Department of
Pharmacology and Toxicology

UofL

2000

Annual Report
Department of Pharmacology and Toxicology
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I. Chairman's Summary

The first year of the new millennium will be remembered as a year of substantially increased efforts and development in graduate education, both within the Department and within the University as a whole. A major objective of the University of Louisville's Challenge for Excellence includes a shift in emphasis from high access undergraduate studies to more focussed efforts in research scholarship and graduate education. All graduate programs in the School of Medicine were asked to set ambitious enrollment management plans requiring substantial growth in the number of graduate students. Under the leadership of Dr. William Pierce, the new Director of our graduate program, the Department held a major retreat focusing on graduate education in January. As part of the strategic plans formulated at that retreat, the Department accelerated its efforts to form partnerships with faculty in clinical departments and institutes. The Center for Genetics and Molecular Medicine continues to be administratively located within the Department. Six new faculty with appointments in the James Graham Brown Cancer Center (John W. Eaton, PhD, W. Glenn McGregor, MD, Donald M. Miller, MD, PhD, and Wolfgang Zacharias, PhD), the Kosair Children's Research Institute (Paul N. Epstein, PhD), and the Birth Defects Center (M. Michele Pisano, PhD) were added to the Department of Pharmacology and Toxicology over the year. The new faculty brought exceptional research expertise and opportunities for the students in the Department graduate program. Their specific research interests are described in the Faculty/Research Descriptions (pages 3-8).

Other implementations of the strategic plan included curricular revisions in the PhD program, and the identification of two pathways for the MS program; a laboratory research track and an academic research track. Intensified recruitment efforts led to the addition of eight new students into the graduate program. Another important strategy was completion of a Department Conference Room suitable for graduate student seminars and committee meetings. Much of the year was spent in renovation of a new Peter K. Knoefel Conference Room located near the Department office. Thanks to the efforts of many individuals within the Department and Physical Plant, the state-of-the-art Peter K. Knoefel Conference Room hosted the First Annual William J. Waddell Seminar in January 2001.

The University of Louisville conducted a major reallocation over the year. This strategy benefited the Department through enhanced faculty, staff, and graduate student salaries. The School of Medicine initiated a common recruitment gateway for graduate students, named Integrated Programs in the Biomedical Sciences (IPIBS). In other notable events, Chris States and Glenn McGregor of our Department hosted a successful Midwest DNA Repair Conference in May. One of our most distinguished alumni, Dr. Ray Woosley, Professor and Chairman of the Department of Pharmacology at Georgetown University School of Medicine presented the second annual KC Huang Memorial Seminar in November. Dr. Bruce Temple from Harvard University School of Public Health presented his work as the Burroughs Wellcome Visiting Professor in the Basic Medical Sciences. Dr. Woosley's seminar was in collaboration with the Center for Genetics and Molecular Medicine; Dr. Temple's seminar was in collaboration with the Department of Biochemistry and Molecular Biology.
As this report delineates, faculty, staff, students, publications, and research funding were all increased substantially this year. The Department of Pharmacology and Toxicology continues to grow through implementation of our strategic plan to achieve the University of Louisville's Challenge for Excellence.

Sincerely,

David W. Hein, Ph.D.
Peter K. Knoefel Professor and Chairman
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 will focus on accomplishment of 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.

Frederick W. Benz, Ph.D. (University of Iowa)  
Professor  
Biochemical pharmacology and toxicology; biochemical mechanisms of drug action and toxicity.

Laurence A. Carr, Ph.D. (Michigan State University)  
Professor  
Biochemical neuropharmacology; functional role of brain biogenic amines; interaction of brain neurotransmitters with peripheral immune system.

Theresa S. Chen, Ph.D. (University of Louisville)  
Professor  
Biochemical toxicology; role of glutathione in aging toxicology; general and specific toxicity of environmental pollutants.

Nicholas A. Delamere, Ph.D. (University of East Anglia)  
Professor  
Electrolyte transport mechanisms in epithelia; second messenger regulation of aqueous humor secretion processes; the role of ion transport mechanisms in preserving transparency of the ocular lens.
John W. Eaton, Ph.D. (University of Michigan)
Professor

Biomaterial-mediated inflammation and fibrosis; sub-endothelial glycochelates, transition metals and diabetic neuropathy; cellular and molecular basis of iron toxicity

Paul N. Epstein, Ph.D. (Baylor College of Medicine)
Professor
Carol B. McFerran Endowed Chair in Pediatric Diabetes Research

Development of transgenic models for the study of causes and complications of diabetes, and the production of mice that are more resistant to diabetes by introducing genes to protect from oxidative stress.

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

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

Evelyne Gozal, Ph.D. (University of Southern California)
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.
David W. Hein, Ph.D. (University of Michigan)  
Peter K. Knoefel Professor and Chairman

Molecular pharmacogenetics and epidemiology. Genetic predisposition to cancer and drug toxicity.

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

Analytical toxicology and kinetics with emphasis on qualitative and quantitative techniques, including gas chromatography, high pressure liquid chromatography and GC/mass spectrometry.

Y. James Kang, Ph.D. (Iowa State University)  
Associate 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.

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.

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.
Frederick N. Miller, Ph.D. (University of Cincinnati)
Professor
Macromolecular permeability in the microcirculation.

Steven R. Myers, Ph.D. (University of Kentucky)
Associate Professor
Drug metabolism, metabolism of xenobiotics and chemical carcinogens; use of hemoglobin as biomarker in exposure to xenobiotics.

Donald E. Nerland, Ph.D. (University of Kansas)
Professor
Biochemical toxicology; metabolism of drugs and environmental pollutants.

William M. Pierce, Jr., Ph.D. (University of Louisville)
Professor
Drug design and organ targeting strategies; novel drugs for treatment of osteoporosis; mechanisms of bone formation and resorption; proteomic analysis and study of structure and function of biomolecules and xenobiotics using mass spectrometry.

M. Michele Pisano, Ph.D. (Thomas Jefferson University)
Associate Professor
Molecular development toxicology; gene-environment interactions in normal and abnormal embryonic development; growth factor directed cellular signal transduction in embryonic cell growth and differentiation.
George C. Rodgers, Jr. M.D., Ph.D. (Yale University, Ph.D.; State University of New York, M.D.)
Professor
Toxicokinetics in drug overdoses and pharmacokinetics in pediatric disease states.

Peter P. Rowell, Ph.D. (University of Florida)
Professor
Neuropharmacology; effect of drugs on brain neurotransmitters and receptors.

Zhao-Hui (Joe) Song, Ph.D. (University of Minnesota)
Assistant Professor
Molecular pharmacology; cloning and functional characterization of novel G protein-coupled receptors; molecular mechanisms of action and structure-function relationships of cannabinoid (marijuana) receptors.

J. Christopher States, Ph.D. (Albany Medical College)
Associate Professor
Molecular biology and molecular genetics of DNA damage and repair in humans

Janice E. Sullivan, M.D. (University of Minnesota)
Assistant Professor
Clinical pharmacology with a focus on developmental pharmacokinetics and pharmacodynamics.
Leonard C. Waite, Ph.D. (University of Missouri)
Professor

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

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

Studies of drug elimination (metabolism and excretion).

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

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

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

Thom J. Zimmerman, M.D., Ph.D. (University of Illinois, M.D.; University of Florida, Ph.D.)
Professor

Pharmacology of drugs used to treat glaucoma; carbonic anhydrase inhibitors, cholinergic and adrenergic agents.
IV. Personnel

Faculty with Primary Appointments

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

Carr, Laurence A., Professor; Ph.D., Pharmacology, Michigan State University (1969).

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

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

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

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

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

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

Pierce, William M., Jr., Professor and Graduate Program Director; Ph.D., Pharmacology and Toxicology, University of Louisville (1981).

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

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

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

Waite, Leonard C., Professor and Vice Chairman; Ph.D., Pharmacology, University of Missouri (1969).

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

Faculty with Joint Appointments

Aronoff, George R., Professor of Medicine, and Pharmacology and Toxicology; M.D., Indiana University (1975).
Delamere, Nicholas A., Professor of Ophthalmology and Visual Sciences, and Pharmacology and Toxicology; Ph.D., Membrane Physiology and Biophysics, University of East Anglia, Norwich, England (1976).

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

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

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

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

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

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

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

Pisano, M. Michele, Associate Professor of Molecular, Cellular and Craniofacial Biology; 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).

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

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
Zimmerman, Thom J., Professor of Ophthalmology and Visual Sciences, and Pharmacology and Toxicology; Ph.D., Pharmacology, University of Florida (1976); M.D., University of Illinois (1968). [Emeritus appointment January 1, 2001.]

Faculty with Associate Appointments

Bhatnagar, Aruni, Professor of Medicine; Ph.D., Chemistry, University of Kanpur, India (1986).

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

Edmonds, Harvey L., Professor of Anesthesiology; Ph.D., Pharmacology, University of California at Davis (1974).

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


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

Ross, Mitchell P., Associate Professor of Pediatrics; M.D., Oregon Health Sciences University (1985). [Resigned May 16, 2000.]

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

Faculty with Emeritus Appointments

Dagirmanjian, Rose, Professor Emerita; Ph.D., University of Rochester (1960).

Darby, Thomas D., Adjunct Professor Emeritus; Ph.D., Medical College of South Carolina (1957).

Jarboe, Charles H., Professor Emeritus; Ph.D., University of Louisville (1956).

Scharff, Thomas G., Professor Emeritus; Ph.D., University of Rochester (1956).

Waddell, William J., Professor and Chair Emeritus; M.D., University of North Carolina (1955).
Faculty with Adjunct Appointments

**Epstein, Paul N.**, Adjunct Associate Professor of Pharmacology and Toxicology; Ph.D., Baylor College of Medicine (1981).

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

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

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

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

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

**Lewis, Richard**, Adjunct Assistant Professor of Pharmacology and Toxicology; M.D., Case Western Reserve University (1980).

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

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

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

New Faculty Appointments

**Eaton, John W.**, Ph.D., Professor, effective December 1, 2000.

**Epstein, Paul N.**, Ph.D., Professor, effective December 15, 2000.

**McGregor, W Glenn**, M.D., Associate Professor, effective February 1, 2000.

**Miller, Donald M.**, M.D., Ph.D., Professor, effective July 1, 2000.

**Pisano, M. Michele**, Ph.D., Associate Professor, effective August 1, 2000.

**Zacharias, Wolfgang**, Ph.D., Associate Professor, effective October 1, 2000.

Staff

**Beauerle, Brian**, Research Technologist I

**Burke, Tom**, Research Technologist II
Cai, Jian, Technical Director, Mass Spectrometry Lab
Carpenter, Sharon; Executive Secretary
Doll, Mark; Research Associate
Greca, Edie; Business Manager III
Hein, Joshua, Student Assistant
Lewis, Stephanie; Lab Research Technician III
Logsdon, Paula, Student Assistant
McNeely, Sam, Research Technologist II
Nosjean, Jeremy; Student Assistant
Riddell, Amy, Student Assistant
Rutledge, Rachel; Student Assistant
Rubin-Teitel, Heddy; Program Assistant III
Smith, Aaron, Student Assistant
Smith, Leo, Student Assistant
Smith, Ned; Senior Research Technologist
Tucker, Alison, Lab/Research Technician III
Tucker, Lindsay, Lab/Research Technician III
Volk, Kelly; Lab Research Technician III
Xiao, Gong H., Research Associate

Graduate Students

**Doctoral Program**

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<th>Li, Jian</th>
<th>Lambert, Jason</th>
<th>Hennion, John</th>
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<tr>
<td>Brewer, Bradley G.</td>
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<td>Campian, Cristian</td>
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<td>Hartford, April</td>
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<td>Hou, Yining</td>
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<td>Jacobs, Al (Chip)</td>
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**Masters Program**

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<tr>
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<th>Li, Nina</th>
<th>Neale, Jason</th>
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<tr>
<td>Clark, Denise</td>
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<td>Zhong, Li-Chun</td>
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<td>Hartford, April</td>
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<td>Zhong, Miao</td>
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<td>Hou, Yining</td>
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<td>Sheng, Clare</td>
<td>Zhou, Dan</td>
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Postdoctoral Fellows

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<tr>
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<td>Cai, Jian</td>
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<td>Feng, Wenke</td>
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<td>Zhou, Dan</td>
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New Graduate Student Appointments

Chen, Hainan
Clark, Denise
Khaled, Hana
Li, Jian
Li, Nina
Modi, Tanvi
Shen, Clare
Zhu, Yuanqi

Graduations


V. Publications (salaried faculty and staff)

Papers


**Additional Publications of Faculty with Joint Appointments**


VI. Abstracts (salaried faculty and staff)


4. Epstein PN, Carlson EC, Liang Q. Metallothionein Protects the Heart in a New Model of Diabetic Cardiomyopathy. \textit{Annual Meeting of the American Diabetes Association 2000}.

5. Liang Q, Epstein PN. Yeast Hexokinase Increases Cardiac Glycolysis and Glycogen Synthesis. \textit{Annual Meeting of the American Diabetes Association 2000}.


65. Shoemaker, L., WM Pierce, Jr. Furosemide-Induced Hypercalcuria: A Model of Hypercalcuric Bartter Syndrome (HBS). Presented at the *American Academy of Pediatrics* annual meeting, May 12, 2000, Boston, MA, USA.


74. Z. H. Song and Shuang Zhao. Absence of a conserved proline in the CB2 cannabinoid receptor is crucial for receptor activation. *American Society of Pharmacology and Experimental Therapeutics 2000 meeting*.


**VII. Invited Scientific Presentations and Seminars (salaried faculty)**

**Dr. David Gozal**


*Home ventilation.* Invited Speaker, C.I.P.P. IV (Congres International Pneumologie Pediatrique), 21-24 February 2000, Nice, France.

*Developmental Aspects of Signal Transduction Pathways Underlying Hypoxic Ventilatory Responses.* Invited Speaker, 6th World Congress on Sleep Apnea, 12-15 March, 2000, Darling Hatbour Convention Center, Sydney, Australia.

*Signal Transduction During Hypoxia in the Nucleus Tractus Solitarii.* Invited Speaker, 7th International Symposium on Sleep and Breathing, 16-17 March, 2000, Manly Pacific Parkroyal Hotel, Manly, Australia.

*Infantile Apnea: Cardiovascular Interactions.* Invited Speaker, 7th International Symposium on Sleep and Breathing, 16-17 March, 2000, Manly Pacific Parkroyal Hotel, Manly, Australia.

*Neurocognitive Sequelae of Obstructive Sleep Apnea in Children.* Invited Speaker, Pediatric Academic Societies Meeting, May 12-16, 2000, Boston, MA.

*Snoring in Children: Is It Really Benign?* Grand Rounds, Department of Family and Community Medicine, University of Louisville, 19 May 2000, Louisville, KY.


Pediatric Sleep Medicine - An Overview. Pediatric/Adult Sleep Medicine for the Technologist, Kentucky Sleep Society, Kramner Auditorium, Norton Healthcare Pavillion, 3 August 2000, Louisville, KY.

Potential Roles for Growth Factor Receptors within Brainstem Neurons. Research Seminar, Section of Pediatric Respiratory Medicine, Yale University School of Medicine, 8 September 2000, New Haven, CT.

Pediatric Obstructive Sleep Apnea and its Consequences. Yale University Symposium on Sleep Medicine: An Update for Primary Care Providers, Pediatricians, and Family Physicians, Foxwood Resort and Conference Center, 9 September 2000, Mashantucket, CT.


NIH Funding and the Clinician-Scientist: The Promised Land. A Panel Discussion on Grant Writing and Review, Jewish Hospital, Bottigheimer Auditorium, November 3, 2000, Louisville, KY.

Apnea in the NICU Graduate: Is the Alarming Trend of Events Justified? Eighth Newborn and Pediatric Symposium, Hyatt Regency, November 10, 2000, Louisville, KY.

Obstructive Sleep Apnea in Children Kentucky Sleep Society 2nd Annual Conference, Keeneland Health Education Center at St. Joseph Hospital, November 18, 2000, Lexington, KY.

Multidisciplinary Approaches to Thematic Research: Interface and Implementation. University of Lyon 1, Departments of Biology and Exercise Sciences, 7 December, 2000, Lyon, France.

Intermittent and Chronic Hypoxia: Differences and Similarities. University of Lyon 1, Departments of Biology and Exercise Sciences, 7 December, 2000, Lyon, France.

The Snoring Child: A Good Reason to Learn your A, B, Zzz’s. Grand Rounds, Dricoll Children’s Hospital, 15 December 2000, Corpus Christi, TX.

Dr. Evelyne Gozal


Dr. David W. Hein


Molecular Genetic Investigations of Prostate Cancer Susceptibility. Center for Environmental and Occupational Health Sciences, University of Louisville, Louisville, Kentucky, April 2000.


Genetic Predisposition to Breast Cancer-Relationship of N-acetyltransferase Genotypes, Diet, and Smoking. Center for Genetics and Molecular Medicine, University of Louisville, Louisville, Kentucky, September 2000.


Dr. Y. J. Kang

Dec 6, 2000, University of Kentucky, Graduate Center for Nutritional Sciences, Lexington, Kentucky, “Suppression of Copper Deficiency-induced Cardiomyopathy in Metallothionein-overexpressing Transgenic Mice.”

July 11, 2000, The Institute of Hygiene and Preventive Medicine of Shenyang, China, “Alcoholic liver disease.”

June 29, 2000, The 11th Annual Meeting of the Japan Society for Biomedical Research on Trace Elements, Nagoya, Japan, “The role of oxidative stress in copper deficiency-induced cardiomyopathy.”

June 27, 2000, National Institute for Environmental Studies, Tsukuba, Japan, “The antioxidant function of metallothionein.”


Apr 14, 2000, Invited Lecture, Department of Toxicology, West China University of Medical Sciences, Chengdu, China. “Alcoholic liver diseases and preventive medicine.”

Apr 14, 2000, West China University of Medical Sciences, Chengdu, China. “Antioxidant function of metallothionein.”


Mar 19, 2000, Continuing Education Course “Molecular Approaches to a Comprehensive Understanding of cardiotoxicity” (Chaired by Y. J. Kang) at the 39th Annual Meeting of Society of Toxicology, Philadelphia, PA. “Molecular Approaches to Cardiac Toxicology Research.”

Feb 17, 2000, Preventive Medical College of Norman Bethune University of Medical Sciences, Changchun, China. “Molecular medicine research and clinical applications.”

Feb 16, 2000, Department of Infectious Diseases, the First Facilitated Hospital, Norman Bethune University of Medical Sciences, Changchun, China. “Alcoholic liver diseases and alternative medicine.”

Feb 15, 2000, Department of Hematopointic Disorders, the First Facilitated Hospital, Norman Bethune University of Medical Sciences, Changchun, China. “The antioxidant function of metallothionein: Experimental approaches and clinical implications.”

Dr. W. Glenn McGregor

“Mechanisms of mutation avoidance and induction in human cells,” Graduate Center for Toxicology, University of Kentucky, February 21, 2000.
Dr. Steven R. Myers

“Molecular biomarkers in toxicology and epidemiology,” Center for Birth Defects, University of Louisville, December 19, 2000

Dr. William M. Pierce, Jr.


“What can biomolecular mass spectrometry do for me?” Presented to the Department of Ophthalmology and Visual Sciences, University of Louisville, October 4, 2000.

Dr. Peter P. Rowell


Dr. Zhao-Hui Song

Molecular pharmacology of cannabinoids, Department of Ophthalmology and Visual Sciences, University of Louisville, February, 2000.

Dr. J. Christopher States

“Genetics of XPA”, Center for Genetics and Molecular Medicine, University of Louisville School of Medicine, Louisville, KY, May 9, 2000.
### VIII. Research Grants and Contracts (salaried faculty)

**Research Grant and Contract Proposals Submitted**

<table>
<thead>
<tr>
<th>Dr. Laurence Carr</th>
<th>Agency</th>
<th>Budget Requested</th>
</tr>
</thead>
<tbody>
<tr>
<td>From myths to evidence-based geriatrics: A comprehensive curriculum for medical students, residents, and practicing physicians (project participant) 07/01/01 – 06/30/04</td>
<td>John A. Hartford Foundation</td>
<td>$300,193</td>
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<tr>
<th>Dr. Theresa Chen</th>
<th>Agency</th>
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<tbody>
<tr>
<td>Nutritional modulation of glutathione status and longevity (PI) 06/01/01 - 05/31/02</td>
<td>NIA Pilot Research Grant Program, NIH</td>
<td>$50,000</td>
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<table>
<thead>
<tr>
<th>Dr. David Gozal</th>
<th>Agency</th>
<th>Budget Requested</th>
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</thead>
<tbody>
<tr>
<td>Episodic hypoxia, REM sleep deprivation, and hippocampal function (PI) 06/00 – 06/04</td>
<td>NHLBI</td>
<td>$900,000</td>
</tr>
<tr>
<td>PDGF in development of hypoxic ventilatory response (PI) 06/00 – 06/04</td>
<td>NICHD</td>
<td>$969,529</td>
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<tr>
<th>Dr. Evelyne Gozal</th>
<th>Agency</th>
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<tr>
<td>PDGF in development of hypoxic ventilatory response (Co-I); D. Gozal (PI) 06/00 – 06/04</td>
<td>NICHD</td>
<td>$969,529</td>
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<thead>
<tr>
<th>Dr. David W. Hein</th>
<th>Agency</th>
<th>Budget Requested</th>
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<tbody>
<tr>
<td>Pharmacogenetics of drug and carcinogen metabolism (continuation) (PI) 07/01/00 – 06/30/01</td>
<td>NCI</td>
<td>$381,010</td>
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<tr>
<td>Genetic polymorphisms and bladder cell mutagenesis (collaborator); Kent Mitchell (PI) 12/01/00 – 11/30/05</td>
<td>NIH</td>
<td>$1,354,394</td>
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### Dr. David W. Hein (cont.)

<table>
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<tr>
<th>Project Description</th>
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<tr>
<td>Shared instrumentation grant (Co-I); Donald Miller (PI)</td>
<td>NSF</td>
<td>$2,000,000</td>
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<tr>
<td>Shared instrumentation grant (Co-I); James Christensen (PI)</td>
<td>NIH</td>
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<tr>
<td>Pharmacogenetics of drug and carcinogen metabolism (supplement) (PI) 07/01/00 – 06/30/02</td>
<td>NCI</td>
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<tr>
<td>Biomarkers of maternal and fetal tobacco exposure (Co-I); Steven R. Myers (PI) 04/01/01 – 03/31/04</td>
<td>Philip Morris External Research Program</td>
<td>$2,537,659</td>
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<tr>
<td>Genetic susceptibility to vinyl chloride-induced liver cancer (Co-I); Roland Valdes (PI) 04/01/01 – 03/31/06</td>
<td>NIH</td>
<td>$1,613,840</td>
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<tr>
<td>Molecular basis of cardiac dysfunction in organ donors (Co-I); Thomas Yeh (PI) 04/01/01 – 03/31/06</td>
<td>NIH</td>
<td>$1,784,600</td>
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<tr>
<td>Cancer education grant program (Co-I); Norbert Burzynski (PI) 05/01/01 – 04/30/06</td>
<td>NIH</td>
<td>$356,665</td>
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<tr>
<td>Genetic polymorphisms and bladder cell mutagenesis (Collaborator); Kent Mitchell (PI) 07/01/01 – 06/30/06</td>
<td>NIH</td>
<td>$1,353,861</td>
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<tr>
<td>The effect of N-acetyltransferase phenotype on nuclear and mitochondrial DNA damage in heterocyclic amine cardiotoxicity (Collaborator); Stephanie J. Webb (PI) 07/01/01 – 06/30/03</td>
<td>AHA Ohio Valley Affiliate</td>
<td>$88,000</td>
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### Dr. Harrell E. Hurst

<table>
<thead>
<tr>
<th>Project Description</th>
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<tbody>
<tr>
<td>N-(carboxymethyl)valine Hemoglobin Adduct: Marker for Advanced Glycosylation End Product Formation in Diabetes (PI) 04/28/00</td>
<td>Intramural Research Incentive Grant, UofL</td>
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<tr>
<td>Project Description</td>
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<td>------------------------------------------------------------------------------------</td>
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</tr>
<tr>
<td>Metabolic activation of chemical carcinogens (Co-I); Steven R. Myers (PI) 04/01/01 - 03/31/04</td>
<td>NIH</td>
<td>$525,000</td>
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<tr>
<td>β-glucan dendrimers that target the lectin domain of CR3 (Co-I); Gordon D. Ross (PI) 04/01/01 - 03/31/05</td>
<td>NIH</td>
<td>$1,864,152</td>
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<tr>
<td>West Louisville partnership for environmental justice (Co-I); Steven R. Myers (PI) 04/01/01 - 03/31/03</td>
<td>NIH</td>
<td>$400,000</td>
</tr>
<tr>
<td>Design of oligosaccharide dendrimers for tumor therapy (Co-I); Gordon D. Ross (PI) 05/01/01 - 04/30/06</td>
<td>NIH</td>
<td>$2,011,164</td>
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<tr>
<td>Biomarkers of maternal and fetal tobacco smoke exposure (Co-I); Steven R. Myers (PI) 04/01/01 – 03/31/04</td>
<td>Philip Morris External Research Program</td>
<td>$2,537,671</td>
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<tr>
<td>Determination of suitability and sensitivity of hemoglobin adducts for quantification of butadiene air pollutant exposure (PI) 11/01/00</td>
<td>Kentucky EPA EPSCoR Committee</td>
<td>$298,367</td>
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<thead>
<tr>
<th>Dr. Y. James Kang</th>
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<tr>
<td>Oxidative stress and heart failure by copper deficiency (PI) 04/01/01 – 03/31/06</td>
<td>NHLBI</td>
<td>$1,645,000</td>
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<tr>
<td>Prevention by metallothionein of adriamycin chronic cardiotoxicity (PI) 07/01/01 – 06/30/06</td>
<td>NCI</td>
<td>$1,800,000</td>
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<tr>
<td>Cardiomyopathy induced by marginal copper deficiency (PI) 07/91/91 – 06/30/04</td>
<td>USDA</td>
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<tr>
<th>Dr. Glenn McGregor</th>
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<tbody>
<tr>
<td>DNA replication proteins as potential therapeutic targets (PI) 03/01/01 – 02/28/02</td>
<td>Intramural</td>
<td>$15,000</td>
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### Dr. Steven R. Myers

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<tr>
<th>Project Description</th>
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<td>Metabolic activation of chemical carcinogens (PI) 04/01/01 – 03/31/04</td>
<td>NIH</td>
<td>$525,000</td>
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<tr>
<td>Biomarkers of maternal and fetal tobacco smoke exposure (PI) 04/01/00 - 03/31/03</td>
<td>Philip Morris</td>
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<tr>
<td></td>
<td>External Research Program</td>
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<tr>
<td>West Louisville partnership for environmental justice (PI) 04/01/01 - 03/31/03</td>
<td>NIH</td>
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<tr>
<td>Epidemiological study of the Paducah, Kentucky gaseous diffusion plant workers (PI) 06/01/01 – 05/31/02 (Preproposal)</td>
<td>NIOSH</td>
<td>$1,750,000</td>
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### Dr. William M. Pierce, Jr.

<table>
<thead>
<tr>
<th>Project Description</th>
<th>Agency</th>
<th>Budget Requested</th>
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<tbody>
<tr>
<td>Molecular mechanisms of bone targeted estrogens (PI) 07/01/01 – 06/30/06</td>
<td>NIH</td>
<td>$1,800,000</td>
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<tr>
<td>Bone proteomic analysis (PI) 2001 - 2002 (Pre-proposal approved - Full proposal invited for Jan 31, 2001 deeadline)</td>
<td>National Osteoporosis Foundation</td>
<td>$57,000</td>
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<tr>
<td>Renal sodium phosphate transporter (Co-I); Eleanor Lederer (PI) 2000 - 2005</td>
<td>NIH</td>
<td>$1,281,260</td>
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<tr>
<td>Cardioprotective effects of ethanol (Co-I); Aruni Bhatnagar (PI) 2001-2004</td>
<td>NIH</td>
<td>$432,000</td>
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<tr>
<td>Analysis of PTH and dopamine receptor signaling in proximal tubules (Co-I); Eleanor Lederer (PI) 2001 - 2005</td>
<td>Veterans Administration</td>
<td>$665,500</td>
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<tr>
<td>Resveratrol responsiveness in mammary and endothelial cells (Co-I); Carolyn M. Klinge (PI) 2001-2002</td>
<td>AICR</td>
<td>$165,000</td>
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<tr>
<td>Tyrosine phosphorylation of platelet plasma membrane Ca&lt;sup&gt;2+&lt;/sup&gt;-ATPase: Role in hypertension (Collaborator); William Dean (PI) 2001-2003</td>
<td>AHA</td>
<td>$171,324</td>
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<tr>
<td>Dr. William M. Pierce, Jr.</td>
<td>Agency</td>
<td>Budget Requested</td>
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<tr>
<td>Tempo and mode in pheromone evolution (Co-I); Lynn Houck (PI) 2001-2005</td>
<td>NSF</td>
<td>$663,821</td>
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<tr>
<td>Computer assisted tomography scanner (Co-I); William Hnat / Michael Voor (PIs) 2000-2002</td>
<td>NSF</td>
<td>$500,000</td>
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<tr>
<td>Nutraceuticals and breast cancer (Co-I); A. F. Spatola (PI) 2001-2005</td>
<td>Congressional Priority Research</td>
<td>$1,135,000</td>
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<tr>
<td>Structural roles of sphingolipids in human lens membranes (Co-I); M. C. Yappert (PI) 2001 - 2005</td>
<td>NIH</td>
<td>$1,692,000</td>
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<tr>
<td>Mechanisms of SNAG dependent Transcriptional Repression (Co-I); H. Leighton Grimes (PI) 2001 - 2006</td>
<td>ACS</td>
<td>$1,072,000</td>
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<tr>
<td>Mechanisms of SNAG dependent transcriptional repression (Co-I); H. Leighton Grimes (PI) 2001 - 2006</td>
<td>NIH</td>
<td>$1,075,000</td>
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<td>Molecular adaptation of the skeletal muscle calcium pump in the Wood Frog (Co-I); William Dean (PI) 1999 – 2003</td>
<td>NSF</td>
<td>$959,383</td>
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<tr>
<td>Mechanisms of neutrophil activation (Co-I); Kenneth R. McLeish (PI) 2000-2005</td>
<td>NIH</td>
<td>$1,620,000</td>
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<tr>
<td>Aldose reductase in vascular smooth muscle growth (Co-I); Si-Qi Liu (PI) 2000-2005</td>
<td>NIH</td>
<td>$1,440,000</td>
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<tr>
<td>Institute for Molecular Diversity and Drug Design: Infrastructural Enhancement (Co-I); A. F. Spatola (PI ) 2001 - 2003</td>
<td>NSF EPSCoR</td>
<td>$1,000,000</td>
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<tr>
<th>Dr. Zhao-Hui (Joe) Song</th>
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<tbody>
<tr>
<td>Structure and function of CB2 cannabinoid receptor, DA11551 (PI) 09/30/98 – 09/30/03</td>
<td>NIH</td>
<td>$507,304</td>
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<tr>
<td>Cannabinoid receptors-potential targets for novel antiglaucoma drugs (PI) 06/01/01 – 06/30/06</td>
<td>NIH</td>
<td>$1,260,000</td>
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<td>Dr. J. Christopher States</td>
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<tr>
<td>DNA repair gene induction and genotoxicity of mixtures (PI) 12/00 – 11/05</td>
<td>NIEHS</td>
<td>$875,000</td>
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<tr>
<td>Biomarkers of maternal and fetal tobacco smoke exposure (Co-I); Steven R. Myers (PI) 04/01/01 – 03/31/04</td>
<td>Phillip Morris External Research Program</td>
<td>$2,537,671</td>
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<th>Dr. Leonard C. Waite</th>
<th>Agency</th>
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<tbody>
<tr>
<td>Molecular mechanisms of bone targeted estrogens (Co-I); William M. Pierce, Jr. (PI) 07/01/01 – 06/30/06</td>
<td>NIH</td>
<td>$1,800,000</td>
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</table>
# Research Grants and Contracts in Force (salaried faculty)

<table>
<thead>
<tr>
<th>Agency</th>
<th>Project Award</th>
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<tbody>
<tr>
<td>Dr. Frederick W. Benz</td>
<td></td>
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<tr>
<td>Acute acrylonitrile intoxication: Antidotal assessment (PI) 09/01/99 – 08/31/00</td>
<td>NIEHS $35,483</td>
</tr>
<tr>
<td>Dr. Laurence A. Carr</td>
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<tr>
<td>An immunological role for brain dopamine systems (PI) 09/01/98-03/01/00</td>
<td>SOM Research Committee $7,920</td>
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<tr>
<td>Dr. Theresa S. Chen</td>
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<tr>
<td>Acute acrylonitrile intoxication: Antidotal assessment (Co-I); F.W. Benz (PI) 09/01/98 – 08/31/00</td>
<td>NIEHS $35,483</td>
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<tr>
<td>Dr. Paul N. Epstein</td>
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<tr>
<td>Antioxidant transgenes in diabetic cardiomyopathy (PI) 08/01/99 – 07/30/02</td>
<td>NIH $692,139</td>
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<tr>
<td>Acetaldehyde transgenes alter alcoholic cardiomyopathy (PI) 07/01/99 – 06/30/02</td>
<td>AHA $164,000</td>
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<tr>
<td>β-cell antioxidant transgenes in diabetes and transplantation (PI) 09/01/00 – 08/31/04</td>
<td>NIH $706,000</td>
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<tr>
<td>Reducing diabetic cardiomyopathy by increasing glycolysis (PI) 09/30/00 – 09/29/04</td>
<td>NHLBI $847,800</td>
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<tr>
<td>Dr. David Gozal</td>
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<tr>
<td>Neurocognitive function in snoring children (PI) 10/01/99 – 09/30/03</td>
<td>NHLBI $1,000,000</td>
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<tr>
<td>Sleep episodic hypoxia and memory deficit in aging rats: Protection by platelet-activating factor antagonists (PI) 01/00 – 12/02</td>
<td>AHA $214,500</td>
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<tr>
<td>Episodic hypoxia, Rem sleep deprivation, and hippocampal function (PI) 10/01/00 – 09/30/04</td>
<td>NHLBI $900,000</td>
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### Dr. David Gozal (cont.)

<table>
<thead>
<tr>
<th>Project Description</th>
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<tbody>
<tr>
<td>Proteomic analysis of hippocampal hypoxic vulnerability (Co-I); Jon B. Klein (PI) 10/01/00 – 09/30/04</td>
<td>NHLBI</td>
<td>$700,000</td>
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<tr>
<td>Project on sleep disorders in children at risk for developmental problems (PI) 01/01/01 – 12/31/01</td>
<td>Department of Education</td>
<td>$921,000</td>
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### Dr. Evelyne Gozal

<table>
<thead>
<tr>
<th>Project Description</th>
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<tr>
<td>Signaling pathways in neuronal susceptibility to hypoxia (PI) 10/01/00 – 09/30/04</td>
<td>Project 1, COBRE NIH</td>
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<tr>
<td>Proteomic analysis of hippocampal hypoxic vulnerability (Co-I); Jon B. Klein (PI) 10/01/00 – 09/30/04</td>
<td>NHLBI</td>
<td>$700,000</td>
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### Dr. David W. Hein

<table>
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<tr>
<th>Project Description</th>
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<tbody>
<tr>
<td>Pharmacogenetics of drug and carcinogen metabolism (PI) 09/01/97 – 06/30/02</td>
<td>NCI</td>
<td>$1,859,936</td>
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<tr>
<td>Metabolic Basis of Sulfonamide Toxicity in AIDS patients (P.I. on subproject) 09/01/97 – 05/31/01</td>
<td>NIH-Subcontract from Wayne State</td>
<td>$768,169</td>
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<tr>
<td>Pharmacogenetics of drug and carcinogen metabolism (minority supplement) (PI) 12/01/00 – 06/30/02</td>
<td>NCI</td>
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### Dr. Harrell E. Hurst

<table>
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<th>Project Description</th>
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<tr>
<td>N-(carboxymethyl)valine hemoglobin adduct: A marker for advanced glycosylation end product formation in diabetes (PI) 06/05/00 – 08/11/00</td>
<td>SOM 2000 Summer Res. Scholarship Program</td>
<td>$3,256</td>
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<tr>
<td>Ethyl carbamate analysis in sugar cane distillate (PI) 07/07/98 – 06/30/01</td>
<td>Industrias Muller De Bebidas LTDA, Brazil</td>
<td>$10,675</td>
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<tr>
<td><strong>Dr. Y. James Kang</strong></td>
<td><strong>Agency</strong></td>
<td><strong>Project Award</strong></td>
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<tr>
<td>Effect of catalase on adriamycin cardiotoxicity (PI) 08/01/95-09/30/00</td>
<td>NCI</td>
<td>$507,500</td>
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<tr>
<td>Suppression of cardiac ischemia-reperfusion injury by overexpression of metallothionein (PI) 01/01/97-12/31/00</td>
<td>AHA</td>
<td>$300,000</td>
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<tr>
<td>Metallothionein and adriamycin cardiotoxicity (PI) 04/01/99 – 03/31/02</td>
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<tr>
<td>Metallothionein and adriamycin cardiomyopathy (PI) 04/01/99 – 03/31/01</td>
<td>Jewish Hospital Foundation</td>
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<tr>
<th><strong>Dr. Glenn McGregor</strong></th>
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<tbody>
<tr>
<td>Mechanisms of mutagenic processing of DNA damage, CA 73984 (PI) 08/01/97 – 07/31/02</td>
<td>NCI</td>
<td>$350,000</td>
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<thead>
<tr>
<th><strong>Dr. Steven R. Myers</strong></th>
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<th><strong>Project Award</strong></th>
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</thead>
<tbody>
<tr>
<td>In utero and neonatal exposure to environmental tobacco smoke and its effects on pulmonary development, lung function, and respiratory illness in the first year of life (Co-I); George Rodgers (PI) 1/1/95 – 12/31/00</td>
<td>Alliant Community Trust</td>
<td>$203,980</td>
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<tr>
<td>Hewlett-Packard capillary electrophoresis/mass spectrometer (PI) 08/01/99 – 07/31/00</td>
<td>WHAS Crusade for Children</td>
<td>$100,000</td>
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<thead>
<tr>
<th><strong>Dr. Donald E. Nerland</strong></th>
<th><strong>Agency</strong></th>
<th><strong>Project Award</strong></th>
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<tbody>
<tr>
<td>Acute acrylonitrile intoxication: Antidotal assessment (Co-I); F.W. Benz (PI) 09/01/99-08/31/00</td>
<td>NIEHS</td>
<td>$35,483</td>
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<table>
<thead>
<tr>
<th><strong>Dr. William M. Pierce, Jr.</strong></th>
<th><strong>Agency</strong></th>
<th><strong>Project Award</strong></th>
</tr>
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<tr>
<td>Proteomic analysis of hippocampal hypoxic vulnerability (Co-I); Jon B. Klein (PI) 2000-2004</td>
<td>NIH</td>
<td>$1,000,800</td>
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<tr>
<td>Project Title</td>
<td>Agency</td>
<td>Project Award</td>
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<td>------------------------------------------------------------------------------</td>
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<tr>
<td>Central nervous system injury and repair (Co-I); (Program Director: Scott Whittemore, Project Director: E. Gozal) 2000-2004</td>
<td>NIH/COBRE</td>
<td>$895,796</td>
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<tr>
<td>Regulation of neutrophil activation (Collaborator); Kenneth McLeish (PI) 1999-2002</td>
<td>VA Merit Review</td>
<td>$407,000</td>
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<tr>
<td>Blood Lead Monitoring (Lab Director) 01/01/00 – 12/31/00</td>
<td>Analytical chemistry service for local and regional medical practitioners</td>
<td>$32,837</td>
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<tr>
<td>Estrogens: Bone blood flow and bone Mechanical properties (Collaborator); John Fleming (PI) 1999 – 2001</td>
<td>NIH</td>
<td>$50,000</td>
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<tr>
<td>P450 Metabolites of Arachidonic acid and DOCA salt hypertension (Co-I); Ayotunde Adeagbo (PI) 1999-2000</td>
<td>AHA Ohio Valley</td>
<td>$75,000</td>
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<td>Regulatory kinase signal transduction pathways in human neutrophils (Co-I); Kenneth R. McLeish (PI) 2000-2002</td>
<td>AHA – Ohio Valley</td>
<td>$89,300</td>
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<td>Toxicity and detoxification of 4-hydroxyalkenals in heart (Co-I); Aruni Bhatnagar (PI) 2000-2004</td>
<td>NIH</td>
<td>$1,220,000</td>
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<td>Transcriptional and posttranscriptional regulation of zfhep activity (Co-I); Douglas Darling (PI) 2000-2001</td>
<td>UofL School of Medicine</td>
<td>$14,250</td>
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<td>P450 metabolites of arachidonic acid and DOCA salt hypertension (Co-I); Ayotunde Adeagbo (PI) 1999-2000</td>
<td>UofL School of Medicine</td>
<td>$15,000</td>
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</tbody>
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**Dr. Peter P. Rowell**

<table>
<thead>
<tr>
<th>Project Title</th>
<th>Agency</th>
<th>Project Award</th>
</tr>
</thead>
<tbody>
<tr>
<td>Functional activity of mesolimbic nicotinic receptors (PI) 9/1/99 – 6/30/02</td>
<td>NIH</td>
<td>$299,508</td>
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<tr>
<td>Dr. Peter P. Rowell (cont.)</td>
<td>Agency</td>
<td>Project Award</td>
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<tr>
<td>Effect of nicotine on mesolimbic nicotinic receptor activation and desensitization (PI)</td>
<td>Kentucky Tobacco and Health</td>
<td>$77,943</td>
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<td>07/01/99 – 06/30/00</td>
<td>Research Institute</td>
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<tr>
<td>Cholinergic influences on corticothalamic transmission (Co-I); A.R. Caggiula (PI) 10/01/00</td>
<td>NIH</td>
<td>$875,000</td>
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<tr>
<td>– 09/30/05</td>
<td></td>
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| Dr. Zhao-Hui (Joe) Song                                                                 | NIH                              | $507,304       |
| Structure and function of CB2 cannabinoid receptor (PI) 09/30/98 – 09/30/03                |                                  |                |

| Dr. J. Christopher States                                                                | NIEHS                            | $862,845       |
| DNA damage by bioactivated xenobiotics (PI) 03/97 – 07/01                                 |                                  |                |
IX. Teaching

School of Medicine

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

School of Dentistry

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

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

School of Nursing

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

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

Graduate School

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

Principles of Drug Action (Dr. Frederick Benz)
Research Methods (Dr. Chris States and Dr. Joe Song)
Pharmacology Seminar (Dr. Donald Nerland)
Introduction to Environmental Health (Dr. Steve Myers)
Frameworks in Environmental Science and Technology (Dr. Steve Myers)

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

Faculty provided service to the Department, the School of Medicine, the University of Louisville, the profession, the nation, and the community in many ways. Individual faculty service activities are identified in the Appendix.

XI. Honors and Awards

Graduate Students

Laila El-Sherif received the first place award in graduate student competition at the annual meeting of the American Society for Pharmacology and Experimental Therapeutics-Division of Toxicology.

Scot Payne received the 2000 KC Huang Outstanding Graduate Student Award in the Department of Pharmacology and Toxicology and received a first place award for his presentation at Louisville Neuroscience Day.

Norma Nangju received the second place award for her research presentations at the annual meeting of the Ohio Valley Society of Toxicology.

Xin Fu received the third place award for her research presentation at the annual meeting of the Ohio Valley Society of Toxicology, and honorable mention for her research presentation at Research!Louisville and received a travel award to attend the annual meeting of the American Society for Pharmacology and Experimental Therapeutics.

Faculty

Glenn McGregor and James Kang received second place awards and David Hein received a third place award for research presentations at the annual Research!Louisville meeting.

Evelyne Gozal was promoted to a tenure track.

Calvin Lang and Thom Zimmerman retired and were appointed professor emeritus.

James Kang was reappointed as University Scholar.

Paul Epstein was appointed as Carol B. McFerran Endowed Chair in Pediatric Diabetes Research.

David Gozal was a Heritage Foundation Visiting Scholar at the University of Calgary and the University of Alberta.

Fred Benz received a Certificate of Appreciation for Community Service from the University of Louisville.
Peter Rowell was the School of Medicine’s nominee for the 2001 President’s Distinguished Faculty Award for Outstanding Scholarship, Research, and Creative Activity.

David Hein was elected Councilor for the American Association for Medical School Pharmacology.

XII. Standing Committees

Graduate Program Committee
Dr. William Pierce (Chair)
Dr. Chris States (2002)
Dr. Len Waite (2001)
Dr. Peter Rowell (2000)
Scot Payne (student representative)

Seminar Committee
Dr. Don Nerland (Chair)
Dr. Fred Benz (2002)
Dr. Steve Myers (2001)
Dr. Theresa Chen (2000)

PBSI/Grievance Committee
Dr. Peter Rowell (Chair)
Dr. Don Nerland (2002)
Dr. Harrell Hurst (2001)
Dr. Mike Williams (2000)

Core Laboratories/Research Development Committee
Dr. William Pierce (Chair)
Dr. Chris States (2002)
Dr. Theresa Chen (2001)
Dr. Steve Myers (2000)

Teaching Evaluation Committee
Dr. Larry Carr (Chair)
Dr. Len Waite (2002)
Dr. Fred Benz (2001)
Dr. Mike Williams (2000)

Ad hoc Technology Committee
Dr. Harrell Hurst (Chair)
Dr. Fred Benz