<b>Dr. David W. Hein</b>		
Molecular epidemiology of environmental/occupational diseases (PI) 07/01/04 – 06/30/09	NIH/NIEHS	\$1,113,019
Pharmacogenetics of drug and carcinogen metabolism (supplement) (PI) 04/01/04 – 06/30/08	NIH/NCI	\$936,290
Research in support of Amonafide study (PI) 01/01/04 – 12/31/04	Chemgenex	\$5,670
Biomarkers of carcinogen exposure in tobacco smoke (Co-I; Steven Myers, PI) 07/01/04 – 06/30/06	NIH	\$404,250
Nashville Breast Health Study (Subproject PI; Wei Zhen, PI) 07/01/07 – 06/30/08	NIH	\$189,035
Comprehensive biological training for dentists (Research Mentor; Denis Kinane, PI) 08/01/04 – 07/31/09	NIH	\$2,615,607
Genetic polymorphisms in manganese superoxide dismutase (MnSOD) as a predictor of lung cancer (Co-I; Robert Martin, PI) 01/01/04 – 12/31/07	Kentucky Lung Cancer Research Program	\$300,000

<b>Dr. David W. Hein (continued)</b>	<b><u>Agency</u></b>	<b><u>Budget Requested</u></b>
Phenotyping of CYP1A2 and NAT2 enzymes by LC/MS/MS (Co-I; Harrell Hurst, PI) 12/01/03 – 11/30/04	CGeMM	\$30,000
Use of NAT1 and 2 SNP analysis and functional genomics to determine susceptibility to smoking-induced cancer (Collaborator; Kent Mitchell, PI) 03/01/04 – 02/28/07	Philip Morris USA	\$906,575
Transcriptional regulation of human NAT1 and 2 genes (Collaborator; Kent Mitchell, PI) 07/01/04 – 06/30/06	NIH	\$1,479,409
Evaluation of N-acetyltransferase 1 and N-acetyltransferase 2 expression in pancreatic adenocarcinoma and relation to chemoresistance (Co-I; Robert Martin, PI) 07/01/04 – 06/30/06	AACR	\$100,000
DOD FY03 Breast Cancer research Program Predoctoral Fellowship (Mentor; Anwar Husain, PI) 12/1/03 – 11/30/05)	Department of Defense	\$60,000
Molecular Biomarkers of Tobacco Smoke Exposure (Co-I; Steven Myers, PI) 07/01/04 – 06/30/07	Philip Morris USA	\$1,119,047
Center for Pediatric Clinical Pharmacology Research (Director, Pharmacogenetics Core laboratory; Janice Sullivan, PI) 01/01/04 – 12/31/08	NIH/NICHD	\$1,862,408
Kosair Charities Birth Defects Research Fellowship (Mentor, Co-I; Jason Neale, PI) 01/01/04 – 12/31/04	Kosair Charities	\$25,000
Effects of environmental tobacco smoke exposure on DNA adduct formation in rapid and slow acetylator rat mothers, fetuses, and neonates (Mentor, Co-I; Jason Neale, PI) 01/01/04 – 12/31/05	Philip Morris USA	\$86,400
Regulatory genes of NFkappaB and their effect on IBD (Co-I; Susan Galandiuk, PI) 04/01/04 – 03/31/06	NIH	\$293,750

<b>Dr. David W. Hein (continued)</b>	<b><u>Agency</u></b>	<b><u>Budget Requested</u></b>
Cigarette smoke exposure and IBD (Co-I; Susan Galandiuk, PI) 04/01/04 – 03/31/07	Philip Morris USA	\$440,416
Cigarette smoke exposure and IBD (Co-I; Susan Galandiuk, PI) 04/01/04 – 03/31/07	NIH	\$293,416
Gene expression in UC dysplasia/cancer (Co-I; Susan Galandiuk, PI) 04/01/04 – 03/31/06	NIH	\$293,750
Cigarette smoke exposure and IBD (Co-I; Susan Galandiuk, PI) 04/01/04 – 03/31/06	NIH	\$293,750
Genetic polymorphisms in manganese superoxide dismutase (MnSOD) as a predictor of lung cancer (Co-I; Robert Martin, PI) 01/01/04 – 12/31/04	Kentucky Lung Cancer Research Program	\$300,000
Oxidative stress in the progression of Barrett's esophagus to adenocarcinoma (Co-I; Robert Martin, PI) 07/01/04 – 06/30/06	Sidney Kimmel Foundation for Cancer Research	\$200,000
Predictive NAT polymorphism in pancreatic cancer (Co-I; Robert Martin, PI) 04/01/04 – 03/30/06	NIH	\$146,875
Genetic polymorphisms in Manganese superoxide dismutase (MnSOD) as a predictor of lung cancer (Co-I; Robert Martin, PI) 07/01/04 – 06/30/06	American Lung Association	\$70,000
Predictive NAT polymorphism in pancreatic cancer (Co-I; Robert Martin, PI) 01/01/05 – 12/31/07	NIH	\$100,000
Genetic polymorphisms in the 5'-UTR of human NAT1 and NAT2 (PI) 12/01/03 – 11/30/04	CGeMM	\$30,000
Prostate cancer susceptibility: Smoking and NAT SNPs (Collaborator) 04/01/04 – 03/31/06	NIH	\$138,450
Mechanistic studies on the NAT2 genetic polymorphism: a potential factor that modifies individual breast cancer risk (Mentor, Co-I; Yu Zang, PI) 05/01/04 – 04/30/06	Susan G. Komen Breast Cancer Foundation	\$30,000

	<u><b>Agency</b></u>	<u><b>Budget Requested</b></u>
<b>Dr. David W. Hein (continued)</b>		
Environmental genomics and molecular epidemiology of lung cancer (PI) 10/01/03 – 09/30/04	Kentucky Lung Cancer Research Program	\$99,983
University of Louisville Oncology Training Program (Faculty Mentor; Donald Miller, PI) 07/01/04 – 06/30/09	NIH	\$1,187,734
Biomarkers of maternal and fetal tobacco exposure (Co-I; Steven Myers, PI) 07/01/03 – 06/30/06	Kentucky Lung Cancer Res. Fdn.	\$291,300
<b>Dr. Harrell E. Hurst</b>		
West Louisville partnership for environmental justice (Co-I; David Tolerud, PI) 08/01/03 – 07/31/07	NIH	\$899,681
Molecular biomarkers of tobacco smoke exposure (Co-I; Steve Myers, PI) 07/01/04 – 06/30/07	Philip Morris USA	\$764,038
Biomarkers of carcinogen exposure in tobacco smoke (Co-I; Steve Myers, PI) 07/01/04 – 06/30/06	NIH	\$275,000
Phenotyping of CYP1A2 and NAT2 enzymes by LC/MS/MS (PI)	CGeMM Pilot Project Award Program	\$30,000
Center for Pediatric Clinical Pharmacology Research (Janice Sullivan, PI) 01/01/04 – 12/31/08	NIH/NICHD	\$1,862,408
<b>Dr. Y. James Kang</b>		
Cadmium Cardiotoxicity (PI)	Philip Morris USA	\$786,800
Metallothionein and hepatic oxidative stress (Co-I; Wolfgang Maret, PI)	NIH/NIAAA	\$3,085,971
Zinc and alcohol-induced oxidative liver injury (Co-I; James Kang, PI)	NIH/NIAAA	\$1,000,000
Arsenic trioxide cardiotoxicity and prevention (PI)	NIH/NIEHS	\$1,634,000

<b>Dr. W. Glenn McGregor</b>	<b><u>Agency</u></b>	<b><u>Budget Requested</u></b>
Host responses to simulated space travel stresses (Co-I; Eugenia Wang, PI) 10/01/03 – 09/30/04	NASA Cell Science Program	\$131,982
Inflammation and mutagenesis in lung carcinogenesis 12/01/03 – 11/30/04	CGeMM –UofL	\$30,000
Inflammation and mutagenesis in lung cancer	Philip Morris USA Fellowship	\$80,000
<b>Dr. Steven R. Myers</b>		
Biomarkers of maternal and fetal tobacco smoke exposure (PI) 08/01/02 – 06/30/04	Kentucky Lung Cancer Research Foundation	\$96,426
Biomarkers for air pollutants: Development of hemoglobin adduct methodology for assessment of exposure to butadienes and polycyclic aromatic hydrocarbons (Co-I; Harrell Hurst, PI)	Kentucky EPSCoR Program	\$753,654
Analysis of urine samples for carcinogenic PAHs (PI) 02/24/04 – 02/03/05	USEPA	\$89,935
<b>Dr. William M. Pierce, Jr.</b>		
Center for Regulatory Metabolomics (Co-I; Teresa Fan, PI) 2004 – 2007	NSF	\$3,000,000
Pediatric Clinical Proteomic Center (Co-I; Mary Jayne Kennedy, PI) 2004 - 2009	Department of Energy	\$1,985,000
Cellular and Molecular Bases of Iron Toxicity (Co-I; John W. Eaton, PI) 2004 - 2009	NIH	\$1,653,188
General Clinical Research Center (Co-I; Joel A. Kaplan, PI) 2004 - 2008	NIH	\$7,250,614
Roles of Smurf1 in Cbfa1 Degradation and Bone Formation (Co-I; Di Chen, PI) 2004 – 2009	NIH	\$1,600,000
George O'Brien Center for Renal Proteomics (Co-I; Jon B. Klein, PI) 2004 – 2009	NIH	\$3,741,402

<b>Dr. William M. Pierce, Jr. (continued)</b>	<b><u>Agency</u></b>	<b><u>Budget Requested</u></b>
Kinase Pathways in Diabetic Nephropathy (Co-I; Kenneth R. McLeish, PI) 2004 – 2009	NIH	\$1,836,875
Kinase Regulation of Neutrophil Exocytosis (Co-I; Kenneth R. McLeish, PI) 2004 – 2009	NIH	\$1,837,500
<b>Dr. Zhao-hui (Joe) Song</b>		
Structure and function of CB2 cannabinoid receptor (PI) 12/01/03 – 11/30/08	NIH	\$1,468,833
New methods for studying CB1 structure and function (PI) 04/01/04 – 03/30/07	NIH	\$439,344
Purification and characterization of CB1 (PI)	NIH	\$286,000
Molecular epidemiology – Environmental/occupational diseases (Co-I; David W. Hein, PI) 07/01/04 – 06/30/09	NIEHS	\$1,240,452
<b>Dr. J. Christopher States</b>		
Murine model for arsenic induced atherogenesis (PI) 12/1/03 – 11/30/04	CGeMM Pilot Project, UofL	\$30,000
Genetic polymorphisms in 5'-UTR of human NAT1 and NAT2 (Co-I) 12/1/03 – 11/30/04	CGeMM Pilot Project, UofL	\$30,000
Chromium DNA damage and nucleotide excision repair (PI) 12/01/03 – 11/30/07	NIH/George Washington Univ.	\$146,000
Dose effects on repair of chemical-induced DNA damage (PI) 12/01/03 – 11/30/06	NIH/NIEHS	\$550,520
Dose effects on repair of chemical-induced DNA damage (PI) 07/01/04 – 06/30/07	NIH/NIEHS	\$748,250
Arsenic inhibition of mitotic progression (Mentor) 05/01/04 – 07/31/07	NIH/NIEHS	\$81,884



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

	<u><i>Agency</i></u>	<u><i>Project Award</i></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) 11/01/01-06/30/04	NIH (NIAAA)	\$594,413
Prevention of hepatic ischemia reperfusion injury by liposomal delivery of ATP (PI) 01/01/03 – 12/31/03	Intramural IRIG Grant	\$10,000
Oval cells in alcoholic hepatocellular carcinoma (Co-I; Jason Lambert, PI) 07/01/03 – 06/30/04	James Graham Brown Cancer Center	\$28,000
<b>Dr. Jian Cai</b>		
Cardiovascular toxicity of environmental aldehydes (Co-I; Aruni Bhatnagar, PI) 07/01/03 – 06/30/08	NIH	\$6,986,000
<b>Dr. Theresa S. Chen</b>		
Nutritional Modulation of Glutathione Status and Longevity (PI) 07/01/02 – 06/30/03	Kentucky Science and Technology Corporation	\$15,000
Oral Antioxidant/Anticytokine Therapy for ALD (Co-I; Dan Hill, PI) 08/01/02 – 07/31/06	NIAAA	\$1,000,000
<b>Dr. Paul N. Epstein</b>		
Altered glucose homeostasis by sleep impairment (PI) 09/30/03 – 06/30/07	NIH/NHLBI	\$200,000
$\beta$ -cell antioxidant transgenes in diabetes and transplantation (PI) 09/01/00 – 08/31/04	NIH/NIDDK	\$125,000
Reducing diabetic cardiomyopathy by increasing glycolysis (PI) 09/30/00 – 09/29/04	NIH/NHLBI	\$172,000
Antioxidant transgenes in diabetic cardiomyopathy (PI) 08/01/99 – 07/30/07	NIH/NHLBI	\$200,000

<b>Dr. Paul N. Epstein (continued)</b>	<b><u>Agency</u></b>	<b><u>Project Award</u></b>
Molecular determinants of developmental defects (Co-I; Ye Qi Liu, PI) 09/29/02 – 09/30/07	NIH/NGA	\$1,080,000
Analysis of diabetic nephropathy (Co-I; Jon Klein, PI) 7/1/02-6/30/04	NIH	\$100,000
<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 - 09/30/02	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	NIH/Minority Supplement Grant	\$200,000

<b>Dr. David Gozal (continued)</b>	<b><u>Agency</u></b>	<b><u>Project Award</u></b>
Whole-Body Hypoxic Pre-Conditioning (Co-I; Yang Wang, M.D., Ph.D., PI) 06/01/02-05/31/03	Department of Defense	\$150,000
Role of Vagal Afferents in Hyperpnea (Co-I; Jerry Yu, Ph.D., PI) 01/01/03-12/31/07	NHLBI	\$1,100,000
<b>Dr. Evelyn Gozal</b>		
Hypoxia-induced Akt signaling module in neuronal cells (PI) 07/01/03 – 06/30/08		\$1,250,000
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. Ramesh Gupta</b>		
Techniques for detecting and identifying DNA adducts (PI) 09/98 – 06/04	NCI	\$57,137
Superfund chemicals: Transport, metabolism and toxicity (Co-I; Bernie Henning, PI) 04/97 – 03/05	NIEHS	\$215,670
Breast cancer etiology (PI) 11/01 – 10/05	NCI	\$1,093,925
Chemoprevention of experimental tobacco tumorigenesis (PI) 06/02 – 04/05	NCI	\$1,461,364
Role of antioxidants in breast cancer prevention (PI) 04/02 – 03/04	NCI	\$112,684
Etiology & prevention of lung cancer (PI) 01/02 – 12/04	Kentucky Lung Cancer Research Board	\$116,835

<b>Dr. David W. Hein</b>	<b><u>Agency</u></b>	<b><u>Project Award</u></b>
Pharmacogenetics of drug and carcinogen metabolism (PI) 09/01/97 – 06/30/03	NIH/NCI	\$1,859,936
Effect of acetylator genotype on genotoxicity from aromatic and heterocyclic amine carcinogens (PI) 07/01/02 – 06/30/05	Philip Morris USA	\$615,848
Environmental genomics and molecular epidemiology of lung cancer (PI) 10/1/01 – 09/30/04	Kentucky Lung Cancer Research Program	\$299,949
Education in genetics ethics (EDGE) (Co-I); Mark Rothstein (PI) 5/3/02 – 03/31/05	NIH	\$1,360,592
Hybrid quadrupole – Time of flight mass spectrometer (Major user and member of technical advisory committee; William M. Pierce, Jr., PI) 04/01/02 – 03/31/04	NIH	\$500,000
Biomarkers of maternal and fetal tobacco smoke exposure (Co-I; Steven R. Myers, PI) 07/01/02 – 06/30/04	Kentucky Lung Cancer Research Program	\$93,016
James Graham Brown P20 Application (Project Director; Donald M. Miller, PI) 08/02/02 – 07/31/05	NIH/NCI	\$1,328,613
Cancer Education Grant Program (Mentor; Norbert J. Burzynski, PI) 08/01/02 – 07/31/07	NIH/NCI	\$557,437
Functional genomics of the human N-acetyltransferase 1 polymorphism (Research Mentor; Yuanqi Zhu, PI) 07/01/02 – 06/30/03	CGeMM	\$10,000
Single nucleotide polymorphisms: Mechanisms for functional changes in N-acetyltransferase 2 (NAT2) (Research Mentor; Yu Zang, PI) 07/01/02 – 06/30/03	CGeMM	\$10,000
Pharmacogenetics of drug and carcinogen metabolism (minority supplement) (PI) 12/01/00 – 06/30/03	NIH/NCI	\$16,183

	<u><i>Agency</i></u>	<u><i>Project Award</i></u>
<b>Dr. David W. Hein (continued)</b>		
Pharmacogenetics of drug and carcinogen metabolism (PI) 07/01/03 – 06/30/08	NCI	\$1,724,900
Cardiovascular toxicity of environmental aldehydes (Co-I; A. Bhatnagar, PI; R. Prough, Project PI) 07/01/03 – 06/30/08	NIH/NIEHS	\$6,986,060
Metabolism and Detoxification of Base Propenals (Collaborator; S. Srivastava, PI) 06/01/03 – 03/31/08	NIH	\$1,559,485
Metabolism and toxicity of aromatic amines associated with hair dyes (PI) 07/01/02 – 08/31/04	Procter and Gamble Inc.	\$310,885
Research in support of Amonafide study (PI) 07/01/02 – 06/30/03	Chemgenex Therapeutics	\$2,394
Genetic polymorphisms in manganese superoxide dismutase (MnSOD) as a predictor of lung cancer (Co-I; R. Martin, PI) 03/01/03 – 02/28/04	James Graham Brown Cancer Center	\$30,000
Histamine pharmacogenetics in children with atopic dermatitis (Collaborator/Mentor; Mary Jayne Kennedy, PI) 07/01/03 – 06/30/04	Research Institute of the American College of Pharmacy	\$12,500
Genetic polymorphisms in the 5'-UTR of human NAT1 and NAT2 (PI) 12/01/03 – 11/30/04	CGeMM	\$30,000
Genetic polymorphisms in the 5'-UTR of human NAT1 and NAT2 (Mentor) NRSA Fellowship for Anwar Husain 07/01/03 – 06/30/05	NIEHS	\$51,248
<b>Dr. Harrell E. Hurst</b>		
Biomarkers for air pollutants, R-829419E02 (PI) 10/01/01 – 09/30/04	USEPA/EPSCoR	\$753,654
Cardiovascular toxicity of environmental aldehydes (Co-I; A. Bhatnagar, PI) 07/01/03 – 06/30/08	NIH/NIEHS	\$6,986,060

<b>Dr. W. Glenn McGregor</b>	<b><u>Agency</u></b>	<b><u>Project Award</u></b>
Mechanisms of mutagenic processing of DNA damage, CA 73984 (PI) 08/01/97 – 07/31/03	NCI	\$513,016
Mechanisms of BPDE-induced mutagenesis and mutation avoidance (PI) 10/01/01 – 09/30/04	Kentucky Lung Cancer Research Program	\$225,000
Shared genomic responses to space flight and aging (Co-I; Eugenia Wang, PI) 05/01/03 – 04/30/04	NASA Cell Science Program	\$115,000
Inflammation and mutagenesis in lung carcinogenesis (PI) 12/01/03 – 11/30/04	CGeMM	\$30,000
Role of chemoattractant-mediated inflammation in development and progression of lung cancer (Co-I with Harri Bodduluri) 10/01/03 – 9/30/06	Kentucky Lung Cancer Research Board	\$270,000
Cancer Education Grant Program (Participating mentor); Norbert Burzynski (PI) 9/01/2002-8/31/2007	NIH/NCI	\$516,145
Molecular Strategies to Avoid Mutagenesis by Cigarette Smoke-Associated Carcinogens (PI) 6/01/2002-5/31/2005	Philip Morris USA	\$349,700
Biacore 3000 Shared Instrument Grant (Participating Investigator; Donald Miller, PI)	National Center for Research Resources	\$270,000
<b>Dr. Steven R. Myers</b>		
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) 08/01/02 – 06/30/04	Kentucky Lung Cancer Research Foundation	\$96,426

	<u><i>Agency</i></u>	<u><i>Project Award</i></u>
<b>Dr. Steven R. Myers (continued)</b>		
Analysis of urine samples for carcinogenic PAHs (PI) 02/04/04 – 02/03/05	USEPA	\$89,935
<b>Dr. William M. Pierce, Jr.</b>		
Proteomic Analysis of Diabetic Nephropathy (Co-I; J.B. Klein, PI) 2002-2004	NIH/NIDDK	\$200,000
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	\$1,653,750
Evolution of a pheromone signaling system (Co-I; Lynne Houck, PI) 07/15/01 - 07/14/04	NSF-Subcontract to UofL from Oregon State University.	\$500,000
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	\$144,000
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	\$665,500
Seed investment in biotechnology (Co-I; Patrick Migliore Novera, PI) 12/02 – 12/03	Kentucky Science and Technology Corporation	\$100,000
<b>Dr. Peter P. Rowell</b>		
Effects of self-administered versus noncontingent nicotine (Co-I; A.R. Caggiula, PI) 10/01/00 – 09/30/05	NIH	\$819,469
Postnatal brain susceptibility to intermittent hypoxia (Co-I; D.A. Gozal, PI) 04/01/2002 – 03/31/2007	NIH (NHLBI)	\$1,250,000

<b>Dr. Peter P. Rowell (continued)</b>	<b><u>Agency</u></b>	<b><u>Project Award</u></b>
Dose and time dependent effects of nicotine on bone blood flow (Co-I; C.S. Roberts, PI) 01/01/03 – 12/31/03	Fischer-Owen Orthopaedic Trust Fund	\$8,517
<b>Dr. Zhao-Hui (Joe) Song</b>		
Structure and function of CB2 cannabinoid receptor, DA11551 (PI) 09/30/98 – 02/01/04	NIH	\$507,304
Cannabinoid receptors-potential targets for novel antiglaucoma drugs (PI) 08/01/03 – 07/31/07	NIH	\$1,174,166
The characterization of the human CB1 receptor (Mentor; Brandon Kellie, PI) 09/15/03 – 08/15/04	UofL Research Scholar Program	\$3,000
<b>Dr. J. Christopher States</b>		
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 07/01/02 - 06/30/07 (Co-I; David W. Hein, PI)	NCI	\$2,510,251
Cancer Education Grant Program (Participating mentor); Norbert J. Burzynski (PI) 12/01/02 - 11/30/07	NCI	\$557,437
Arsenic induced mitotic arrest associated apoptosis (PI) 07/01/03 – 06/30/08	NIEHS	\$1,385,869
Murine model for arsenic induced atherogenesis (PI) 12/1/03 – 11/30/04	CGeMM	\$30,000
Metabolism and detoxification of base propanals (Co-I; S. Srivastava, PI) 06/01/03 – 03/31/08	NIEHS	\$1,650,750
Genetic polymorphisms in 5'-UTR of human NAT1 and NAT2 (Co-I) 12/01/03 – 11/30/04	CGeMM	\$30,000



## **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.

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. Chris States (2005)  
Dr. Gavin Arteel (2004)  
Dr. Peter Rowell (2003)  
Paul Porter (student representative)

#### **PBSI/Grievance Committee**

Dr. Peter Rowell (Chair)  
Dr. Don Nerland (2005)  
Dr. Harrell Hurst (2004)  
Dr. Mike Williams (2003)

#### **Teaching Evaluation Committee**

Dr. Mike Williams (Chair)  
Dr. Len Waite (2005)  
Dr. Fred Benz (2004)  
Dr. Harrell Hurst (2003)

#### **Seminar Committee**

Dr. Don Nerland (Chair)  
Dr. Fred Benz (2005)  
Dr. Steve Myers (2004)  
Dr. Evelyne Gozal (2003)

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

Dr. Chris States (Chair)  
Dr. Glenn McGregor (2005)  
Dr. Theresa Chen (2004)  
Dr. Steve Myers (2003)

#### **Information Technology Committee**

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