2018 Annual Report

MISSION

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 Strategic Plan (The 2020 Plan) to continue our path to national prominence, the mission of the Department of Pharmacology and Toxicology 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 is 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 high quality research and other scholarly activities, particularly in pharmacology and toxicology and other areas of focus within the University of Louisville 2020 Plan.

- Provide high quality research and educational experiences in pharmacology and toxicology for the education and training of future biomedical scientists who will 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.

New appointments of Primary Faculty

Kyung Hong, Ph.D.

Appointment changed from Assistant Professor of Medicine (Secondary) to Assistant Professor of Pharmacology & Toxicology (Primary) effective October 1, 2018

Theodore Smith, Ph.D.

Appointment as Associate Professor of Pharmacology and Toxicology (Primary) effective August 1, 2018

Administrative Appointments

J. Christopher States, Ph.D. was appointed Vice Chair for Research effective April 1, 2019

Leah Siskind, Ph.D. was appointed Director of Graduate Studies effective April 1, 2019. Dr. Siskind also was awarded tenure.

Sonya Cary B.S.B.A., M.A. was appointed Unit Business Manager effective November 5, 2019

Resignations and Retirements of Primary Faculty

Gavin Arteel, Ph.D. resigned as Professor (Primary) effective May 31, 2018 in order to accept an professor position at the University of Pittsburgh School of Medicine.

Juliane Beier, Ph.D. resigned as Assistant Professor (Primary) effective May 31, 2018 in order to accept an assistant professor position at the University of Pittsburgh School of Medicine.

William M. Pierce, Jr., Ph.D. Professor (primary) retired and was appointed professor emeritus effective February 1, 2018.

New appointments of secondary faculty members

Gregory N. Barnes, M.D., Ph.D., Associate Professor of Neurology was appointed Associate Professor of Pharmacology and Toxicology (secondary) effective September 1, 2019.

Jun Cai, M.D., Ph.D., Assistant Professor of Pediatrics was appointed Assistant Professor of Pharmacology and Toxicology (secondary) effective July 1, 2018.

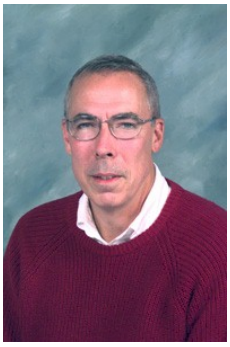
Tamer M.A. Mohamed, Ph.D., Assistant Professor of Medicine was appointed Assistant Professor of Pharmacology and Toxicology (secondary) effective December 1, 2018.

Scott R. Whittemore, Ph.D. Professor of Neurosurgery was appointed Professor of Pharmacology and Toxicology (secondary) effective March 1, 2018.

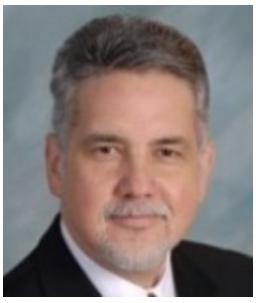
Deaths of Emeritus Faculty

Charles "Harry" Jarboe passed away January 30, 2018. He was first appointed Assistant Professor (primary) in 1957, and was promoted to Associate Professor and full Professor. He served as acting chair and Professor Emeritus

Retirements and Resignations of Associate Faculty



John Eaton, Ph.D, Professor of Medicine (primary) and Pharmacology and Toxicology (secondary) retired and was appointed Professor Emeritus of Medicine effective June 30, 2018.



Jesse Roman, M.D., Professor and Chair, Department of Medicine and Professor of Pharmacology and Toxicology (secondary) resigned his appointment effective January 31, 2018 to accept the position as professor and director of a new institute at Thomas Jefferson University School of Medicine. He received a gratis appointment for the period January 31 thru July 31, 2018.

A. Bennett Jenson, M.D. Professor and Senior Scientist, James Graham Brown Cancer Center, retired and appointed Professor Emeritus effective July 1, 2018.

FACULTY WITH PRIMARY APPOINTMENTS

Demetra Antimisiaris, PharmD, BCGP, FASCP
Associate Professor

Dr. Antimisiaris leads the Frazier Polypharmacy and Medication Management Program, which is a program dedicated to education, research and outreach to help solve the problems associated with polypharmacy. Her primary research interest is in the area of decision making about medication use by all stake holders (prescribers, caregivers, healthcare systems, and consumers), and the factors which influence those decisions. Recent projects focus on monitoring of medication use: i.e. how the healthcare system tracks and documents the use each medication a person is taking, what consumers know about what they are taking, and might there be ways that we can improve upon the current status of medication use monitoring? Machine learning in predictive monitoring of medication use is developing area of research Dr. Antimisiaris is working on with engineering colleagues.

Gavin E. Arteel, PhD, FAASLD
Professor

Dr. Arteel and his current research team have major research foci that include; acute and chronic alcohol-induced liver injury, priming of the inflammatory response in liver, sensitization of cytotoxic cell killing in liver, and mechanisms of hepatic regeneration and remodeling. Key events in fatty liver diseases include: chronic injury, impaired regeneration, and an increase in ECM deposition. The majority of research into the latter event in liver disease has focused on collagenous scar formation during endstage (i.e., fibrotic) liver disease. However, several ECM proteins accumulate rapidly in response to stress and may play key roles in hepatic damage. The nature and magnitude of these changes to the ECM are currently poorly understood. Using proteomic approaches, Dr. Arteel is able to characterize the qualitative and quantitative changes to the ECM proteome ("matrisome") in response to stress. These results therefore also serve as a foundation for future analyses in hepatic models of liver disease, as well as a foundation for predictive modeling of the impact of these changes. There are currently no FDA-approved therapies to halt or reverse the progression of liver diseases. It is the goal of this laboratory's work to identify key molecular mediators of chronic liver diseases, which may serve as useful therapeutic targets. Importantly, the molecular mechanisms identified may not only be shared in chronic diseases of the liver, but also in chronic inflammatory diseases to other

organs. Therefore, the results of our research may shed light on chronic diseases of inflammation and remodeling in other organs (e.g., heart, lungs and kidneys).

Juliane Beier, Ph.D.
Assistant Professor

Dr. Beier's research focus is on liver diseases. More specifically, the lab is investigating environmental vinyl chloride exposure in the context of existing underlying liver disease. Clearly high occupational exposure to vinyl chloride is directly hepatotoxic; what is less well clear is the impact of lower environmental exposure on exacerbating existing liver disease. Given the fact that a significant portion of the population has risk factors for liver disease (most commonly, obesity), and that 30% of the US population has elevated indices of liver damage, any potential impact of low environmental exposure could be dramatic. Her findings indicate that indeed vinyl chloride can exacerbate liver damage caused by another factor. This work shifts the paradigm of current risk assessment for not only this compound, but any other environmental agent that may potentially damage the liver.

Brian P. Ceresa, Ph.D.
Pharmacology Thread Director for School of Medicine Curriculum
Professor

The Ceresa lab studies the epidermal growth factor receptor (EGFR) and its role in tissue biology/wound repair and cancer. The EGFR has an essential role in many developmental processes and for homeostasis of a number of tissues, such as the cornea, epidermis, and colon. In addition, the EGFR is overexpressed and/or hyperactivated in a number of cancers, including lung, breast, gastric, pancreatic, and melanomas. The Ceresa lab is interested in the molecular mechanisms that regulate the magnitude and duration of EGFR signaling. Understanding how EGFR signaling is dysregulated may provide clues to the diagnosis, prognosis, or treatment of cancer. Conversely, deliberately perturbing these regulatory processes is a strategy to enhance corneal epithelial wound healing. They use a variety of experimental strategies to answer our scientific questions – from purified proteins, primary and immortalized cell lines, isolated animal tissues, and whole animals.

Shao-yu Chen, Ph.D.
Professor

Dr. Chen has conducted alcohol-related birth defects research for more than 20 years. His research program focuses on elucidation of cellular and molecular mechanisms of alcohol-induced birth defects. In his laboratory, a combination of state-of-the-art approaches, including RNA interference, microRNA technology and ultrasound-guide in utero microinjection are integrated with cell and whole embryo culture systems, as well as in vivo mouse and zebrafish models of Fetal Alcohol Spectrum Disorders (FASD) to elucidate the molecular mechanisms underlying FASD. Dr. Chen's laboratory has been successfully conducting innovative and pioneering research in various areas, including Nrf2, Siah1 signaling pathways and the microRNAs involved in ethanol-induced apoptosis and birth defects. These studies have provided important information regarding the mechanisms underlying ethanol-induced birth defects. His research has also clearly shown the effectiveness of a number of agents, including antioxidants, the neuroprotective peptides, and microRNA mimics, in the prevention of alcohol-induced apoptosis and structural abnormalities in embryos. These findings are expected to validate possible molecular targets and yield innovative strategies for the prevention of FASD and give hope that antioxidants, certain peptides or microRNA mimics could lessen the effects of prenatal alcohol exposure in the children of women who are unable to curtail their alcohol abuse while pregnant.

Geoffrey J. Clark PhD
Associate Professor

Ras is arguably the most important oncogene of all and may drive more than 30% of human cancers. Yet it has defied efforts to target it therapeutically. One of the most fascinating and poorly understood aspects of Ras biology is that deregulated Ras activity can promote cell death. These Ras death pathways are subverted in human tumors, allowing the transforming effects of activated Ras to dominate. I have spent a large part of the last 15 years defining the signaling mechanism used by Ras to kill cells and trying to understand how they are subverted in cancer. These studies have focused extensively on the RASSF family of Ras death effectors, the majority of which were first identified and cloned by my group. I also have a program involving the development of novel small molecules that act directly or indirectly to suppress Ras driven tumorigenesis. The laboratory utilizes a variety of cellular and molecular biology techniques to pursue these studies.

Jonathan H. Freedman, Ph.D.
Professor

Dr. Freedman's research interests can be divided into two broad categories: basic and applied. The tools developed as part of the applied research program are used to advance basic research. Likewise, mechanistic information derived through basic research projects is adapted and then developed into applied protocols. The basic research program involves understanding how exposures to environmental factors contribute the development and/or exacerbation of human diseases. Our group is focused in the roles of transition metals (cadmium and zinc) and diet in the etiology of cancer, metabolic syndrome (e.g., type II diabetes) and Autism Spectrum Disorder. We are applying a systems biological approach; where interactions among phenotypes, genetics, transcriptomics and environmental factors at the molecular, cellular, organ and whole organism level are characterized in an integrated manner. This holistic approach allows us to develop novel models to delineate the mechanism(s) by which multiple factors come together to produce human disease. Our group utilizes model organisms (*Caenorhabditis elegans* and mice) and mammalian cell culture, as well as high-throughput screening technologies to explore the environmental contributions to these human diseases.

The applied research program is focused on the development of alternative organisms for *in vivo* toxicological testing. This project is part of the international effort to reduce, refine and replace mammalian species in toxicity testing. We utilize the technologies and statistical methods already developed in the laboratory for high-throughput toxicity testing using *C. elegans* to other biomedically-relevant model organisms; *Daphnia*, *Drosophila*, Zebrafish and *Xenopus*.

Joshua L. Fuqua, Ph.D.
Assistant Professor

Development of proteins and biologic for therapeutic and diagnostic indications in infectious disease, cancer, and neurodegenerative disease. Dr. Fuqua has experience in preclinical product development ranging from drug manufacturing to toxicology studies. He has familiarized himself with Project Management and Regulatory Affairs applications in the pharmaceutical industry through external certificate programs and practice.

Ramesh Gupta, Ph.D.
Professor, Agnes Brown Duggan Chair of Oncological Research

Dr. Gupta's current major interests are to develop new prevention and treatment strategies by intervention with dietary constituents (such as berries, common spices), novel subcutaneous polymeric implantable devices embedded with test agents for systemic and local delivery, and milk-derived exosomes as nano carriers for oral delivery of both standard drugs and natural agents with therapeutic activity, as well as identify molecular targets. The common experimental models and laboratory techniques performed routinely in his laboratory include, cell culture, wild-type and xenograft models for lung cancer and breast cancer, ^{32}P-postlabeling DNA adduct assay, qPCR, western, tumor imaging, and HPLC coupled with various detectors. His laboratory was the first to demonstrate that berries are effective beyond the GI tract by showing significant inhibition of estrogen-mediated breast cancer and lung cancer. The ongoing work with phenolics isolated from these berries have demonstrated that berry phenolics can have significant synergistic activity towards anti-proliferation, apoptosis and anti-inflammation due to attack of different bioactives on distinct or overlapping protein targets against lung cancer. These findings have been confirmed in cell culture and tumor models. His laboratory's present major thirst is on drug delivery for enhanced therapeutic response. The most recent development is a novel technology for oral delivery of drugs using bovine milk-derived exosomes (biological nanoparticles) as a carrier for small drug molecules, as well as macromolecules such as siRNAs. This technology is emerging as a major drug delivery technology in the field with potentially wide therapeutic applications. His laboratory has trained numerous graduate students, postdoctoral scholars, residents, undergraduates and High School students. His laboratory is currently supported by a postdoctoral fellow, two PhD students and two junior faculty.

Kyung U. Hong, Ph.D.
Assistant Professor

Arylamine N-acetyltransferases (NATs) express a well-defined genetic polymorphism in humans that modifies drug and xenobiotic metabolism. Our laboratory has previously characterized the genetic variants of NAT2 and shown that they result in expression of protein of varying enzymatic activity or stability. Recent GWAS studies have reported that some of these genetic variants within the NAT2 gene are tightly linked to insulin resistance and high serum triglyceride level in humans, suggesting a previously unrecognized yet important role of these enzymes in development of metabolic disorders. However, the precise mechanism by which NAT2 exerts this role and whether or not this role is modified by NAT2 genetic polymorphism is currently unknown. Importantly, the role of NAT2 in insulin resistance and metabolism has not been investigated in model systems of human origin. Our research involves using human primary hepatocytes, adipocytes and

myoblasts and characterizing their responses to insulin while modulating cellular NAT2 level or activity. Human primary hepatocytes that harbor defined genetic polymorphisms of NAT2 will be also employed to see if naturally occurring genetic variants of NAT2 in humans have differential effects on cellular metabolism and insulin sensitivity.

Joshua L. Hood M.D., Ph.D.
Assistant Professor

Dr. Hood's lab is focused on the translational design and implementation of biology inspired nanomedicine supported by biologic nanovesicle (exosome) investigations. Understanding exosome function and nanocarrier properties in the context of tumor angiogenesis, macrophage function and pre-metastatic niche formation are explored with a specific focus on melanoma. Other derivative projects include development of exosome-based biomarkers for cancer and synthetic nanomedicines to combat pathogenic exosomes and similarly structured viruses. Our long term goal is to develop and translate personalized exosome-based diagnostics and therapeutics for melanoma and other cancers.

David W. Hein, PhD
Peter K. Knoefel Endowed Professor and Chair

Dr. Hein's research program in molecular epidemiology identifies individuals genetically susceptible to the development of cancer from environmental and occupational chemicals in order to focus treatment and prevention public health strategies on those at greatest risk. His research in pharmacogenetics/genomics and personalized medicine improves understanding of the genetic causes for drug failure and/or drug toxicity in order to optimize clinical drug therapy for each individual patient. His research in functional genomics improves understanding of the mechanistic and clinical consequences of genetic variation in the biotransformation of carcinogens and drugs.

La Creis Renee Kidd, Ph.D., M.P.H.
Our Highest Potential Endowed Chair and Associate Professor

Dr. Kidd's research focuses on the utilization of state of the art bioinformatics tools to identify and validate genetic susceptibilities related to cancer risk and poor disease prognosis (i.e., high tumor grade/stage, disease/biochemical recurrence). Although Dr. Kidd is intrigued by major cancer malignancies, a majority of her work has centered on prostate cancer. Her earlier work focused on complex

interactions among xenobiotic metabolism, DNA repair, oxidative stress-related genes, and angiogenesis in relation to prostate and breast cancer outcomes. She was a lead author on the first study on the role of genomic anomalies in the chemokine ligand 5 (CCL5) and chemokine receptor 5 (CCR5) associated genetic alterations in prostate cancer risk among men of African and Caribbean Descent (Hered Cancer Clin Pract. 2012 Nov 20; 10(1): 16). A majority of her work focuses on understanding the role genetic plays in high cancer incidence and mortality rates among underserved populations. She has 3 patents for important prostate cancer predictors from her population-based studies (61/240089, 61/313,595, 61/655,243). Dr. Kidd was a significant contributor of a multi-center genome wide study for genetic susceptibility genes for prostate cancer among men of African and European descent.

Since 2012, Dr. Kidd's lab started to work on the role of miRNAs in prostate cancer in partnership with her former graduate student (Dominique Reed) and various faculty members engaged in basic research. Micro-RNAs (miRNAs), are non-coding RNAs that regulate the expression of genes. Dr. Kidd became interested miRNAs after learning these mini gene regulators can suppress or accelerate aggressive cancer behavior by inhibiting the expression of oncogenic or tumor suppressor genes, respectively. MiRNAs are promising cancer biomarkers for many reasons. First, miRNAs are stably expressed in tumor tissue and biological fluids (i.e., urine, serum, plasma). Second, they regulate the expression of genes involved in the hallmarks of cancer (e.g., cell proliferation, cell survival, anchorage independent growth, invasion, migration, cell survival, angiogenesis). Third, dysregulation of miRNAs corresponds with aggressive prostate cancer phenotypes. Fourth, tissue/blood-based miRNAs may distinguish between lethal and non-lethal forms of cancer. Fifth, miRNAs may help investigators find potential therapeutic targets for the effective treatment of cancer.

Recently, Dr. Kidd's lab demonstrated the up-regulation of one particular miRNA, miR-186-5p in metastatic prostate cancer cell lines and serum from prostate cancer patients. Her lab also demonstrated a decrease in cell proliferation, colony formation and cell invasion in miR-186 depleted metastatic prostate cancer cell lines. Based on pre-clinical studies, the decrease in cell invasion may be related to an up-regulation of AKAP12 following the repression of miR-186 in metastatic prostate cancer cell lines. Presumably, AKAP12, a tumor suppressor gene, inhibits pAkt, which in turn suppresses beta-catenin, a gene essential for cell invasion, epithelial mesenchymal transition and chemo-sensitivity. These findings are currently under review for publication consideration in BMC Cancer.

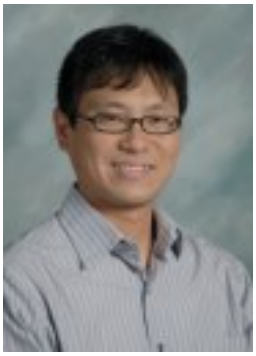
It is her hope that her research findings will lead to the discovery of therapeutic targets for the effective treatment of aggressive and lethal forms of cancer. Such efforts will help to reduce the burden of this disease among cancer patients and their families.

J. Calvin Kouokam, Ph.D.
Assistant Professor.

My main research focus is the development of plant produced proteins for the treatment of human diseases. Our current projects involve safety, pharmacodynamic and pharmacokinetic evaluation of antivirals targeting HIV-1 and other enveloped viruses, including HSV-2. Notably, we are assessing the safety and efficacy of the potent antiviral lectin Griffithsin (GRFT) in the context of colorectal pathologies (e.g. ulcerative colitis and colorectal cancer). In addition, we are interested in plant derived lectins as anticancer agents. Such lectins will be produced in Nicotiana benthamiana plants. Finally, we plan in the near future to assess natural products from various African plants for their therapeutic activities.

Igor S. Lukashevich, M.D., Ph.D., D.Sc.
Professor

Dr. Lukashevich research interest includes pathogenesis of liver dysfunctions caused by highly pathogenic RNA viruses causing hemorrhagic fevers (HFs). In collaboration with Dr. Arteel's team, he discovered a novel mechanism of liver involvement in pathogenesis of viral HFs. According to this mechanism, the virus-induced pathophysiological hepatocyte proliferation is accompanied by cell cycle arrest and contributes to expansion of the infection to parenchymal cells. Elevated levels of plasma transaminases are likely explained, at least in part, by aborted hepatocyte proliferation causing apoptotic events and induction of oval cells, the "second line" of liver protection against the injury. These results may lead to the development of new therapeutic interventions for devastating diseases caused by HF viruses (e.g., Lassa, Machupo, Ebola). Development of new preventive vaccines based on advanced vaccine technologies is another scientific avenue in Dr. Lukashevich lab. He designed several promising vaccine candidates against Lassa HF, the most prevalent HF in West Africa, and against South American HFs. He co-invented infectious DNA (iDNA) technology to improve existing and experimental live-attenuated vaccines against Yellow Fever, Venezuelan Equine Encephalitis, Japanese Encephalitis, and Chikungunya. This technology combines advantages of naked DNA immunization and high efficacy of live-attenuated vaccines. The iDNA-launched vaccines are "manufactured" in vaccinated individuals and do not require traditional vaccine manufacturing facility and technology.



Nobuyuki Matoba, Ph.D.
Associate Professor

Dr. Matoba's research is focused on the development of protein pharmaceuticals. To this end, they utilize a plant-based transient protein production system. This technology enables quick transition of candidate proteins from discovery and preclinical studies to clinical testing and ultimately provides cost-effective vaccines and therapeutics for developing countries. They employ multidisciplinary experimental methodologies including protein engineering, biochemistry, analytical chemistry, antiviral research and immunology. Currently, one of their projects is developing a vaccine against inflammatory bowel disease and colitis-associated colon cancer. Another project is investigating the cancer diagnostic and therapeutic potentials of a "lectibody", an antibody-lectin chimera that can recognize a broad spectrum of cancer cells. Our projects are funded by NIH, DoD and Helmsley Charitable Trust.

Kenneth E. Palmer, Ph.D.

Professor & Helmsley Chair in Pharmaceutical Plant-based Research; Director, Center for Predictive Medicine

Dr. Kenneth Palmer's primary research focus is in developing vaccines and antivirals that address pathogen diversity and counteract immune evasion strategies. His laboratory has been developing a lectin, Griffithsin, as a broad-spectrum antiviral biopharmaceutical for prevention of human immunodeficiency virus and genital herpes virus transmission. This product is advancing to a first-in-humans clinical trial. Dr. Palmer is the Director of the University of Louisville Center for Predictive Medicine, which has state-of-the-art facilities for BSL-3 biocontaiment research. His group is developing broad-spectrum antiviral strategies for prevention and treatment of emerging and re-emerging viral infections of public health concern, including highly pathogenic influenza and coronaviruses. Dr. Palmer is the Helmsley Charitable Trust Endowed Chair in Plant-based Pharmaceutical Research, which recognizes that the core products and technologies that drive his research program originate in plants, or use plants as recombinant protein expression systems. The Palmer laboratory is supported by grants from the National Institutes of Health and private philanthropy from the Helmsley Charitable Trust.

Leah J. Siskind, Ph.D.
Associate Professor; Director, Graduate Program

The Siskind laboratory has several different areas of interest and combines expertise at the biophysical, molecular, cellular, and animal level with the goal of translating findings to the clinic. The laboratory has several areas of focus. First, the Siskind laboratory aims to protect the kidney from the toxic effects of chemotherapeutics so that they can be more effectively utilized to treat cancer. Current chemotherapies such as cisplatin often have the deleterious side-effect of kidney toxicity which in almost 30% of cancer patients limits their use. Data from the Siskind laboratory indicates that repeated dosing of chemotherapeutics induces pro-fibrotic signaling pathways in the kidney, leading to long-term loss of kidney 0function. The Siskind laboratory aims to target these signaling pathways to protect the kidney from chemotherapeutics so that they can be utilized better to reduce tumor burden. In addition, the Siskind laboratory in collaboration with the laboratory of Dr. Levi Beverly studies fundamental cancer cell biology utilizing 3-dimentional models of tumors in culture to understand how interactions between cancer cells and the extracellular matrix alters tumor cell proliferation, migration, invasion, and metastasis. In a collaboration with the laboratories of Drs. Beverly and Clark, the Siskind lab aims to develop a porcine model of lung cancer. They aim to determine if pigs represent a model system that more closely resemble the progression and metastasis of human cancer patients. Furthermore, the lab aims to treat pigs with standard of care chemotherapeutic regimens, exactly as human patients would be treated, and determine if tumors demonstrate a similar response, as seen in patients. Finally, they aim to determine if pigs can be used as a model for the testing of immune-modulatory therapeutics that are now being tested in humans. Interestingly, they have found that the most exciting the therapies used in humans that target CTLA4 and PD-1 also bind to their porcine counterpart, raising the exciting possibility that these therapeutics will be able to be used in co-clinical trials in pigs to guide their usage in humans.

Theodore R. Smith, Ph.D.
Associate Professor

The human envirome is the totality of environmental conditions that affect an individual. It is the sum total of the external conditions that effectuate and regulate the translation of the genome to the phenome across an individual lifespan. It comprises of an interactive set of natural, social and personal domains of the external environment. Eviromics, the study of the Envirome and it is relation to health outcomes, is an emerging field with deep roots in environmental health and toxicology. Like its cousin discipline of genomics, rapid evolution of sensor and data technologies

help us “sequence” or characterize the envirome. Our Center for Healthy Air Water and Soil within the Envirome Institute is focused on research that addresses the promotion of human health in urban environments. Many projects within the Institute share a focus on the biophilia hypothesis that suggests our fundamental affiliation with our broader ecology mediates disease risk. Several of these projects require sensor and data technologies, not only sensors for monitoring ambient particulate matter, noise pollution and air toxics, but also for measuring physical activity or personal biometric data. We plan to develop comprehensive and integrative approaches for acquiring environmental and individual-level data that could inform and enable new types of community-based observational or clinical studies. Given this multidisciplinary approach, we will collaborate extensively with community, civil and business leadership. The experience gathered from such interactions will be useful in developing research translation abilities for communications with both community members and our federal partners within the Superfund program. Overall, to support the Envirome initiative and the development of the Center for Healthy, Air, Water, and Soil, the early focus is on scientific research in the areas of urban development and health and novel approaches for measuring and assessing different domains of the envirome (sensors, new data sources). A second area of focus is the development of new models and frameworks for communicating scientific knowledge to the lay public, other academics, healthcare industry, policy makers and other stakeholders.

Zhoe-Hui (Joe) Song, Ph.D
Professor

The current research focuses of Dr. Song’s laboratory are the molecular targets of cannabinoids. Cannabinoids are composed of three categories, including phytocannabinoids (the active chemical components of cannabis), endocannabinoids (the cannabinoid-like substances in our body), and synthetic cannabinoids. We are studying the ligand binding and signal transduction mechanisms of CB1 and CB2 cannabinoid receptors, two proven molecular targets for cannabinoids. In addition, we are investigating GPR3, GPR6 and GPR12, a family of orphan receptors that have been recently shown by us to be novel molecular targets for cannabidiol (CBD). CBD is the major non-psychoactive of marijuana and has been proposed to have therapeutic potentials for a variety of illnesses, including glaucoma, neurological/psychiatric disorders and cancer. Therefore, our research on GPR3, GPR6 and GPR12 will not only help to understand the mechanisms of action for CBD, it will also explore the viability of these three receptors as novel therapeutic targets.

J. Christopher States, Ph.D.
Professor; Vice Chair for Research

The major interests of the laboratory are arsenic toxicology, DNA repair and development of mitosis disrupting drugs for cancer chemotherapy. Currently, the laboratory is investigating the role of miRNA dysregulation in arsenic induced skin carcinogenesis. The lab is determining miRNA profiles of arsenic-induced squamous and basal cell carcinomas and premalignant hyperkeratoses. In parallel, the lab is characterizing miRNA expression changes that occur during arsenic transformation of a human keratinocyte cell line. The interest in mitotic disruption includes investigation of miR-186 overexpression effects on chromatid separation and compounds that inhibit function of the anaphase promoting complex/cyclosome. Other interests include induction of chronic adult diseases by early life/in utero arsenic exposure and enhancement of cisplatin sensitivity by co-administration of arsenicals.

John P. Wise, Sr., Ph.D.
Professor

The Wise Laboratory studies cancer and seeks to understand how environmental chemicals transform normal cells into tumor cells. Their work focuses on chromosomes and how changes in the number and structure of chromosomes leads to cancer. The Wise Laboratory has made important advances in understanding DNA damage, DNA repair, mitosis, and centrosome biology; discovering how chemical impacts on these processes lead to chromosome instability and carcinogenesis. The Wise Laboratory then compares these outcomes in humans, to similar endpoints in whales, alligators and sea turtles to discover novel adaptations and to better conserve wildlife. In addition, to these efforts, The Wise Laboratory pioneers studies on how zero gravity changes these processes during space exploration. Some of the new directions in the Laboratory include stem cell research, autophagy and three-dimensional cell culture as they consider how metals impact or create cancer stem cells in their carcinogenic mechanism and preventative studies as they seek to understand if natural products like berries and beets can reduce or reverse toxicity. The Wise Laboratory contextualizes their studies in a “one” environmental health perspective, which considers data from their studies of wildlife, domestic animal, and ecosystem health, together with data from their human health studies. Thus, work in the Wise Laboratory includes laboratory-based mechanistic investigations using state-of-the-art cellular and molecular toxicology tools in their laboratories on the UofL Medical School campus combined with ship-and-shore-based work at field sites in Vieques, Puerto Rico; Cape Canaveral, Florida; and the Gulfs of Maine, Mexico and California.

Sandra S. Wise, Ph.D.
Assistant Professor

Dr. Wise's research interests include how environmental chemicals, such as hexavalent chromium, depleted uranium and oil and dispersed oil products, can transform normal cells into cancer cells. These studies have focused on DNA repair deficiency and its impact on chromosome instability as a driving mechanism to cellular transformation and the development of disease. Currently, she is pursuing how cells exposed to these chemicals induce DNA and chromosomal damage yet are able to survive and evade the normal cell death pathways that should occur in order to protect the organism from disease.

FACULTY WITH SECONDARY APPOINTMENTS

Juhi Bagaitkar, Ph.D.
Assistant Professor
Ph.D., Oral Immunology and Infectious Diseases, University of Louisville (2010)

Research Interests: To understand the immunological consequences of apoptotic cell clearance during inflammation and infection.

Gregory Barnes, Ph.D.
Associate Professor, Department of Neurology
M.D., University of Kentucky (1992)
Ph.D., Biochemistry, University of Kentucky (1990)

Shirish Barve, Ph.D.
Professor of Medicine
Ph.D., Molecular Pathogenesis, University of Kentucky (1990)

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

Levi J. Beverly, Ph.D.
Associate Professor, Department of Medicine
Ph.D., Molecular Genetics, Biochemistry and Microbiology, University of Cincinnati (2007)

Research Interests: Regulation of anti-apoptotic proteins in cancer progression and treatment.

Aruni Bhatnagar, Ph.D., FAHA

Smith and Lucille Gibson Chair and Professor, Department of Medicine;
Director, Envirome Institute
Ph.D., Kanpur University, India (1985)

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

Michael E. Brier, Ph.D.

Professor, Department of Medicine
Ph.D., Industrial and Physical Pharmacy, Purdue University (1986)

Research Interests: Clinical pharmacokinetics/dynamics; Drug dosing in renal failure.

Jian Cai, Ph.D.

Assistant Professor of Medicine
Ph.D., Pharmacology and Toxicology, University of Louisville (1999)

Research Interests: 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.

Jun Cai, M.D., Ph.D.

Assistant Professor, Department of Pediatrics
M.D., Tianjin Medical College (1993)
Ph.D., Biochemistry and Molecular Biology, Tianjin Medical University (1997)

Lu Cai, M.D., Ph.D.

Professor, Department of Pediatrics, Director of Pediatric Research Institute
M.D., Norman Bethune University of Medical Sciences (1983)
Ph.D., Radiation Biology/Oncology, Norman Bethune University of Medical Sciences (1987)

Research Interests: Diabetic cardiomyopathy and nephropathy

Matthew C. Cave, M.D.

Associate Professor, Department of Medicine
M.D., University of Kentucky (2001)

Research Interests: Steatohepatitis and liver cancer related to environmental and occupational chemical exposures; Complementary and alternative medicine in liver disease; Alcoholic and nonalcoholic fatty liver disease; Treatment of Hepatitis C.

Jason A. Chesney, M.D., Ph.D.

Professor and Brinkley Chair in Lung Cancer Research, Department of Medicine
Ph.D., Biomedical Sciences/Immunology, University of Minnesota (1997)
M.D., University of Minnesota (1998)

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

Daniel J. Conklin, Ph.D.

Professor, Department of Medicine
Ph.D., University of Notre Dame (1995)

Research Interests: Environmental cardiology; cardiovascular toxicology.

Albert R. Cunningham, Ph.D.

Associate Professor, Department of Medicine
Ph.D., Environmental and Occupational Health, University of Pittsburgh (1998)

Research Interests: Structure-Activity Relationship Modeling: Carcinogens, Chemotherapeutics, and Molecular Targets

Chendil Damodaran, Ph.D.

Associate Professor, Department of Urology
Ph.D., Environmental Toxicology (Cancer Biology), University of Madras (1984).

Research Interests: Identifying novel therapeutic compounds of natural origin that possess anti proliferative properties in prostate cancer cells, both androgen-dependent and – independent.

Ayman El-Baz, Ph.D.

Associate Professor and Chair of Bioengineering
Ph.D., Electrical and Computer Engineering, University of Louisville (2006)

Research Interests: Dr, El-Baz directs UofL's BioImaging Laboratory. The primary focal point of the BioImaging Lab is to develop and implement innovative and ground-breaking techniques for use in image-guided surgeries, and the creation of non-invasive image-based diagnostic systems, which can help to revolutionize the early diagnosis of numerous diseases and brain disorders.

Paul N. Epstein, Ph.D.

Professor, Department of Pediatrics
Carol B. McFerran Chair in Pediatric Diabetes Research
Ph.D., Pharmacology, Baylor College of Medicine (1981)

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

Wenke Feng, Ph.D.

Associate Professor, Department of Medicine
Ph.D, Biochem/Biotech, University for Bodenkultur (1998)

Research Interests: Mechanisms of alcoholic liver disease; Mechanisms of nonalcoholic steatohepatitis; Tissue hypoxia and diabetic complications.

Herman B. Frieboes, Ph.D.

Assistant Professor, Department of Bioengineering
Ph.D., Biomedical Engineering, University of California, Irvine (2006)

Research Interests: Develop and apply realistic, predictive biocomputational models integrated with clinical and laboratory data to study cancer growth and treatment; design of patient-specific therapies; and design of multiscale biocomputational models to describe the complex interaction between cancer treatment and the immune system.

Lelia Gobejishvili, Ph.D.

Assistant Professor, Department of Medicine
Ph.D. Physiology. I. Beritashvili Institute of Physiology, Georgian Academy of Sciences (1995)

Research Interests: Alcohol induced changes in innate immunity; alcohol mediated epigenetic changes of pro-inflammatory cytokines; role of phosphodiesterases in priming of monocytes and development of liver injury/fibrosis.

Evelyne Gozal, Ph.D.

Associate Professor of Pediatrics
Ph.D., Toxicology, University of Southern California (1997)

Research Interests: 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.

Yiru Guo, M.D.

Professor, Department of Medicine
M.D., Xinjiang Medical University (1982)

Research Interests: Cardio-thoracic and vascular surgery, physiology, and pharmacology. Research focuses on: (i) elucidating the mechanisms of ischemic-pharmacologic- and exercise-induced preconditioning by using the ischemia/reperfusion model in genetically engineered animals, (ii) studying protection of ischemic myocardium by using gene and/or cell therapy, and (iii) elucidating adaptations to ischemia/reperfusion injury in the aging heart.

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

Professor of Neurological Surgery
Endowed Professor of Molecular Signaling
M.D., Warsaw Medical School (1994)
Ph.D., Experimental and Clinical Medicine, Polish Academy of Sciences (1997)

Research Interests: Role of signaling kinases in neuronal repair and demise.

Bradford G. Hill, Ph.D.

Assistant Professor of Medicine
Ph.D., Biochemistry, University of Louisville (2007)

Research Interests: The broad theme of my research entails understanding how changes in metabolism contribute to cardio-metabolic health and disease. This involves the critical examination of glycolysis, mitochondria, and other pathways of intermediary metabolism and the development of causal relationships between metabolic defects or signatures and (patho)physiology.

Steven P. Jones, Ph.D.

Professor of Medicine
Ph.D., Physiology, Louisiana State University Health Sciences Center, Shreveport (2002)

Research Interests: Metabolic signaling in the cardiovascular system.

Swati Joshi-Barve, Ph.D.

Assistant Professor of Medicine
Ph.D., Biochemistry, University of Kentucky (1992)

Research Interests: Mechanisms of Steatohepatitis (nonalcoholic and alcoholic fatty liver disease); Mechanisms of Alcohol-induced Immune Dysfunction; Mechanisms of Hepatocellular Carcinoma.

Bradley B. Keller, M.D.

Professor of Pediatrics and Bioengineering
Kosair Charities Chair and Chief, Division of Pediatric Heart Research
M.D., Pennsylvania State University (1985)

Research Interests: Cardiovascular bioengineering: Development of 3D tissues for heart repair and regeneration.

Irina Kirpich, Ph.D., M.P.H.

Assistant Professor of Medicine
Ph.D., Biology and Physiology, Pomor State University (1997)
M.P.H, University of Louisville (2014)

Research Interests: Gut-liver interactions in alcoholic and non-alcoholic liver disease; alcohol and dietary fat mediated intestinal and liver injury; gut barrier, microbiome, probiotics; epigenetics and hepatic steatosis; Oxidized Metabolites of Linoleic Acid (OXLAMs).

Donghan Lee, Ph.D.

Associate Professor of Medicine
James Graham Brown Chair of Structural Biology
Ph.D., Biophysics, Swiss Federal Institute of Technology (2003)

Research Interests: Molecular recognition between biomolecules such as protein-protein, protein-DNA, protein-carbohydrate, protein-ligands; design NMR experiments and development of associated theory.

Chi Li, Ph.D.

Associate Professor of Medicine
Ph.D., Molecular Biology, Columbia University (1998)

Research Interests: Mechanisms of apoptotic pathways initiated from different intracellular organelles. Molecular and cellular mechanisms that affect inflammation and immunity.

Robert C.G. Martin, II, M.D., Ph.D.

Professor and Sam and Lolita Weakley Endowed Chair in Surgical Oncology
M.D., University of Louisville (1995)
Ph.D., Pharmacology & Toxicology, University of Louisville (2008)
Research Interests: Genetic predisposition to cancer.

Craig J. McClain

Professor of Medicine

M.D., University of Tennessee-Memphis (1972)

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

Kelly M. McMasters, M.D., Ph.D.
Professor and Chair of Surgical Oncology
Ph.D., Cell and Developmental Biology, Rutgers University (1988)
M.D., University of Medicine and Dentistry of New Jersey (1989)

Research Interests: Melanoma therapies-Adenovirus-mediated gene therapy; Radio guided surgery for breast, melanoma, and parathyroid tumors as well as gastrointestinal, hepatic, and pancreaticobiliary tumors

Michael L. Merchant, Ph.D.
Associate Professor of Medicine
Ph.D., Chemistry, University of Arkansas (1994)

Research Interests: Translational research - the discovery and understanding of biomarkers of renal disease; Basic Research - Mechanisms of renal function decline and fibrosis; Basic Research - Mechanisms for the transition from acute to chronic disease.

Donald M. Miller, M.D., Ph.D.
Professor of Medicine
Chief, Division of Medical Oncology and Hematology
Foundation Chair and Director, James Graham Brown Cancer Center
M.D., Duke University School of Medicine (1973)
Ph.D., Duke University School of Medicine (1972)

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

Tamer Mohammed, Ph.D.
Assistant Professor of Medicine
Ph.D., Cardiovascular and Molecular Medicine, University of Manchester

Chin K. Ng, Ph.D.
Associate Professor of Radiology
Ph.D., Medical Physics, University of Wisconsin (1989)

Research Interests: Validating and characterizing novel imaging probes for multimodality imaging (MRI, PET, SPECT, CT and Optical); Exploring approaches for early detection and monitoring of treatment efficacy of multiple diseases such as

infectious diseases, cancer, spinal cord injury, brain diseases, diabetes and heart diseases; Developing thermal laser ablation devices for treating spinal metastases in a MRI environment.

Matthew A. Nystoriak, Ph.D.
Assistant Professor of Medicine
Ph.D., Pharmacology, University of Vermont (2010)

Research Interests: Regulation of vascular calcium signaling and blood flow in diabetes.

Martin G. O'Toole, Ph.D.
Assistant Professor of Bioengineering
Ph.D., Chemistry, University of Louisville (2008)

Research Interests: Development of stimulus-responsive biomaterials for use in medical applications of drug-delivery, wound healing, and tissue engineering. Development of stimulus-responsive biomaterials of clinical relevance for diagnosing and treating various diseases.

Timothy E. O'Toole, Ph.D.
Assistant Professor of Medicine
Ph.D. Biological Chemistry, University of Michigan (1987)

Research Interests: Function and regulation of the endothelium in various disease states; Role of miRNA in endothelial regulation towards understanding how diabetic conditions and pollutant exposure affects endothelial miRNA content and the consequent changes in protein expression levels and cellular function.

M. Michele Pisano, Ph.D.
Professor of Surgical and Hospital Dentistry
Ph.D., Anatomy, Thomas Jefferson University (1985)

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

Shesh N. Rai, Ph.D.
Professor of Bioinformatics and Biostatistics
Wendell Cherry Chair in Clinical Trial Research
Ph.D., Statistics, University of Waterloo (1993)

Research Interests: Clinical Trials, Survival Analysis, Bioinformatics, Mixed Effects Model, Sample Survey, Quantitative Risk Assessment

Craig S. Roberts, M.D.
Professor and Chair of Department of Orthopaedic Surgery
M.D., New York University (1986)

Research Interests: Orthopaedic trauma, fractures and their complications and outcomes.

George C. Rodgers, M.D., Ph.D.
Professor of Pediatrics
Humana Chair of International Pediatrics
Ph.D., Organic Chemistry, Yale University (1964)
M.D., State University of New York (1975)

Research Interests: Toxicokinetics in drug overdoses and pharmacokinetics in pediatric disease states.

David A. Scott, Ph.D.
Professor of Oral Immunology & Infectious Diseases
Ph.D., Microbiology and Immunology, McGill University (1997)

Research Interests: Tobacco-induced alterations to microbial-associated molecular patterns of Porphyromonas gingivalis; Tobacco-induced alterations to innate-pathogen interactions; Tobacco alkaloid amplification of endogenous anti-inflammatory pathways; Identification of gingivitis- and periodontitis-specific infrared molecular signatures.

Sanjay Srivastava, Ph.D.
Professor of Medicine
Ph.D., Chemistry, University of Lucknow (1993)

Research Interests: Delineating the mechanisms by which environmental pollutants cause endothelial activation, vascular inflammation, insulin resistance and atherosclerosis.

Jill M. Steinbach-Rankins, Ph.D.
Assistant Professor of Bioengineering
Ph.D., Bioengineering, Arizona State University (2009)

Research Interests: Design and development of drug and gene delivery vehicles for physiologically difficult-to-deliver-to microenvironments.

Janice E. Sullivan, M.D.
Professor of Pediatrics
M.D., University of Minnesota (1988)

Research Interests: Clinical pharmacology with a focus on developmental pharmacokinetics and pharmacodynamics.

Yi Tan, Ph.D.
Assistant Professor of Pediatrics
Ph.D., Biomedical Engineering, Chongqing University (2004)

Research Interests: Signaling pathways and therapeutic strategies in diabetic complications including cardiomyopathy, cardiac insulin resistance, stem cell mobilization and ischemic angiogenesis.

Walter H. Watson, Ph.D.
Assistant Professor of Medicine
Ph.D., Toxicology, University of Kentucky (1999)

Research Interests: Oxidative stress and redox signaling; Mechanistic toxicology; Alcoholic and nonalcoholic fatty liver disease.

Scott R. Whittemore, Ph.D.
Professor and Vice Chair for Research, Department of Neurological Surgury
Scientific Director, Kentucky Spinal Cord Injury Research Center
Ph.D., Physiology and Biophysics, University of Vermont (1982)

Marcin Wysoczynski, Ph.D.
Assistant Professor of Medicine
Ph.D. Pomeranian Medical University (2009)
Research Interests: Innate immunity in myocardial repair.

Jun Yan, M.D., Ph.D.
Professor of Medicine and Endowed Chair in Translational Research
M.D., Jiangsu University School of Medicine (1985)
Ph.D., Immunology, Shanghai Jiaotong University School of Medicine (1997)

Research Interests: Immunotherapy and vaccines for treatment of cancer and infectious diseases.

Wolfgang Zacharias, Ph.D.
Professor of Medicine
Ph.D., Biochemistry, Philipps-University, Marburg, Germany (1980)

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

Xiang Zhang, Ph.D.

Professor of Chemistry
Ph.D., Bioanalytical Chemistry, Purdue University (2001)

Research Interests: Molecular systems biology, by exploiting practical and efficient high throughput technologies for analyses of complex mixtures to facilitate the development of preventive, predictive and personalized medicine for the promotion of health and wellness.

FACULTY WITH EMERITUS APPOINTMENTS

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

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

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

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

Kang, Y. James, Professor Emeritus, Ph.D., Toxicology and Zoology, Iowa State University (1989)

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

Pierce Jr., William M., Professor Emeritus, Ph.D., Pharmacology and Toxicology, University of Louisville (1981)

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

Williams, W. Michael, Professor Emeritus, Ph.D., University of Louisville (1970); M.D., University of Louisville (1974).

FACULTY WITH ADJUNCT APPOINTMENTS

Osama El-Tawil, Adjunct Professor of Pharmacology and Toxicology, PhD, Toxicology, University of Medicine and Dentistry of New Jersey/Cairo University (1997)

Adrian J. Fretland, Adjunct Assistant Professor of Pharmacology and Toxicology; PhD, Pharmacology and Toxicology, University of Louisville School of Medicine (2000)

John C. Lipscomb, Adjunct Associate Professor of Pharmacology and Toxicology; PhD, Pharmacology and Toxicology, University of Arkansas for Medical Sciences (1991)

Kevyn E. Merten, Adjunct Assistant Professor of Pharmacology and Toxicology, PhD, Pharmacology and Toxicology, University of Louisville School of Medicine (2007)

Kristin J. Metry-Baldauf, Adjunct Assistant Professor of Pharmacology and Toxicology; PhD, Pharmacology and Toxicology, University of Louisville School of Medicine (2007)

Jesse Roman, Adjunct Professor, MD., University of Puerto Rico School of Medicine (1983)

Arnold J. Schecter, Adjunct Professor of Pharmacology and Toxicology, MD, Howard University Medical School (1962); MPH, Columbia University (1975)

Irina Tcherepanova, Adjunct Professor of Pharmacology and Toxicology; PhD, Molecular Pharmacology, Albert Einstein College of Medicine (1996)

Joshua M. Thornburg, Adjunct Assistant Professor of Pharmacology and Toxicology, PhD, Pharmacology and Toxicology, University of Louisville School of Medicine (2007)

ADMINISTRATIVE STAFF

Blair Cade Department Manager (resigned June 30, 2018 to accept position as Manager of Regulatory Affairs, Spinal Cord Injury Research Center)

Aaron Howell Program Coordinator, Sr. and acting Unit Business Manager (resigned November 1, 2018 to accept position as Administrative Specialist in the College of Business)

Kelly Holland Administrative Assistant

Sonya Cary Unit Business Manager, Intermediate (appointment effective November 5, 2018)

2018 NEW GRADUATE STUDENT CLASS

Rasha Attia
M.B.Ch.B., Alexandria University

Erica F. Daly
B.S., Kinesiology, University of Kentucky

Mohamed Elnagdy
M.B. Ch.B., Cairo University

Mengwei Jiang
Bachelor of Clinical Medicine, Jilin University
Master of Clinical Medicine (Surgery), Jilin University

Austin M. Krueger
B.S., Biology (Cellular Physiology), University of Louisville

Angeliki Lykoudi
B.S., Biochemistry and Molecular Genetics, Democritus University of Thrace

Paige N. Mitchell
B.S., Cell, Genetics, Developmental Biology, Arizona State University

Micaela A. Reeves
B.S., Chemistry, Hanover College

Jeffrey B. Warner
B.S., Pre-medicine/Biology, Murray State University

George Wei
B.A., Chemistry, Rutgers University

Graduate Students

Attia, Rasha
Al Hassan, Kyakulaga
Barve, Aditya
Bushau, Adrienne
Carlisle, Samantha
Chen, Liya
Chen, Wei-Yang
Daly, Erica
Dent, Mathhew
Dolin, Christine
Dwenger, Marc
El-Baz, Nagwa
Elnagdy, Mohamed
Finch, Jordan
Gosney, Julie
Habel, Mariam
Hoffman, Mason
Hudson, Shanice
Jiang, Mengwei
Jin, Lexiao
Jin, Jian
Kim, Christine
Krueger, Austin
Lang, Anna
Laun, Alysa
Li, Yihong
Li, Fengyuan
Lin, Qian
Lu, Haiyan
Lykoudi, Angeliki
Mahmoud, Mohamed Yehia
McAllister, Ryan
Meng, Shuhan
Miller, Hunter
Mitchell, Paige

Mudd, Ashley
Pandit, Harshul
Raph, Sean
Reeves, Micaela
Richardson, Andre
Royal, Joshua
Rush, Jamie
Saforo, Doug
Schnegelberger, Regina
Sears, Sophie
Sharp, Cierra
Shi, Hongxue 时鸿雪
Shrader, Sarah
Speer, Rachel
Stewart, Desmond
Toyoda, Jennifer
Tyo, Kevin
Vicary, Glenn W.
Warner, Jeffrey
Wei, George
Whitt, Aaron
Young, Jamie
Zheng, Yuxuan

2018 Graduates

Shanice V. Hudson	Ph.D.	2018	Gavin E. Arteel, Ph.D. & Hermann B. Frieboes, Ph.D.	Innate immunity, the extracellular matrix, and liver injury: mathematical modeling of metastatic potential and tumor development in alcoholic liver disease
Fengyuan (Linda) Li	M.S.	2018	Wenke Feng, Ph.D.	The role of cathelicidin in the regulation of gut microbiota and inflammasome activation in alcoholic liver disease
Jamie S. Rush	M.S.	2018	Brian P. Ceresa, Ph.D.	Epidermal growth factor-like ligands regulate dimer selection
Liya (Leah) Chen	Ph.D.	2018	Juliane I. Beier, Ph.D.	The role of aldehyde dehydrogenase 2 in liver injury caused by vinyl chloride and high-fat diet
Ashley M. Mudd	Ph.D.	2018	Ramesh C. Gupta, Ph.D.	Influence of bilberry-derived anthocyanidins on key regulators of colorectal cancer development
Christine Kim	M.S.	2018	Brian P. Ceresa, Ph.D.	Assessing the role of arsenite in disrupting the EGFR signaling axis
Qian (Zoe) Lin	Ph.D.	2018	Yi Tan, M.D., Ph.D.	A novel fibroblast growth factor 1 variant reverses nonalcoholic fatty liver disease in type 2 diabetes

Harshulkumar M. Pandit	Ph.D.	2018	Robert C.G. Martin II, M.D., Ph.D.	WNT/β-catenin mediated cancer stem cell activation in hepatocellular carcinoma
Jennifer H. Toyoda	M.S.	2018	John P. Wise, Sr., Ph.D.	Molecular mechanisms of particulate chromium-induced centrosome amplification
Samantha M. Carlisle	Ph.D.	2018	David W. Hein, Ph.D.	Deciphering the role of human arylamine N-acetyltransferase 1 in breast cancer cell metabolism using a systems biology approach
Hunter A. Miller	M.S.	2018	Hermann B. Frieboes, Ph.D.	Evaluation of nanoparticle transport and effect in heterogeneously vascularized tumor tissue
Nagawa El-Baz	M.S.	2018	Martin G. O'Toole, Ph.D.	A cancer targeted gold nanoparticles based MRI contrast agent
Ryan C. McAllister	Ph.D.	2018	Jessie Roman, M.D.	Perinatal nicotine with or without early life influenza infection leads to lung dysfunction with age
Julie A. Gosney	Ph.D.	2018	Brian P. Ceresa, Ph.D.	EGFR signaling from the early endosome
Cierra N. Sharp	Ph.D.	2018	Leah J. Siskind, Ph.D.	A clinically relevant mouse model of cisplatin-induced kidney injury
Alyssa S. Laun	M.S.	2018	Zhao-Hui (Joe) Song, Ph.D.	A study of GPR3, GPR6, and GPR12 as novel molecular targets for cannabidiol
Hongxue Shi	Ph.D.	2018	Matthew C. Cave, M.D.	The effects of polychlorinated biphenyls exposure on non-alcoholic fatty liver disease: Role of aryl hydrocarbon receptor
Anna L. Lang	Ph.D.	2018	Juliane I. Beier, Ph.D.	Vinyl chloride enhances diet-induced liver injury via metabolic dyshomeostasis: Critical role of mitochondria
Joshua M. Royal	M.S.	2018	Nobuyuki Matoba, Ph.D.	Therapeutic potential of a plant-made cholera toxin B subunit variant for the treatment of ulcerative colitis

Adrienne M. Bushau-Sprinkle	M.S.	2018	Eleanor Lederer, M.D.	Loss of the Na+ H- exchange regulatory Factor 1 results in increased susceptibility to cisplatin-induced acute kidney injury
Jamie L. Young	M.S.	2018	Gavin E. Arteel, Ph.D.	A model to study the effects of whole life chronic exposure to arsenic or cadmium on the development of adult metabolic syndrome: Initial characterization of hepatic changes
Marc M. Dwenger	M.S.	2018	Bradley B. Keller, M.D.	Maturation of human induced pluripotent stem cell derived engineered cardiac tissues using channel rhodopsin transfection and chronic optical pacing

FACULTY HONORS

Bhatnagar, Aruni

- Named Director of newly created Envirome Institute

Clark, Geoff

- Appointed Member, Faculty of 1000 (F1000)

Chen, Shao-Yu

- Senior author on a poster awarded a junior investigator award from the Research Society on Alcoholism, RSA annual meeting, 2018, San Diego, CA.
- Senior author on a poster awarded a student merit award from the Research Society on Alcoholism, RSA annual meeting, 2018, San Diego, CA.

Freedman, Jon

- Recognized for service to School of Medicine PAT committee

Hein, David

- Keynote Speaker. International Pharma Conference and Expo, Rome Italy, May 2018.
- Keynote Speaker: Third International Cancer Study and Therapy Conference, Rome, Italy, May 2018.
- Keynote Speaker: 7th International conference (15th Scientific Conference) Cairo University, “One Health: Animal, Human, and Environment: Recent Applications: Ain Sokhna, Egypt, August 2018.

Hood, Joshua

- Exclusive invitation to write a follow-up reviewed article concerning isolation of exosomes for nanomedicine applications for the journal *Nanomedicine (London).*

- Exclusive invitation to submit a peer reviewed article to the *International Journal of Molecular Sciences* Special Issue "Focus on Exosome-Based Cell-Cell Communication in Health and Disease"

Jones, Stephen

- Named Outstanding Researcher by the International Society for Heart Research

Kidd, LaCreis

- "Our Highest Potential" Endowed Chair in Cancer Research, James Graham Brown Cancer Center, University of Louisville (UofL), School of Medicine
- McDougal, D., Abdullahi, Fadumo, **Kidd, L.R.** Complex Interactions among Toll-Like Receptor Related Sequence Variants and Prostate Cancer Susceptibility among men of African Descent". Research!Louisville, Louisville, Kentucky, October, 2018. (Dara won 3rd place among the R25 Cancer Education Undergraduates at Research!Louisville.

States, Christopher

- Nominated for election to Society of Toxicology Awards Committee
  Publons top 1% peer reviewer
- Trainee awards:
  Ana P.F. Cardoso, Ph.D.:
  3rd place, Post-doctoral Poster, Metals Specialty Section, Society of Toxicology travel award, 10th Conference on Metal Toxicity and Carcinogenesis
  2nd place, Post-doctoral Platform, Ohio Valley Regional Chapter, Society of Toxicology

Wise, John

- University Scholar, University of Louisville
- NIEHS Extramural Paper of the Month
- Career Achievement Award, Metals Specialty Section, Society of Toxicology

STUDENT HONORS

Carlisle, Samantha (Hein)

- Received a travel award and was selected for oral presentation at the 14th Annual Conference of the Metabolomics Society in Seattle Washington in June

Dent, Matthew (Matoba)

- Presented a poster at Research!Louisville and received 1st place award in the Master's Basic Science Graduate Student category.

Li, Fengyuan (Feng)

- Received a travel award and was selected for oral presentation at the 2018 ISBRA conference in Kyoto Japan in September.

- Received first place award in student poster presentation from ASPET Division of Translational and Clinical Pharmacology during EB2018 in San Diego.

Li, Yi hong (Chen)

- Received a Student Merit Award from the Research Society on Alcoholism in 2018

Royal, Joshua (Matoba)

- Presented two talks at two international meetings (Crohn's and Colitis Congress and Digestive Disease Week) and received a travel award at the Digestive Disease Week conference.
- Presented a poster at Research!Louisville and received 1st place award in the Doctoral Basic Science Graduate Student category.

Saforo, Doug (Siskind)

- 2nd place Doctoral Basic Science Graduate Student Award, Research Louisville, Poster, October 2018

Sharp, Cierra (Siskind)

- University of Louisville: John M. Houchens Prize for most meritorious dissertation. December 14, 2018.
- University of Louisville, Department of Pharmacology/Toxicology: K.C. Huang Award. August 2018.
- Society of Toxicologic Pathology Annual Meeting: Young Investigator Award (1st place poster). June 21, 2018.
- Society of Toxicologic Pathology Annual Meeting: Student Travel Award. April 30, 2018.
- American Physiology Society-KY Chapter Annual Meeting: 1st place student platform presentation. March 2018.

Shrader, Sarah (Song)

- Invited to present a poster at International Cannabinoid Research Society Conference, Leiden, Netherlands, June 2018.

Speer, Rachel (Wise)

- Second place, poster award, Ohio Valley Chapter of the Society of Toxicology
- Graduate Student Oral Presentation Award, Midwest DNA Repair Symposium
- Predoctoral T32 Environmental Health Sciences Training Grant fellowship, (Rachel Speer), National Institute of Environmental Health Sciences, National Institutes of Health

Toyoda, Jennifer (Wise)

- Second place, platform presentation poster award, (Jennifer Toyoda), Ohio Valley Chapter of the Society of Toxicology
- Predoctoral T32 Environmental Health Sciences Training Grant fellowship.

PHARMACOLOGY & TOXICOLOGY PUBLICATIONS

Faculty with Primary Appointments and Students/Post-Doctoral Fellows

1. Alam, A., L. Jiang, G. A. Kittleson, K. D. Steadman, S. Nandi, J. L. Fuqua, K. E. Palmer, D. Tuse, and K. A. McDonald. 2018. 'Technoeconomic Modeling of Plant-Based Griffithsin Manufacturing', *Front Bioeng Biotechnol*, 6: 102.
2. Al-Eryani, L., S. F. Jenkins, V. A. States, J. Pan, J. C. Malone, S. N. Rai, S. Galandiuk, A. K. Giri, and J. C. States. 2018. 'miRNA expression profiles of premalignant and malignant arsenic-induced skin lesions', *PLoS One*, 13: e0202579.
3. Al-Eryani, L., S. Waigel, A. Tyagi, J. Peremarti, S. F. Jenkins, C. Damodaran, and J. C. States. 2018. 'Differentially Expressed mRNA Targets of Differentially Expressed miRNAs Predict Changes in the TP53 Axis and Carcinogenesis-Related Pathways in Human Keratinocytes Chronically Exposed to Arsenic', *Toxicol Sci*, 162: 645-54.
4. Andres, S. A., A. M. Bushau-Sprinkle, M. E. Brier, and Y. R. Seger. 2018. 'Effects of body protection vests and experience levels in prevention of equestrian injuries', *BMJ Open Sport Exerc Med*, 4: e000426.
5. Balhorn, R, PL Davies, KC Kleene, SA Krawetz, J Mezquita-Pla, R. Oliva, J. C. States, and HG Tempest. 2018. 'Special Issue in Honor of Gordon H. Dixon', *Syst Biol Reprod Med*, 64: 399-402.
6. Bardi, G. T., M. A. Smith, and J. L. Hood. 2018. 'Melanoma exosomes promote mixed M1 and M2 macrophage polarization', *Cytokine*, 105: 63-72.
7. Cardoso, A. P. F., L. Al-Eryani, and J. C. States. 2018. 'Arsenic-Induced Carcinogenesis: The Impact of miRNA Dysregulation', *Toxicol Sci*, 165: 284-90.
8. Carlisle, S. M., and D. W. Hein. 2018. 'Retrospective analysis of estrogen receptor 1 and Nacetyltransferase gene expression in normal breast tissue, primary breast tumors, and established breast cancer cell lines', *Int J Oncol*, 53: 694-702.
9. Carlisle, S. M., P. J. Trainor, M. A. Doll, M. W. Stepp, C. M. Klinge, and D. W. Hein. 2018. 'Knockout of human arylamine N-acetyltransferase 1 (NAT1) in MDA-MB-231 breast cancer cells leads to increased reserve capacity, maximum mitochondrial capacity, and glycolytic reserve capacity', *Mol Carcinog*, 57: 1458-66.
10. Chen, B., X. Cao, H. Lu, P. Wen, X. Qi, S. Chen, L. Wu, C. Li, A. Xu, and G. Zhao. 2018. 'N-(3-oxo-acyl) homoserine lactone induced germ cell apoptosis and suppressed the over-activated RAS/MAPK tumorigenesis via mitochondrial-dependent ROS in C. elegans', *Apoptosis*, 23: 626-40.
11. Connor, M. G., A. R. Pulsifer, D. Chung, E. C. Rouchka, B. K. Ceresa, and M. B. Lawrenz. 2018. 'Yersinia pestis Targets the Host Endosome Recycling Pathway during the Biogenesis of the Yersinia-Containing Vacuole To Avoid Killing by Macrophages', *MBio*, 9.
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PHARMACOLOGY & TOXICOLOGY ABSTRACTS

Faculty with Primary Appointments and Students

Antimisiaris, Demetra

1. **Antimisiaris, D.,** Polivka, B., Folz R., Myers, J., Gopalraj R.J.. Are Protocols for Medication Holds Sufficient for Skin Prick Testing for Older Adults with Asthma? Innovation in Aging, Vol 1, Issue 1, July 2017, 909.
2. **Antimisiaris D**, Berry W. Machine learning to enhance Pharmacovigilance: can we predict Tamoxifen use adverse event risk? Poster presented August 2017; presented at Research Louisville
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Ceresa, Brian

1. **Ceresa, B.P.,** Trent, J.O., The Development of c-Cbl Antagonists to Promote Corneal Epithelial Wound Healing. ASPET Annual Meeting 2018, San Diego, CA
2. Kim, C. and **Ceresa, B.P**. Assessing the Role of Arsenite in Disrupting the EGFR Signaling Axis, 10th Heavy Metals and Carcinogenesis, Albuquerque, NM

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Chen, Shao-Yu

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Freedman, Jonathan

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3. Freedman, J. H. and Cai, L. Gender differences in the responses to cadmium exposure and high-fat diet. Tenth Conference on Metal Toxicity & Carcinogenesis, Albuquerque, NM (2018)
4. Young, J.L., Cai, L. and Freedman, J. H. Cadmium and high-fat diet disrupt renal, cardiac and hepatic essential metal homeostasis. Tenth Conference on Metal Toxicity & Carcinogenesis, Albuquerque, NM (2018)
5. Zhang, J., Xu, Z., Gu, J., Jiang, S., Tan, Y., Li, Q., Zhen, Y., Freedman, J.H., Sun, J and Cai, L. HDAC3 inhibition prevents liver damage and increases FGF21 synthesis and secretion leading to aortic protection in diabetic animals. Fifty-Seventh Annual Meeting of the Society of Toxicology, San Antonio, TX (2018)
6. Young, J.L., Yan, X., Xu, J., Yin, X., Zhang, X., Arteel, G.E., Barnes, G.N., States, J.C., Watson, W.H., Kong, M., Cai, L. and Freedman, J.H. Cadmium and high-fat diet disrupt renal, cardiac and hepatic essential metals. Research!Louisville, Louisville, KY (2018)
7. Liang, Y., Young, J.L., Kong, M., Freedman, J.H. and Cai, L. Gender differences in cardiac fibrosis induced by high fat diet and whole life low-dose cadmium exposure. Research!Louisville, Louisville, KY (2018)
8. Watson, W.H., Young, J.L., Burke, T.J., Kalbfleisch, T., Cai, L., States, J.C., Arteel, G.E. and Freedman, J.H. Sexually dimorphic hepatic responses to environmental arsenic exposure in a mouse model of non-alcoholic fatty liver disease. Research!Louisville, Louisville, KY (2018)
9. Young, J.L., Freedman, J.H., Watson, W.H., Kong, M., Arteel, G.E. and Cai, L. The effects of whole life, chronic cadmium exposure on the development of non-alcoholic fatty liver disease in male and female mice. Research!Louisville, Louisville, KY (2018)
10. Zhang, Y., Young, J.L., Kong, M., Freedman, J.H. and Cai, L. Chronic exposure to arsenic and high fat diet induces sex-dependent effects in mouse kidney. Research!Louisville, Louisville, KY (2018)
11. Zhou, B., Gentry, A., Pagidas, K., Young, J.L., Kong, M., Cai, L. and Freedman, J.H. A long-term cadmium exposure impairs spermatogenesis, increasing apoptosis in mice testis independent of high fat diet. Research!Louisville, Louisville, KY (2018)

Fuqua, Joshua

1. Henry Nabeta, Sanet Steyn, Amanda Lasnik, Ian McGowan, Joshua Fuqua, Joseph C. Kouokam, Kenneth E. Palmer. “ACTIVITY OF GRIFFITHSIN-M78Q-AN HIV ENTRY INHIBITOR-IN THE RECTAL ENVIRONMENT" CROI, Boston, MA, Feb 2018.

Gupta, Ramesh

National and International Meetings

1. Kyakulaga AH, Aqil F, Munagala R & **Gupta R**. Withaferin A inhibits epithelial-to-mesenchymal transition in non-small lung cell cancer cells via regulation of SMAD and

NFkB signaling. Annual Meeting of *Am Assoc Cancer Res*. April 14 - 18, 2018, Chicago. Abst # 18-A-6798-AACR.

2. **Gupta RC**, Aqil F, Jeyabalan J, Agrawal AK, Kyakulaga AH & Munagala R. Milk exosomes - a 'platform' nano-carrier for siRNA delivery. Annual Conference of I*nternational Society of Extracellular Vesicles* (ISEV-2018), May 02-07, 2018, Barcelona, Spain.
3. Aqil F, Munagala R, Jeyabalan J, Agrawal AK & **Gupta RC**. Milk exosomes – Intranasal versus oral delivery of exosomes and exosomal-curcumin. Annual Conference of International Society of Extracellular Vesicles (ISEV-2018), May 02-07, 2018, Barcelona, Spain.

Regional/Local Meetings

1. Kyakulaga, AH, Aqil F, Munagala R & **Gupta RC**. Withaferin A targets paclitaxel-resistance in lung cancer A549 cells by targeting MDR1 protein, UofL-UK Lung Cancer Symposium, 2018
2. Barbour C, Mudd, AM, Kyyakulaga AH & Gupta RC. Role of Anthocyanidins on Immune Checkpoint Protein, PD-L1 in HCT116 and HT-29 Colorectal Cancer Cells. Research Louisville, 2018

Hein, David

1. Hein, D.W.: Importance of pharmacogenomics in the success of drug therapy. Proceedings of the International Pharma Conference and Expo, p. 28, Rome Italy, May 2018.
2. Hein, D.W.: Translation of laboratory research findings towards cancer risk assessments from environmental chemicals. Proceedings of the Third International Cancer Study and Therapy Conference, p. 31, Rome Italy, May 2018.
3. Oladipupo, I., Ali, T., Bohler, H., Pagidas, K., Hein, D., Mann, M.L., Gentry, A., Dondik, Y., Chiang, J. and Taylor, K.: Assocation between smoking and ovarian reserve among females seeking fertility treatment, and interaction with N-acetyltransferase 2 (NAT2) genotype. Proceedings of the Pediatric and Perinatal Epidemiologic Research Annual Meeting, p. 8, Baltimore Maryland, June 2018.
4. Carlisle, S.M., Trainor, P.J., Doll, M.A., Stepp, M.W., Klinge, C.M. and Hein, D.W.: Deciphering the role of human arylamine N-acetyltransferase 1 (NAT1) in breast cancer cell metabolism using a systems biology approach. Proceedings of the 14th Annual Conference of the Metabolomics Society, Abstract 6B, Seattle Washington, June 2018.
5. Salazar-González, R.A., Turiján-Espinoza, E., Hein, D.W., Milán-Segovia, R.C. and Portales-Pérez, D.P.: Expression and *N*-acetylation capacity of arylamine *N*-acetyltransferase 2 on peripheral blood mononuclear cells and the cross-regulation by Sirtuin 1. Proceedings of the 22nd North American ISSX Meeting, Montréal Canada, July 2018.
6. Mitchell, P.N., Carlisle, S.M., Doll, M.A., and Hein, D.W.: The relationship between NAT1 and *N*-acetylasparagine or *N*-acetylputrescine. Undergraduate Research Symposium, University of Louisville, Louisville Kentucky, August 2018.

7. Hein, D.W.: Translating laboratory research to inform human risk assessments following exposures to environmental chemicals. 7th International conference (15th Scientific Conference) Cairo University, "One Health: Animal, Human, and Environment: Recent Applications: p.8, Ain Sokhna Egypt, August 2018.
8. Ali, T'Shura, Oladipupo, I., Bohler, H., Pagidas, K., Hein, D.W., Torres, S., Chiang, J., Dondik, Y., Gentry, A., Mann, L.M., and Taylor, K.: Childhood secondhand tobacco smoke exposure and ovarian research among females seeking fertility care, and interaction with N-acetyltransferase 2 (NAT2) genotype. ***Annals of Epidemiology*** 28: 670-671, 2018.
9. Kidd, L. and Hein, D.: Preparing the next generation of cancer researchers. ***Journal of Cancer Education*** 33 (Supplement 1): S25, 2018.
10. Bakr, A., Doll, M. and Hein, D.: Expression of N-acetyltransferases (NAT1, NAT2) in rat brain. Proceedings of Research!Louisville, Abstract GRM-1, Louisville, Kentucky, October 2018.
11. Habil, M., Doll, M. and Hein, D.: N--acetyltransferase 2 acetylator genotype-dependent N-acetylation of the arylamine carcinogens 4-aminobiphenyl and beta-naphthylamine in cryopreserved human hepatocytes. Proceedings of Research!Louisville, Abstract GRD-8, Louisville, Kentucky, October 2018.
12. Salazar-González, R.A., Hein, D.W., and Portales-Pérez, D.P.: Expression and *N*-acetylation capacity of arylamine *N*-acetyltransferase 2 on peripheral blood mononuclear cells and the cross-regulation by Sirtuin 1. Proceedings of Research!Louisville, Abstract PRF-16, Louisville, Kentucky, October 2018.
13. Mitchell, P.N., Carlisle, S.M., Doll, M.A., and Hein, D.W.: The relationship between NAT1 and *N*-acetylasparagine or *N*-acetylputrescine. Proceedings of Research!Louisville, Abstract UCE-21, Louisville, Kentucky, October 2018.
14. Habil, M.R., Doll, M.A., and Hein, D.W.: N--acetyltransferase 2 acetylator genotype-dependent N-acetylation of the arylamine carcinogens 4-aminobiphenyl and beta-naphthylamine in cryopreserved human hepatocytes. Proceedings of the Ohio Valley Society of Toxicology, Louisville, Kentucky, November 2018.
15. Salazar-González, R.A., Zhang, X., Doll, M.A., Lykoudi, A. and Hein, D.W.: Role of the human N-acetyltransferase genetic polymorphism in metabolism and toxicity of 4,4;-methylenedianiline. Proceedings of the Ohio Valley Society of Toxicology, Louisville, Kentucky, November 2018.
16. Bakr, A.F., Doll, M.A. and Hein, D.W.: Expression of human arylamine N-acetyltransferase 1 in human brain. Proceedings of the Ohio Valley Society of Toxicology, Louisville, Kentucky, November 2018.
17. Mitchell, P.N., Carlisle, S.M., Doll, M.A., and Hein, D.W.: The relationship between NAT1 and *N*-acetylasparagine or *N*-acetylputrescine. Proceedings of the Ohio Valley Society of Toxicology, Louisville, Kentucky, November 2018.

Hood, Joshua

1. Jones JB, Bardi GT, and *Hood JL. Macrophage Polarization Status Influences Macrophage Responsiveness to Lung Cancer Exosome-derived Nanocarriers, U of L Dept. of Pharmacology & Toxicology & JGBCC. Research!Louisville, Louisville, KY, October 2018.
2. Jones JB, Bardi GT, and *Hood JL. Changes in macrophage polarization, in response to formalin-fixed and/or electroporated lung cancer exosomes, depend on the pre-existing

macrophage polarization state, U of L Dept. of Pharmacology & Toxicology & JGBCC. American Society of Exosomes and Microvesicles (ASEMV), October 2018.

Kidd, Lacreis

1. **Kidd, L.R.**, Hein, D.W. *Preparing the Next Generation of Cancer Researchers.* International Cancer Education Conference: Solving Cancer Education Challenges through Innovative, Interdisciplinary, Community and Global Collaboration, October 3-5, 2018, Atlanta, GA.
2. Abdullahi, F., McDougal, D., **Kidd, L.R..** Impact of Chemokine Single Nucleotide Polymorphism (SNP) Pair Jointly Modified Prostate Cancer Risk among men of African Descent. Research Louisville!, Louisville, Kentucky, October, 2016.
3. *Abdullahi, F., McDougal, D.,* **Kidd, L.R..** Impact of Chemokine Single Nucleotide Polymorphism (SNP) Pair Jointly Modified Prostate Cancer Risk among men of African Descent. Undergraduate SSRP/R2 Research Poster Symposium, Louisville, Kentucky, August, 2018.
4. McDougal, D., Abdullahi, Fadumo, **Kidd, L.R.** Complex Interactions among Toll-Like Receptor Related Sequence Variants and Prostate Cancer Susceptibility among men of African Descent". Research Louisville!, Louisville, Kentucky, October, 2016.
5. McDougal, D., Abdullahi, Fadumo, **Kidd, L.R.** Complex Interactions among Toll-Like Receptor Related Sequence Variants and Prostate Cancer Susceptibility among men of African Descent". Undergraduate SSRP/R2 Research Poster Symposium, Louisville, Kentucky, August, 2018.

Kouokam, Calvin

1. Henry Nabeta, Sanet Steyn, Amanda Lasnik, Ian McGowan, Joshua Fuqua, J. Calvin Kouokam, Kenneth E. Palmer. Activity of Griffithsin-M78Q-an HIV Entry Inhibitor-in the Rectal Environment. 25th Conference on Retroviruses and Opportunistic Infections (CROI). March 2018.

Lukashevich, Igor

1. Irina Tretyakova, Jenny Jokinen, Alexander Tibbens, **Igor Lukashevich**, Peter Pushko."Advanced DNA-Launched Vaccine for Venezuelan Equine Encephalitis Virus (VEEV)", *2018 ASM BioThreats Meeting, Baltimore, MD.*
2. **Igor S. Lukashevich,** Min Wang, Jenny Jokinen, Ricardo Carrion Jr, Irina Tretyakova, and Peter Pushko. "Arenavirus-Based Virus-Like Particle Vectors Expressing Multiple Glycoproteins to Control Arenaviral Hemorrhagic Fevers". *The 5th International Conference on Virus-Like Particle & Nano-Particle Vaccines, Bern, Switzerland*.
3. Masaharu Iwasaki, Beatrice Cubitt, Jenny Jokinen, **Igor S. Lukashevich**, and Juan C. de la Torre. "Use of recombinant ML29 platform to generate polyvalent live-attenuated vaccines against Lassa fever and other infectious diseases". *The 66th Japan Society for Virology, Kyoto University, Oct 2018.*

4. Dylan M Johnson, Jenny D Jokinen, Irina Tretyakova, Peter Pushko, **Igor S Lukashevich**. **"**Novel Venezuelan Equine Encephalitis Vaccine has Increased Safety and Stability Over TC-83". *Research!Louisville 2018*.

Matoba, Nobuyuki

1. Royal J*, Oh YJ, Galandiuk S, Matoba N. "Epicertin enhances intestinal wound healing in a mouse colitis model and human ulcerative colitis colon explants" Crohn's & Colitis Congress, Las Vegas, NV, Jan 18 – 20, 2018.
2. Royal J*, Oh YJ, Galandiuk S, Matoba N. "Epicertin, a cholera toxin B subunit variant, enhances intestinal wound healing in a mouse acute colitis model and human ulcerative colitis colon explants via an unfolded protein response" Digestive Disease Week 2018, Washington, D.C., June 2 – 5, 2018. - Mr. Royal received Basic Science Travel Award
3. Royal J*, Oh YJ, Matoba N. "Epicertin, a cholera toxin B subunit variant, utilizes an ER retention signal to enhance intestinal wound healing via an unfolded protein response" Research!Louisville, University of Louisville, October 9, 2018. - Mr. Royal received 1st place Award in the Doctoral Basic Science Graduate Student category.
4. Dent M*, Matoba N. "A novel lectin-Fc fusion protein with anti-cancer activity" Research!Louisville, University of Louisville, October 9, 2018. - Mr. Dent received 1st place Award in the Master's Basic Science Graduate Student category.
5. Oh YJ*, Dent MW, Matoba N. "A lectibody targeting high-mannose glycans inhibits EGFR/IGF1R signaling and induces ADCC in non-small cell lung cancer cells." Research!Louisville, University of Louisville, October 9, 2018.

Palmer, Kenneth

1. Nabeta H, Steyn S, Lasnik A, McGowan I, Fuqua J, Kouokam JC, **Palmer KE** (2018) Activity of Griffithsin M78Q-an HIV entry inhibitor-in the rectal environment. CROI Conference 2018, Boston MA. http://croiconference.org

Siskind, Leah

1. Sharp C, Doll M, Dupre T, Walls K, Beverly L, and **Siskind LJ**. Repeated administration of cisplatin increases EGFR/EGFR activation and renal fibrosis in Kras4bG12D lung adenocarcinoma-bearing mice, but kidney injury is further exacerbated with erlotinib/cisplatin combination treatment. Society of Toxicologic Pathology Annual Meeting. June 18, 2018.
2. Sharp C, Doll M, Dupre T, Beverly L, and **Siskind LJ**. Repeated administration of cisplatin causes worsened renal fibrosis in Kras4bG12D lung adenocarcinoma-bearing mice that cannot be prevented with erlotinib. American Physiological Society-KY Chapter Annual Meeting. March 2018.
3. Shah PP, Kurlawal Z, Saforo D, Doll M, **Siskind LJ,** and Beverly LJ. Studying metastatic mechanisms of lung adenocarcinoma. Cell death in cancer and toxicology, CSIR IITR, Lucknow India. February 2018.

4. Sears, S., Sharp, C., Saforo, D., Doll, M., **Siskind, LJ**. Neutral ceramidase inhibition as a potential treatment for cisplatin-induced kidney injury. Research!Louisville Poster. Louisville, KY, October 9, 2018.
5. Saforo D, Beverly LJ, **Siskind LJ**. Tumor microenvironment mimetic culture aids isolation, expansion, and potency of tumor stromal progenitors from primary lung cancer resections. Research Louisville 2018. Poster. October 2018.
6. Bushau-Sprinkle A., Conklin C., Barati M., Dupre T., Gagnon K., **Siskind L.,** Doll M., Rane Madhavi., Clark B., Merchant M., Klinge C., Brier M., Coventry S., Lederer E. (2018) NHERF1 Loss Results in Metabolic Stress and Increased Susceptibility to Cisplatin-induced Acute Kidney Injury. (2019) Experimental Biology Abs. #3438, April 6-9, 2019, Orlando, FL.
7. Bushau-Sprinkle A., Conklin C., Barati M., Dupre T., Gagnon K., **Siskind L.,** Doll M., Rane Madhavi., Clark B., Merchant M., Klinge C., Brier M., Coventry S., Lederer E. (2018) NHERF1 Loss Results in Metabolic Stress and Increased Susceptibility to Cisplaitin-induced Acute Kidney Injury. Research!Louisville Abs. #GRD-3, October 10-12, 2018, Louisville, KY.

Song, Zhao-Hui (Joe)

1. Shrader, SH, Laun, AS, Seltzman, HH, Navas III F, Reggio PH and Song ZH. The effects of SR144528 analogues on GPR3 and GPR6. International Cannabinoid Research Society Conference, Leiden, Netherland, June 2018.
2. Laun AS, Reggio PH and Song ZH. Cannabinoids as inverse agonists for GPR3 and GPR6, novel molecular targets for cannabidiol. International Cannabinoid Research Society Conference, Leiden, Netherland, June 2018.
3. Shrader, SH, Laun, AS, Seltzman, HH, Navas III F, Reggio PH and Song ZH. The Effects of CB2-Selective Antagonist SR144528 and Structural Analogues on GPR3 and GPR6. Research ! Louisville, October 2018.
4. Laun AS and Song ZH. Cannabinoids as inverse agonists for GPR3 and GPR6, novel molecular targets for cannabidiol. Research ! Louisville, October 2018.
5. Khalily C, Laun AS, Shrader SH, Song ZH. GPR12-mediated alteration of the mTOR pathway by phytocannabinoids. Research ! Louisville, October 2018.

States, Christopher

Published abstracts:

1. Young JL, Burke TJ, Freedman JH, Watson WH, Cai L, Merchant ML, States J, Arteel GE. A Model to Study the Effects of Early Life Chronic Exposure to Arsenic and Cadmium on the Development of Adult Cardiometabolic Syndrome: Initial Characterization of Hepatic Changes. The Toxicologist, Supplement to Toxicological Sciences, Abstract #1860, 2018
2. Cardoso APF, Al-Eryani L, Sayed M, Park JW, States JC. Alternative splicing events induced in human keratinocytes by chronic arsenic exposure. The Toxicologist, Supplement to Toxicological Sciences: Late Breaking Supplement, Abstract #3447, 2018.
3. Hoffman JM, Bagah-Kognagba MJ, Taylor BF, Trent JO, States JC. Targeting the Major

Regulator of Mitosis for Cancer Chemotherapy. The Toxicologist Supplement to Toxicological Sciences: Late Breaking Supplement, Abstract #3410, 2018.

Unpublished abstracts presented at local/regional meetings:

Research!Louisville

1. Cardoso APF, Wu J, States VAR, Al-Eryani L, Wise SS, States JC. Overexpression of hsa-miR-186 suppresses BUB1 and induces chromosome numerical and structural abnormalities in arsenic-exposed and non-exposed HaCaT cells. Research!Louisville, University of Louisville, Louisville, KY, Oct 9-12, 2018.
2. Knear-Bell RN, Cardoso APF, Banerjee M, Al-Eryani L, Kalbleisch TS, Pan J, Rai S, States JC. Arsenic Induced mTOR Dysregulation Promoting Squamous Cell Carcinoma. Research!Louisville, University of Louisville, Louisville, KY, Oct 9-12, 2018.
3. Davis J, Banerjee M, States JC. Optimization of Expression of Tag-Free Zinc Finger Peptides of ZRANB2. Research!Louisville, University of Louisville, Louisville, KY, Oct 9-12, 2018.
4. Sanders A, Cardoso APF, Banerjee M, Cardoso APF, Al-Eryani L, Sayed M, Park JW, States JC. Chronic Arsenic Exposure Leads to Altered Splicing Events in a HaCaT Cell Model of Squamous Cell Carcinoma. Research!Louisville, University of Louisville, Louisville, KY, Oct 9-12, 2018.

Ohio Valley Regional Chapter Society of Toxicology

5. Cardoso APF, Banerjee M, Al-Eryani L, Sayed M, Park JW, States JC. Alternative Splicing Events and RT-PCR analysis of SHC1 In Arsenic Exposed Human Keratinocytes. Ohio Valley Regional Chapter Society of Toxicology, University of Louisville, Louisville, KY, Nov 30, 2018.
6. Banerjee M, Cardoso APF, Al-Eryani L, Sayed M, Park JW, Rai S, Pan J, Srivastava S, States JC. Chronic Arsenic Exposure in a HaCaT Cell Model of Squamous Cell Carcinoma: Altered Splicing Events or Selection of Clones with Specific Isoforms? Ohio Valley Regional Chapter Society of Toxicology, University of Louisville, Louisville, KY, Nov 30, 2018.
7. Frye WJE, Cardoso APF, Banerjee M, Al-Eryani L, Sayed M, Park JW, States JC. Alternative Splicing Events Induced In Human Keratinocytes by Chronic Arsenic Exposure and Its Protein Levels. Ohio Valley Regional Chapter Society of Toxicology, University of Louisville, Louisville, KY, Nov 30, 2018.

Unpublished abstracts presented at national meeting

10th Conference of Metal Toxicity and Carcinogenesis

8. States JC, Al-Eryani L, Rai S, Kalnfleisch T, Pan J, Sayed M, Park JW. Longitudinal RNA Expression Analysis in HaCaT Cells Chronically Exposed to Low Arsenite.10th Conference of Metal Toxicity and Carcinogenesis, University of New Mexico, Albuquerque, NM, Oct 28 – 31, 2018. (platform presentation)

9. Cardoso APF, Wu J, States VAR, Al-Eryani L, Wise SS, States JC. Overexpression of hsa-miR-186 suppresses BUB1 and induces chromosome numerical and structural abnormalities in arsenic-exposed and non-exposed HaCaT cells.10th Conference of Metal Toxicity and Carcinogenesis, University of New Mexico, Albuquerque, NM, Oct 28 – 31, 2018. (platform and poster presentation)
10. Young JL, Yan X, Xu J, Yin X, Zhang X, Arteel GE, Barnes GN, States JC, Watson W, Kong M, Cai L, Freedman JF. Cadmium and High-Fat Diet Disrupt Renal, Cardiac and Hepatic Essential Metal Homeostasis.10th Conference of Metal Toxicity and Carcinogenesis, University of New Mexico, Albuquerque, NM, Oct 28 – 31, 2018. (platform and poster presentation)
11. Sayed M, Hwang JY, Cardoso AF, Al Eryani L, States JC, Park JW. RBP Motif Enrichment Analysis of Alternative Splicing Events in Arsenic-induced Skin Cancer. NIH-NIGMS 7th Biennial National IDeA Symposium of Biomedical Research Excellence (NISBRE). June 24-26, 2018, Washington D.C. (poster presentation)

Wise, John

1. Wise, Jr., J.P. Montalvo, C.L., Wise, C.F., Wise, S.S., Wise, J.T.F., Speer, R.M., Li Chen, T., Abouiessa, A., Perkins, C., Bras, M.M., Savery, L.C., Urbán, J. and Wise, Sr., J.P. A Whale of a Tale: Using a One Health Approach to Study Metal Pollution in the Sea of Cortez. Presented at the annual meeting of the Southern California Marine Mammal Workshop (SCMMW), Newport Beach, California, January, 2018.
2. Speer, R.M., Browning, C.L. and Wise, Sr., J.P. Chromate-Induced Suppression of E2F1 and RAD51 in the Homologous Recombination Response. Toxicological Sciences, 150(1): 480, 2018.
3. Wise, S.S. and Wise, Sr., J.P. Cells that escape Cr(VI)-induced cell death exhibit chromosome instability. Toxicological Sciences, 150(1): 252, 2018.
4. Croom-Pérez, T.J., Toyoda, J.H., Wise, S. S. and Wise, Sr., J. P. Chronic Exposure to Particulate Hexavalent Chromium Induces Centrosome Abnormalities and Disrupts Mitosis in both Sea Turtle and Alligator Primary Lung Cells. Toxicological Sciences, 150(1): 480, 2018.
5. Poirier, M.C., Lair, S., Hernandez-Ramon, E.E., Divi, K.V., Raverty, S., St. Leger, J.A., Burek-Huntington, K.A., Wise, S.S., Wise, Sr., J.P., Beauchamp, G., and Martineau, D. Intestinal Polycyclic Aromatic Hydrocarbon (PAH)-DNA Adducts in Beluga Whales with PAH-Exposures and High Rates of Gastrointestinal Cancers. Toxicological Sciences, 150(1): 242, 2018.
6. Wise, Jr., J.P. Montalvo, C.L., Wise, C.F., Wise, S.S., Wise, J.T.F., Speer, R.M., Li Chen, T., Abouiessa, A., Perkins, C., Bras, M.M., Savery, L.C., Urbán, J. and Wise, Sr., J.P. Of Whales and Men: A One Health Approach to Study Metal Pollution in the Sea of Cortez. Presented at the annual meeting of the International Association for Aquatic Animal Medicine (IAAAM), Long Beach, California, May, 2018.
7. Speer, R.M., Browning, C.L., and Wise, Sr. J.P. Mechanisms of E2F1 Suppression of RAD51 in Chromate-Induced Failure of Homologous Recombination. Presented at the 20th Annual Midwest DNA Repair Symposium, Columbus, Ohio, May, 2018.
8. Wise, Sr., J.P., Wise, S.S., Browning, C.L. Toyoda, J.H., Martino, J., and Xie, H. Chromosomal Instability Is a Key Step in the Carcinogenic Mechanism of Hexavalent Chromium. P88, page 154. Presented at the EMBO Conference: DNA replication,

chromosome segregation and fate decisions, Kyllini, Greece, September, 2018.

9. Wise, Sr., J.P. and Martineau, D. Environmental Exposure, Genotoxicity and Cancer Risk in Whales. Presented at the annual meeting of the Environmental Mutagenesis and Genomics Society, San Antonio, Texas, September, 2018.
10. Wise, Sr., J.P., Wise, Jr., J.P., Wise, J.T.F., Wise, C.F., Wise, S.S., Browning, C.L. Martino, J., and Li Chen, T. A Whale of a Tale: Metals and Genotoxicity in Great Whales Considered from a One Health Perspective. Environmental and Molecular Mutagenesis 59(S1): S30 p 42, 2018.
11. Wise, Sr., J.P., Wise, S.S., Speer, R.M., Toyoda, J.H. and Meaza, I. Caracterización de los Efectos Toxicológicos del Cromo Particulado Hexavalente en Cultivos Celulares Primarios de Rorcual Común y Yubarta (Characterization of the Toxicological Effects of Particulate Hexavalent Chromium in Fin Whale and Humpback Whale Primary Cell Cultures). Congreso de la Sociedad Española de Cetaceos (Spanish Society of Cetaceans Congress), Bilbao, Spain, October 2018.
12. Wise, Sr., J.P., Toyoda, J.H., Wise, S.S., Croom-Pérez, T., Martino, J., Holmes, A., and Xie, H. Chromosme Instability in Metal Carcinogenesis: Mechanisms of Particulate Cr(VI) Induced Centrosome Amplification from a One Environmnetal Health Perspective. Presented at the 10th Conference on Metal Toxicity & Carcinogenesis, Albuquerque, New Mexico, October, 2018.
13. Speer, R.M., Browning, C.L., and Wise, Sr., J.P. Suppression of E2F1 and RAD51 in Chromate-Induced Failure of Homologous Recombination. Presented at the annual meeting of the Ohio Valley Regional Chapter of the Society of Toxicology (OVSOT), Louisville, Kentucky, November, 2018.
14. Croom-Perez, T.J., Ziemba, C.R., Anglin, C.R., Furtado, W.R., and Wise, Sr., J.P. Establishing a Model Human Lung Fibroblast-Epithelial Co-Culture System to Study Chromate-Induced Effects on Cell-Cell Interactions. Presented at the annual meeting of the Ohio Valley Regional Chapter of the Society of Toxicology (OVSOT), Louisville, Kentucky, November, 2018.
15. Toyoda, J. H., Croom-Pérez, T. J., Wise, S. S., and Wise, Sr., J. P. Particulate Hexavalent Chromium Does Not Induce Centrosome Amplification in Sperm Whale and Bowhead Whale Cells. Presented at the annual meeting of the Ohio Valley Regional Chapter of the Society of Toxicology (OVSOT), Louisville, Kentucky, November, 2018.
16. Lu, H., Browning, C.L, Wise, S. S., Toyoda, J. H., and Wise, Sr., J. P. Prolonged Particulate Chromate Exposure Does Not Inhibit Homologous Recombination Repair in Bowhead Whale Lung Cells. Presented at the annual meeting of the Ohio Valley Regional Chapter of the Society of Toxicology (OVSOT), Louisville, Kentucky, November, 2018.
17. Wise, S.S., Toyoda, J.H., and Wise, Sr., J.P. Chromosomal instability drives hexavalent chromium-induced carcinogenesis in human lung cells. Presented at the American Society for Cell Biology (ASCB)/EMBO Conference, San Diego, California, December, 2018.
18. Lu, H., Browning, C.L. and Wise, Sr., J. P. Autophagy Does Not Play A Main Role in Rad51 Dysfunction after Prolonged Cr(VI) Exposure in Human Lung Cells. Presented at the Graduate Student Regional Research Conference, University of Louisville, 2018.
19. Speer, R.M., Young, J.L., Wise, S.S., Raph, S.M., Martin Bras, M., Barandiarin, M., Marquez-D'Acunti, L., and Wise, Sr., J. P. Using Leatherback Sea Turtles (Dermochelys coriacea) as a Model Species for Metal Toxicology Research and Public Education in Vieques, Puerto Rico. Presented at the Graduate Student Regional Research Conference, University of Louisville, 2018.

20. Toyoda, J.H., Martino, J. and Wise, Sr., J. P. Mechanisms of Hexavalent Chromium-Induced Centriole Disengagement and Centrosome Amplification. Presented at the Graduate Student Regional Research Conference, University of Louisville, 2018.
21. Raph, S.M., Wise, S.S., and Wise, Sr., J. P. One Environmental Health Cytotoxicity and Genotoxicity of Hexavalent Chromium in American Alligator (Alligator mississippiensis). Presented at the Graduate Student Regional Research Conference, University of Louisville, 2018.
22. Toyoda, J.H., Croom-Perez, T.J., Wise, S.S., and Wise, Sr., J. P. Particulate Hexavalent Chromium Does Not Induce Centrosome Amplification in Sperm Whale and Bowhead Whale Cells. Presented at Research!Louisville, Louisville, Kentucky, October 2018.
23. Anglin, C.T., Croom-Perez, T.J., and Wise, Sr., J. P. The Cytotoxic and Genotoxic Effects of Prolonged Particulate Hexavalent Chromium Exposure on Human Epithelial Cells. Presented at Research!Louisville, Louisville, Kentucky, 2018.
24. Ziemba, C.R., Anglin, C.R., Croom-Perez, T.J., Wise, S.S., and Wise, Sr., J. P. Effects of Prolonged Hexavalent Chromium Exposure on Homologous DNA Recombination in Human Epithelial Cells Grown in Minimal Serum Media. Presented at Research!Louisville, Louisville, Kentucky, 2018.
25. Croom-Perez, T.J., Ziemba, C.R., Anglin, C.R., Furtado, W.R., and Wise, Sr., J. P. Establishing a Model Human Lung Fibroblast-Epithelial Co-Culture System to Study Chromate-Induced Effects on Cell-Cell Interactions. Presented at Research!Louisville, Louisville, Kentucky, 2018.
26. Geisen, M.E., Toyoda, J.H., Croom-Perez, T.J., and Wise, Sr., J. P. Comparative Effects of Particulate Hexavalent Chromium on Mitotic Stages in Human and Whale Lung Fibroblasts. Presented at Research!Louisville, Louisville, Kentucky, 2018.
27. Daniel, S., Wise, S.S., and Wise, Sr., J. P. The Impact of Prolonged Particulate Hexavalent Chromium Exposure on Human Lung Fibroblasts. Presented at Research!Louisville, Louisville, Kentucky, 2018.
28. Raph, S.M., Wise, S.S., and Wise, Sr., J. P. One Environmental Health: A Study of the Genotoxic Effects of Hexavalent Chromium in American alligator (Alligator mississippiensis) Lung Fibroblasts. Presented at Research!Louisville, Louisville, Kentucky, 2018.
29. Speer, R.M., Browning, C.L, and Wise, Sr., J. P. Suppression of E2F1 and RAD51 in Chromate-Induced Failure of Homologous Recombination. Presented at Research!Louisville, Louisville, Kentucky, 2018.
30. Lu, H., and Wise, Sr., J. P. Homologous Recombination Repair Protects against Genomic Instability in Bowhead Whale Lung Cells after Prolonged Particulate Chromate Exposure. Presented at Research!Louisville, Louisville, Kentucky, 2018.

Wise, Sandra

1. Wise, Jr., J.P. Montalvo, C.L., Wise, C.F., Wise, S.S., Wise, J.T.F., Speer, R.M., Li Chen, T., Abouiessa, A., Perkins, C., Bras, M.M., Savery, L.C., Urbán, J. and Wise, Sr., J.P. A Whale of a Tale: Using a One Health Approach to Study Metal Pollution in the Sea of Cortez. presented at the annual meeting of the Southern California Marine Mammal Workshop (SCMMW), Newport Beach, California, January, 2018.
2. Wise, S.S. and Wise, Sr., J.P. Cells that escape Cr(VI)-induced cell death exhibit chromosome instability. Toxicological Sciences, 150(1): 252, 2018.

3. Croom-Pérez, T.J., Toyoda, J.H., Wise, S. S. and Wise, Sr., J. P. Chronic Exposure to Particulate Hexavalent Chromium Induces Centrosome Abnormalities and Disrupts Mitosis in both Sea Turtle and Alligator Primary Lung Cells. Toxicological Sciences, 150(1): 480, 2018.
4. Poirier, M.C., Lair, S., Hernandez-Ramon, E.E., Divi, K.V., Raverty, S., St. Leger, J. A., Burek-Huntington, K.A., Wise, S.S., Wise, Sr., J.P., Beauchamp, G., and Martineau, D. Intestinal Polycyclic Aromatic Hydrocarbon (PAH)-DNA Adducts in Beluga Whales with PAH-Exposures and High Rates of Gastrointestinal Cancers. Toxicological Sciences, 150(1): 242, 2018.
5. Wise, Jr., J.P. Montalvo, C.L., Wise, C.F., Wise, S.S., Wise, J.T.F., Speer, R.M., Li Chen, T., Abouiessa, A., Perkins, C., Bras, M.M., Savery, L.C., Urbán, J. and Wise, Sr., J.P. Of Whales and Men: A One Health Approach to Study Metal Pollution in the Sea of Cortez. Presented at the annual meeting of the International Association for Aquatic Animal Medicine (IAAAM), Long Beach, California, May, 2018.
6. Wise, Sr., J.P., Wise, S.S., Browning, C.L. Toyoda, J.H., Martino, J., and Xie, H. Chromosomal Instability Is a Key Step in the Carcinogenic Mechanism of Hexavalent Chromium. To be presented at the EMBO Conference: DNA replication, chromosome segregation and fate decisions, Kyllini, Greece, September, 2018.
7. Wise, Sr., J.P., Wise, Jr., J.P., Wise, J.T.F., Wise, C.F., Wise, S.S., Browning, C.L. Martino, J., and Li Chen, T. A Whale of a Tale: Metals and Genotoxicity in Great Whales Considered from a One Health Perspective. Environmental and Molecular Mutagenesis 59(S1): S30 p 42, 2018.
8. Wise, Sr., J.P., Wise, S.S., Speer, R.M., Toyoda, J.H. and Meaza, I. Caracterización de los Efectos Toxicológicos del Cromo Particulado Hexavalente en Cultivos Celulares Primarios de Rorcual Común y Yubarta (Characterization of the Toxicological Effects of Particulate Hexavalent Chromium in Fin Whale and Humpback Whale Primary Cell Cultures). Congreso de la Sociedad Española de Cetaceos (Spanish Society of Cetaceans Congress), Bilbao, Spain, October 2018.
9. Wise, Sr., J.P., Toyoda, J.H., Wise, S.S., Croom-Pérez, T., Martino, J., Holmes, A., and Xie, H. Chromosme Instability in Metal Carcinogenesis: Mechanisms of Particulate Cr(VI) Induced Centrosome Amplification from a One Environmnetal Health Perspective. Presented at the 10th Conference on Metal Toxicity & Carcinogenesis, Albuquerque, New Mexico, October 2018.
10. Cardoso, A.P.F., Wu, J., States, V.A.R. Al-Eryani, L., Wise, S.S. and States, J.C. Overexpression of hsa-miR-186 induces chromosome numerical and structural abnormalities in arsenic-exposed and non-exposed HaCaT cells. Presented at the 10th Conference on Metal Toxicity & Carcinogenesis, Albuquerque, New Mexico, October 2018.
11. Toyoda, J. H., Croom-Pérez, T. J., Wise, S. S., and Wise, Sr., J. P. Particulate Hexavalent Chromium Does Not Induce Centrosome Amplification in Sperm Whale and Bowhead Whale Cells. Presented at the annual meeting of the Ohio Valley Regional Chapter of the Society of Toxicology (OVSOT), Louisville, Kentucky, November, 2018.
12. Lu, H., Browning, C.L, Wise, S. S., Toyoda, J. H., and Wise, Sr., J. P. Prolonged Particulate Chromate Exposure Does Not Inhibit Homologous Recombination Repair in Bowhead Whale Lung Cells. Presented at the annual meeting of the Ohio Valley Regional Chapter of the Society of Toxicology (OVSOT), Louisville, Kentucky, November, 2018.

13. Wise, S.S., Toyoda, J.H., and Wise, Sr., J.P. Chromosomal instability drives hexavalent chromium-induced carcinogenesis in human lung cells. To be presented at the American Society for Cell Biology (ASCB)/EMBO Conference, San Diego, California, December, 2018.
14. Speer, R.M., Young, J.L., Wise, S.S., Raph, S.M., Martin Bras, M., Barandiarin, M., Marquez-D'Acunti, L., and Wise, Sr., J. P. Using Leatherback Sea Turtles (Dermochelys coriacea) as a Model Species for Metal Toxicology Research and Public Education in Vieques, Puerto Rico. Presented at the Graduate Student Regional Research Conference, University of Louisville, 2018.
15. Raph, S.M., Wise, S.S., and Wise, Sr., J. P. One Environmental Health Cytotoxicity and Genotoxicity of Hexavalent Chromium in American Alligator (Alligator mississippiensis). Presented at the Graduate Student Regional Research Conference, University of Louisville, 2018.
    Speer, R.M., Young, J.L., Wise, S.S., Raph, S.M., Martin Bras, M., Barandiarin, M., Marquez-D'Acunti, L., and Wise, Sr., J. P. Using Leatherback Sea Turtles
16. (Dermochelys coriacea) as a Model Species for Metal Toxicology Research and Public Education in Vieques, Puerto Rico. Presented at the Graduate Student Regional Research Conference, University of Louisville, 2018.
17. Toyoda, J.H., Croom-Perez, T.J., Wise, S.S., and Wise, Sr., J. P. Particulate Hexavalent Chromium Does Not Induce Centrosome Amplification in Sperm Whale and Bowhead Whale Cells. Presented at Research!Louisville, Louisville, Kentucky, October 2018.
18. Ziemba, C.R., Anglin, C.R., Croom-Perez, T.J., Wise, S.S., and Wise, Sr., J. P. Effects of Prolonged Hexavalent Chromium Exposure on Homologous DNA Recombination in Human Epithelial Cells Grown in Minimal Serum Media. Presented at Research!Louisville, Louisville, Kentucky, 2018.
19. Daniel, S., Wise, S.S., and Wise, Sr., J. P. The Impact of Prolonged Particulate Hexavalent Chromium Exposure on Human Lung Fibroblasts. Presented at Research!Louisville, Louisville, Kentucky, 2018.
20. Raph, S.M., Wise, S.S., and Wise, Sr., J. P. One Environmental Health: A Study of the Genotoxic Effects of Hexavalent Chromium in American alligator (Alligator mississippiensis) Lung Fibroblasts. Presented at Research!Louisville, Louisville, Kentucky, 2018.
21. Cardoso, A.P.F., Wu, J., States, V.A.R. Al-Eryani, L., Wise, S.S. and States, J.C. suppresses BUB1 and induces chromosome numerical and structural abnormalities in arsenic-exposed and non-exposed HaCaT cells. Presented at Research!Louisville, University of Louisville, 2018.

RESEARCH GRANTS ACTIVE

Antimisiaris, Demetra

Agency/Number	Title	Role	PI	Project Period	Budget Award
NSF/1639609	Aware Access Seed Program	Co-PI		July 2017-Present	$4000
NSF/1450370	iCORE Seed Program	Co-Pi		July 2017-Present	$2500
NIH RO1-1R01AG047297-01A1	Asthma in Older Adults: Identifying Phenotypes and Factors Impacting Outcomes Supplement: Examination of bioactive lipids to assess racial differences in redox imbalance in older adults with asthma. Supplement: Strength Specific Medication Literacy and Clinical Correlates in Low Income Older Adults with Asthma.	Co-I		July 2015-2020 2016-2020 2017-2020	$2,300,000 $84,525 $69,220

Ceresa, Brian

Agency/Number	Title	Role	PI	Project Period	Budget Award
NIH/NEI EY027032	Identifying novel c-Cbl Antagonists to promote corneal epithelial regeneration	PI (25%)	Ceresa	8/01/16 – 01/31/19 (NCE)	$423,000
Jewish Heritage Foundation for Excellence	c-Cbl Antagonists for Corneal Epithelial Regeneration	PI (30%)	Klein	11/1/18 – 10/31/19	$50,000
NIH/NCI R01CA193220	Ubiquilin1 Regulates EMT and Metastasis of Human Lung Adenocarcinoma	Co-I (1%)	Beverly	08/1/15 – 07/31/20	$1.7M
NIH/NEI T35EY026509	Summer Vision Sciences Training Program	Co-PI (5%)	Ceresa/ Kaplan	07/1/17 – 04/28/22	$193,732
NIH/NIEHS T32ES011564	UofL Environmental Health Sciences Training Program	Mentor	Hein	07/01/16-06/30/21	$2.3M

Sustain LLC	Screen of Collagen Mimetic Peptides on Corneal Epithelial Homeostasis	PI (6%)	Ceresa	11/13/17-6/30/18	$30,000

Chen, Shao-yu

Agency/Number	Title	Role	PI	Project Period	Budget Award
NIAAA/**RO1** AA021434	Role of microRNA in ethanol-induced apoptosis and teratogenesis	PI	Shao-yu Chen	07/2013 – 06/2019	$1,125,000 (direct cost)
NIAAA/**RO1** AA020265	Role of Siah1 in ethanol-induced apoptosis and teratogenesis	PI	Shao-yu Chen	07/2012 – 06/2019	$1,125,000 (direct cost) (NCE)
NIAMS/**RO1** AR063630	Coordinated cytoskeletal dynamics in skin somatic stem cells	Subcontract PI	Xiaoyang Wu	09/2013 – 08/2018	$1,125,000 (direct cost) $125,000 direct cost for subcontract
NIAAA/**P50** Alcohol Center grant	The role of nutrition in the development/progression of alcohol-induced organ injury. Project 3: Sulforaphane-mediated epigenetic modulation of ethanol-induced apoptosis and teratogenesis	Project 3 PI	Craig McClain	05/2016 – 04/2021	$8,000,000.000 (Total Budget) Project 3 budget: $750,000.00 (Direct cost)
NIEHS/**T32**	UofL environmental health sciences training program	Faculty mentor	David Hein	07/2016 – 06/2021	$2,311,000.00
NIEHS/**T35**	Summer Environmental Health Sciences Training Program	Faculty mentor	Prough	04/2016 03/2021	$190,000.00
NCI/**R25**	Cancer Education Program for Professional and Undergraduate Students	Faculty mentor	David Hein/ LaCreis Kidd	04/2017 – 03/2022	$1,620.000

Clark, Geoffrey

Agency/Number	Title	Role	PI	Project Period	Budget Award
NIH Excite Award: 1U01HL127518-01	Generation of best in class RAS inhibitors	PI	Bates	2018-2019	100K Direct

JHFE	The development of a novel small molecule for lung cancer	PI		2015-2018	250K Direct
KLCRP	Novel small molecule inhibitors of the Ras Oncoprotein for Lung cancer	PI		2016-2019	150K
NCI R21 R21CA216722	A novel RALGEF inhibitor for Pancreatic cancer	PI		2018-2020	275K Direct
NIEHS/T32 ES011564 (A1)	UofL Environmental Health Sciences Training Program	Mentor	Arteel	04/01/16-03/31/21	$2,183,597
R25CA134283	University of Louisville Cancer Education Program	Mentor	Hein	09/01/16-08/31/21	$1,500,000

Freedman, Jonathan

Agency/Number	Title	Role	PI	Project Period	Budget Award
NIEHS R01ES028102	The Role of Autophagy in Cadmium Induced Prostate Carcinogenesis	PI	Freedman	12/01/2017-1/30/2022	1,934,000 (total)
NIEHS/T32 ES011564	UofL Environmental Health Sciences Training Program	Member	Arteel	06/2016 - 05/2021	$2,211,776 ($2,183,57 direct)
NIEHS/T35 ES014559	Summer Environmental Health Sciences Training Program	Member	Prough	04/2016 - 03/2021	$190,00 ($175,000 direct)
NCI/R25 CA134283	University of Louisville Cancer Education Program	Member	Hein	09/2015 - 08/2016	$293,984
NIEHS/P42 ES023716 (Training Core)	Molecular and Cellular Mechanisms of Cardiometabolic Toxicity of VOCs	Co-Director	Srivastava/Hein	4/2017-3/2024	$1,669,954 (Direct)

Fuqua, Joshua

Agency/Number	Title	Role	PI	Project Period	Budget Award
CPM Collaborative Research Proposal	Evaluation of the Pyocin PaeM4 I Murine Models	MPI	Fuqua, Koukam Lawrenz	11/01/2018 – 10/31/2019	$14,933
NIH/NIAID U19AI113182 Core A	Griffithsin-based rectal microbicides for Prevention of Viral Entry (PREVENT) Core A: Administrative	Program Manager	Palmer	07/01/2014 – 6/30/2019	$2,242,842
NIH/NIAID U19AI113182 Core D	Griffithsin-based rectal microbicides for Prevention of Viral Entry (PREVENT) Core D: Regulatory Affairs Core	PI	Fuqua	07/01/2014 – 06/30/2019	$304,807

Gupta, Ramesh

Agency/Number	Title	Role	PI	Project Period	Budget Award
DoD Breast CA Res Program Breakthrough Award	Prevention and Treatment of Breast Cancer by Blueberry Anthos	PI	Gupta	08/14-07/18	$1,039,962
NIH R44-CA-221487-01	Exosomal Drug Delivery	MPI	Gupta, Aqil	09/17–08/19	$391,054
3P Bio Contract	Effect of Exosomal Formulations on Lung and Breast cancer	MPI	Gupta, Aqil	07/18–01/20	$173,250
Helmsley Trust Funds	Exosomal formulations of plant therapeutics	PI	Miller	06/17-06/18	$100,000 (Directs)

Hein, David

Agency/ Number	Title	Role	PI	Project Period	Award
NCI R25- CA134283	University of Louisville Cancer Education Program	Contact PI	Hein & Kidd	04/01/17-03/31/22	$1,593,000
NIEHS T35- ES014559	Summer Environmental Health Sciences Training Program	Mentor	Prough	05/15/16 – 03/31/21	$186,540

NIH (P20- GM113226)	Hepatobiology and Toxicology COBRE	Director for faculty career development; project lead renovation & alternations	McClain	06/10/16 – 03/31/21	$11,530,145
NIEHS T32 ES011564	UofL Environmental Health Sciences Training Program	PI	Hein	07/01/16 – 06/31/21	$2,314,825
NIH R15 HD087911	The interaction between NAT2 acetylator status and exposure to tobacco smoke on ovarian reserve and in vitro fertilization outcomes	Co-I	Taylor	07/08/16 - 06/30/19	$460,018
NIEHS (P42-ES023716)	Environmental Exposure and Cardiometabolic Disease	Co-Leader, Training Core	Srivastava	09/01/17 – 03/31/22	$6,700,000

Hood, Joshua

Agency/Number	Title	Role	PI	Project Period	Budget Award
Elsa U. Pardee Foundation	Tuning exosomes to activate anti-lung cancer macrophages	PI	Hood	10/01/18 - 9/30/19	$185,241(Total) $161,079(Direct)
2 R25 CA134283-06A1	University of Louisville Cancer Education Program	Faculty Mentor	Hein, Kidd	4/1/17 - 3/31/22	pending
UofL EVPRI internal grant program	Enhancing the Translational Potential of Adenoviral Oncolysis via Liposome Encapsulation	MPI	Hood, Gomez-Gutierrez	6/1/18 – 5/31/19	$9,000(Direct) $9,000(Total)

Kidd, LaCreis

Agency/Number	Title	Role	PI	Project Period	Budget Award
NIH, NIEHS T32-ES011564	UofL Environmental Health Science Training Program	Mentor	Hein	04/1/16-3/31/21	$2,310,776

R25-CA134283-06	University of Louisville Cancer Education Program	Co-I, Cancer Education Coordinator, Mentor	Hein/ Kidd	9/1/17-08/31/21	$1,620,000

Kouokam, Calvin

Agency/Number	Title	Role	PI	Project Period	Budget Award
NIAID/3U19AI113182-03S1	Safety and efficacy of plant produced Griffithsin in the context of colorectal pathologies.	Co-I	Palmer	7/17-6/20	NCE
CPM/BRU	Laboratory start up	PI	Kouokam	7/17-6/20	$645,425
CPM	Evaluation of the Pyocin PaeM4 in Murine Models	Co-I	Fuqua Kouokam Lawrenz	11/1/18 – 10/31/19	$14,933

Lukashevich, Igor

Agency/Number	Title	Role	PI	Project Period	Budget Award
NIH/NIAID 1R01 AI093450-06	Development of New Bivalent Cross-Protective Arenaviral Vaccines	Contact PI	MPI	04/01/11-3/31/18 (NCE)	$3,964,538
NIH/NIAID 2R44AI094863-03A1	Novel DNA-launched Attenuated Vaccine for VEE Virus, SBIR Phase II	PI on sub		02/01/17 - 6/30/19 (NCE)	$465,000
NIH/NIAID 1R56AI1357700-01A1 (bridge award in support of R01 AI1357700 application)	Reverse Genetics To Forward The Pan-Lassa Fever Vaccine Lead Candidate ML29	PI on sub		08/01/18-7/31/19	$256,666

Matoba, Nobuyuki

Agency/Number	Title	Role	PI	Project Period	Budget Award

UofL ExCITE Product Development Grant Cycle 2 (NIH U01 HL127518 ExCITE Program)	Oral Solid Dosage Formulation of Cholera Toxin B Subunit	Co-PI	Hamorsky/ Matoba	2/1/16 – 1/31/19	$200,000 (total direct costs)
UofL ExCITE Product Development Grant Cycle 4 (NIH U01 HL127518 ExCITE Program)	Avaren-Fc lectibody for liver graft protection against hepatitis C virus infection	Contact PI	Matoba/ Hamorsky	3/1/17 – 2/28/19	$200,000 (total direct costs)
UofL ExCITE Product Development Grant Cycle 5 (NIH U01 HL127518 ExCITE Program)	CTBp for oral mucositis treatment	Contact PI	Matoba/ Hamorsky	7/1/17 – 6/30/18	$100,000 (total direct costs)
Brown Cancer Center Helmsley Charitable Trust Program	Plant-made *N*- mannosylated cholera toxin B subunit as a novel vaccine scaffold	PI	Matoba	11/1/15 –6/30/18	$225,000 (total direct costs)
NIH NIAID/ U19 AI113182 Core C	Griffithsin-based Rectal Microbicides for PREvention of Viral ENTry (PREVENT) Core C: Pharmacokinetics and Pharmacodynamics Core	PI	Matoba	7/01/14 – 6/30/19	$471,593 (FY total cost)
NIH NCI / 1R21CA216447-01A1	Investigation of a lectibody targeting tumor-associated oligomannose glycans	PI	Matoba	2/08/18 – 1/31/20	$239,250 (total direct costs)

Palmer, Kenneth

Agency/Number	Title	Role	PI	Project Period	Budget Award
NIH/NIAID U19AI113382	Griffithsin-based rectal microbicides for Prevention of HIV Entry (PREVENT)	Program Director	Palmer	07/01/14 – 06/30/20	$2,242,842
NIH/NIAID U19 AI113182-6661	CORE A: PREVENT Administrative Core	Core Leader	Palmer	07/01/14 – 06/30/20	$247,185
NIH/NIAID U19 AI113182-6666	Project 2: PREVENT Preclinical and Safety Studies	Project PI	Palmer	07/01/14 – 06/30/19	$127,648

NIH/NIHLB U01HL127518	The EXCITE Program: Expediting Commercialization, Innovation, Translation and Entrepreneurship	Member, Intenal Advisory Board	Bates, Miller, Krentsel	03/20/15 - 02/28/20	$996,487
NIH/NIGMS P20 GM 125504	Functional Microbiomics, Inflammation and Pathogenicity	Faculty mentor for COBRE of Jill Steinbach-Rankins *and* Member, Internal Advisory Board	Lamont	03/01/18 - 02/28/23	$2,544,491
NIH/NIAID 1UC6AI066844	Center for Predictive Medicine for Biodefense	PI and Director	Palmer	09/01/05 – 08/31/30	Construction grant with ongoing operations obligations $21,945,188
Jewish Heritage Fund for Excellence	Griffithsin based nanocarriers for prevention and treatment of viral infections	Co-I	Steinbach-Rankins	07/01/16 - 06/30/19	$300,000

Siskind, Leah

Agency/Number	Title	Role	PI	Project Period	Budget Award
NIH/NIDDK	Targeting Ceramide-Induced Kidney Cell Apoptosis and Necrosis for the Treatment of Acute Kidney Injury	**PI**	Siskind	09/17/12 - 04/30/19	$217,000 annual direct costs
Kentucky Lung Cancer Program	Whole genome CRISPR/Cas9 screens to identify novel vulnerabilities of human lung cancer cells	**PI**	Siskind Beverly Clark	01/01/16 – 6/01/18	$65,000 (Annual DC)
Kentucky Lung Caner Program	Developing pigs as models of lung cancer progression and therapeutics	**PI**	Siskind Beverly Clark	04/01/16 – 3/31/19	$200,000 total DC

NIH NIDDK	CSN8 regulation of S1P-enriched extracellular vesicles to modulate NAFLD by gut-liver axis	**Co-I**	ZhongBin Deng	07/20/18 -4/30/23	$270,000 Annual DC
The Research Foundation for SUNY	Validation of neutral ceramidase (NCD) as a novel target for therapy of ischemia and reperfusion-induced acute kidney injury	**PI**	Siskind	9/17/12-4/30/19 (NCE)	$217,000 annual direct costs

Song, Zhao-Hui (Joe)

Agency/Number	Title	Role	PI	Project Period	Budget Award
R25CA134283-06	University of Louisville Cancer Education Program	Faculty Mentor	David W. Hein and LaCreis R. Kidd	9/1/16 -8/31/21	$1,620,000
R01DA003934	Molecular Determinants of Cannabinoid Activity	PI, U of L subcontract	P Reggio	4/1/15-7/31/18	$ 375,000

States, Christopher

Agency/Number	Title	Role	PI	Project Period	Budget Award
NIH-NIEHS 5R01ES027778-02	MECHANISM FOR ARSENIC INDUCED CARCINOGENESIS	PI	States	8/1/17 – 7/31022	$420,913 (ATC)
NIH-NIEHS 3R01ES027778-01A1S1	MECHANISM FOR ARSENIC INDUCED CARCINOGENESIS	PI	States	5/17/18-7/31/18	$8,171
NIEHS/5R21ES023627-02	DIFFERENTIAL MIRNA EXPRESSION & PROGRESSION OF ARSENIC INDUCED SKIN CANCERS	PI	States	7/1/15 – 6/30/18	$422,000 (in NCE)
KY Lung Cancer Research Program	Targeting the anaphase promoting complex as lung cancer chemotherapy	PI	States	5/1/15 – 4/30/18	$150,000 (in NCE)

NIH-NIEHS 5T35ES014559-13	SUMMER ENVIRONMENTAL HEALTH SCIENCES TRAINING PROGRAM	MPI	Prough (CPI)	4/1/06 – 4/30/21	$38,431 (ATC)
NIH-NIGMS 5P20GM113226-03	Hepatobiology and Toxicology COBRE	Mentor	McClain	6/10/16 – 03/31/21	$1,912,971 (ATC)

Wise, John

Agency/Number	Title	Role	PI	Project Period	Budget Award
NIEHS/R01 ES016893	Particulate Cr(VI) Toxicology in Human Lung Epithelial Cells and Fibroblasts	PI	Wise, J.	07/01/08 - 12/31/18	$3,090,764
Kentucky Lung Cancer Research Program	Particulate Hexavalent Chromium-Induced Exosome Release in Human Lung Cells	PI	Wise, J.	07/01/18 - 06/30/20	$150,000
University of Louisville School of Medicine	Survival Pathways in Metal Induced Carcinogenesis	Collaborator	Wise, S.	06/15/18-05/14/19	$25,000
NIEHS/T32 ES011564	UofL Environmental Health Sciences Training Program	Mentor	Hein	04/01/16-03/31/21	$2,183,597
NCI/R25CA134283	University of Louisville Cancer Education Program	Mentor	Hein and Kidd	09/01/16-08/31/21	$1,500,000
NIGMS/P20GM113226	Hepatobiology & Toxicology COBRE	Mentor	McClain	06/10/16-03/31/21	$11,250,000
NIEHS/T35ES014559	Summer Environmental Health Sciences Training Program	Mentor	Prough	04/01/06 – 04/30/21	$516,565

Wise, Sandra

Agency/Number	Title	Role	PI	Project Period	Budget Award
NCI/R25CA134283	University of Louisville Cancer Education Program	Mentor	Hein and Kidd	09/01/16-08/31/21	$1,500,000
NIEHS/1RO1ES02778-01A1	Mechanism for arsenic induced carcinogenesis	Co-PI	States	07/01/17-06/30/22	$2,488,085
University of Louisville, School of Medicine	Survival Pathways in Metal Induced Carcinogenesis	PI	Wise, S.	06/15/18-05/14/19	$25,000

REASEARCH GRANTS SUBMITTED

Antimisiaris, Demetra					
Agency/Number	**Title**	**Role**	**PI**	**Project Period**	**Budget Request**
NSF/18-550	Dementia Mentor-Development of a Virtual Dementia Manager (RDF#13052)	PI		One year submitted July 10, 2018	$224,785 not funded

Ceresa, Brian					
Agency/Number	**Title**	**Role**	**PI**	**Project Period**	**Budget Request**
NIH/NEI EY028911	c-Cbl Antagonists for Corneal Epithelial Regeneration	PI (30%)	Ceresa	1/1/19 – 12/31/23	$1,925,088 (awaiting NGA)
NIH/NEI EY030052	c-Cbl Regulation of EGFR-mediated Corneal Epithelial Homeostasis	PI (30%)	Ceresa	4/1/19-3/30/24	$1,925,088
Dept of Defense	Chemical Opitmization of c-Cbl Antogonists for Corneal Would Healing	PI (30%)	Ceresa	7/1/2018 - 6/30/21	$1,925,000
NIH	Assessing the role of chronic arsenic in the EGFR signaling axis	Mentor	Kim	7/1/19-6/30/22	$98,201
NIH/NCI	Ubiquilin proteins suppress human lung cancer initiation and progression	Co-I (5%)	Beverly	04/01/19-03/31/24	$1,925,000
NIH/NCI	(PQ6) The Role of Circadian Disruption in Response to Treatment for Head and Neck Cancer	Co-I (7%)	Cash	04/01/19-03/31/21	$275,000
Allergan Foundation	Development of a Next-Generation Topical Anesthetic for Treatment of Ocular Pain	Co-I (3%)	Scott	01/01/19-12/31/19	$60,000

Chen, Shao-Yu					
Agency/Number	**Title**	**Role**	**PI**	**Project**	**Budget Request**

NIAAA/RO1 AA027842	Intraflagellar transport-mediated regulation of Sonic hedgehog signaling and ethanol-induced apoptosis and teratogenesis	PI	Chen	07/01/2019 – 06/30/24	$1,925,000.00
NIH	IDeA- Clinical and Translational research grant	Mentor	Klein		
NIEHS P30	University of Louisville Center for Integrated Environmental Health Sciences	Member	States		
NIH S10	Mass Spectrometry Imaging (MSI) system	User	Zhang		
KBRIN	KBRIN Next-Generation Sequencing Pilot Project	PI	Chen		

Clark, Geoff

Agency/Number	**Title**	**Role**	**PI**	**Project Period**	**Budget Request**
NCI R21 CA235520-01	Inhibiting the RAS/RAL pathway to suppress lung cancer.	PI		2018-2020	275K Direct
NINDS: UG3NS111995	Development of Novel, direct RAS inhibitors for NF1 disease	PI		2019-2023	2 Million Direct
R21 CA239014-01	Novel RAS binding molecules conjugated to Thalidomide or VHL-ligand to target RAS driven pancreatic cancer	PI		2019-2021	275K Direct
CDMRP CA190180	Development of RAS-PROTAC systems for pancreatic cancer	PI		2019-2022	789K Direct
NIH R01 CA234596-01	Novel inhibitors of NF1 disease	PI		2019-2013	800K direct
CDMRP 180094	Novel Inhibitors of MPNST			2019-2023	525K Direct

UPAIR	Optimization of a novel anti-cancer drug	PI		2018-2019	35K Direct
CDMRP BC181713	*Novel RAS* inhibitor for luminal B breast cancer	PI		2019-2022	635K Direct
NIH R01	Optimization of RAS-GTP specific inhibitors	PI		2018-2022	1.9 Million

Freedman, Jonathan

Agency/Number	Title	Role	PI	Project Period	Budget Request
NIEHS/R21 ES030780-01	Impact of Cadmium Exposure on Autism Spectrum Disorder Pathogenesis	PI	Freedman	7/2019- 9/2021	$422,123 $274,303 (direct)
NIEHS/R01 ES029931	Multi-System Investigation of Environmental Factors Contributing to ASD	PI	Freedman	11/2018- 10/2023	$3,850,000 $2,500,000 (direct)
NIEHS/R01 ES026628	Contribution of Environmental Toxicants in the Development of Metabolic Disease	PI	Freedman	7/2018- 6/2023	$1,925,000 $1,250,000 (direct)
NIEHS/P30 ES030283	UofL Center for Integrated Environmental Health Sciences	PI ITEM Facility Core	States	4/2019- 3/2024	$7,700,000 $5,000,000 (direct)
Global Challenges Research Fund	GCRF Environmental Justice Hub	Investigator	Colbourne	11/2018- 11/2023	£20,000,000

Fuqua, Joshua

Agency/Number	Title	Role	PI	Project Period	Budget Request
NIH/NIAID R-01 AI 144989	Optimizing Griffithsin Biotherapy for Sustained anti- HIV Response	MPI	Griswold Bailey-Kellogg Fuqua	04/01/2019 – 03/31/2024	$3,947,919 Scored, pending Council

NIH/NIAID R25 AI 140450-01A1	University of Louisville Emerging and Re-emerging Infectious Diseases Research Education Program	Key Personnel/ Mentor *	Lawrenz Palmer Hopp	07/01/2019 – 06/30/2024	$1,714,546 Pending IRG review
Population Council - Contract	Manufacturing two grams of Griffithsin	PI	Fuqua	07/01/2018	$37,196 – Under
Population Council - Contract	Manufacturing of ten grams of Griffithsin	PI	Fuqua	07/01/2018	$88,672 *Not Funded*
NIH/NIAID SRATP	Silk fibroin delivery of Griffithsin (GRFT) for short and medium-term protection against HIV	Co-I on Subaward	LiWang, Subaward PI: Palmer	07/01/2018 - 06/30/2023	$142,247 *Not Funded*
Gilead	Development of the antiviral Griffithsin as a HIV therapeutic	PI	Fuqua	06/01/2018 - 05/31/2020	$129,197 *Not Funded*
NIH R61 1R61AI147303-01	Multilayer Film Platforms offering one-month HIV Protection	Co-I on Subaward	Patel & Rohan Subaward PI: Palmer	07/01/2019 – 06/30/2024	$381,742 TDC Pending IRG review

Gupta, Ramesh

Agency/Number	Title	Role	PI/MPIs	Project Period	Budget Request
R21CA241723-01 (NIH-R21grant application)	Exosomal anthocyanidins for drug resistant ovarian cancer	Co-I	Gupta, R	7/19-6/21	
R01CA241855-01 (NIH-R01 grant application)	Exosomal drug delivery for lung cancer	Co-I	Gupta, R	7/19-6/24	

Hein, David

Agency/ Number	Title	Role	PI	Project Period (requested)	Budget Request
NIGMS/ 1 U54 GM128728	University of Louisville's Clinical and Translational Sciences Institute	Leader Faculty Development Core	Klein	07/01/2019 – 06/30/2024	$20,000,000

NIH-NIEHS/P30 ES030283	University of Louisville Center for Integrated Environmental Health Sciences	Faculty Member	States	04/01/19 - 03/30/24	$7,700,000
Internal (Hepatobiology/Toxicology COBRE)	Novel role of human N-acetyltransferase 2 in development of metabolic syndrome	Co-I and Mentor	Hong	01/01/2019 – 12/21/2023	$1,015,865

Hood, Joshua

Agency/Number	Title	Role	PI	Project	Budget Request
Elsa U. Pardee Foundation	Induction of anti-melanoma macrophages by melittin-modified melanoma exosomes	PI	Hood	10/01/18 - 9/30/19	$236,038 (Total) $205,250 (Direct)
Elsa U. Pardee Foundation	Tuning exosomes to activate anti-lung cancer macrophages	PI	Hood	10/01/18 - 9/30/19	$234,691 (Total) $204,079 (Direct)
NIH R01, PAR-17-045 Focused Technology Research and Development	High-Throughput, Label-Free Sorting and Modification of Nanovesicles *via* 3D Printed Modular Microfluidic Platforms	MPI	Hood (U of L) Warren (U of U) Sant (U of U)	5/15/19 - 5/14/23	$2,742,047 (Project Total) $1,237,254 (U of L Total) $932,583 (U of L Direct)
Lung Cancer Research Foundation	Enhancement of lung cancer oncolytic virotherapy via encapsulated fluvastatin-mediated autophagic cell death	PI (Hood), Co-I (Gomez-Gutierrez (U of L, Surgery)	Hood	11/1/18-10/31/20	$150,000 (Direct) $150,000 (Total)
U of L EVPRI internal grant program	Enhancing the Translational Potential of Adenoviral Oncolysis via Liposome Encapsulation	MPI	Hood (lead, U of L, Pharm/Tox), Gomez-Gutierr	6/1/18 - 5/31/19	$9,000 (Direct) $9,000 (Total)

DOD Lung Cancer, Concept Award: W81XWH-17- LCRP-CA	Stealth encapsulation of an oncolytic adenovirus to enable virotherapy in orthotopic lung cancer	PI (Hood), Co-I (Gomez-Gutierrez (U of L, Surgery))	Hood	5/1/18 - 4/30/19	$100,000 (Direct)
The Lexington Cancer Foundation, Inc.	Development of fluvastatin autophagy- enhanced oncolytic adenoviral nanomedicine for lung cancer	PI (Hood), Co-I (Gomez-Gutierrez (U of L, Surgery)	Hood	1/1/19 - 12/31/20	$200,000 (Direct) $284,780 (Total)
U of L Hepatobiology and Toxicology COBRE Application	Exosome-based immunotherapy for hepatocellular carcinoma	PI	Hood	4/1/19 - 3/31/21	$373,043 (Direct), $574,486 (Total)

Kouokam, Calvin

Agency/Number	Title	Role	PI	Project Period	Budget Request
1 R25 AI140450-01A1	University of Louisville Emerging and Re-emerging Infectious Diseases (ERID) Research Education Program	Mentor	Hopp Lawrenz Palmer	7/1/19 – 6/30/24	$1,714,546

Lukashevich, Igor

Agency/Number	Title	Role	PI	Project Period	Budget Request
1RO1 AI1357700-01	Reverse Genetics To Forward The Pan-Lassa Fever Vaccine Lead Candidate ML29	PI		07/01/2018 - 06/30/2023	$1,283,330
SBIR Phase 1, R21	Engineered ML29 Virus Vaccine for Lassa Fever	PI on sub		2/1/19 – 1/30/21	$98,000
DOD	Development of a bivalent live-attenuated vaccine against Lassa and Ebola Viruses	PI on sub		7/19 – 6/30/22	$146,722

Matoba, Nobuyuki

Agency/Number	Title	Role	PI	Project Period	Budget Request

NIH/NIDDK 1 R21 DK119688-01	Development of a topical biotherapeutic for ulcerative colitis mucosal healing	PI	Matoba	9/1/18 – 8/31/20	$275,000 (total direct costs) *Impact score: 45*
W81XWH18PRMRPTTDA DoD Peer Reviewed Medical Research Program 2018 Technology/Therapeutic Development Award GRANT12710746	Epicertin for mucosal healing in ulcerative colitis	PI	Matoba	9/1/19 – 8/31/22	$2,990,218 (total direct costs) *Invited to submit a full proposal, which is under review*
NIH/NCI 1 R21 CA237774-01	Epicertin for ulcerative colitis	PI	Matoba	4/1/2019 3/31/202	$275,000 (total direct costs)
	treatment and colitis-associated cancer prevention				*Impact score: 29 Percentile: 13.0*
Crohn's & Colitis Foundation Litwin IBD Pioneers Program	Epicertin as a novel oral biotherapeutic for mucosal healing in Ulcerative colitis	PI	Matoba	4/1/2019 3/31/202	$260,000 (total costs) *Invited to submit a full proposal*

Palmer, Kenneth

Agency/Number	Title	Role	PI	Project Period	Budget Request
NIH/NIAID R25 AI 140450-01A1	University of Louisville Emerging and Re-emerging Infectious Diseases Research Education Program	PI	Lawrenz Palmer Hopp	07/01/2019 – 06/30/2024	$1,714,546 Pending IRG review
NIH/NIAID SRATP	Silk fibroin delivery of Griffithsin (GRFT) for short and medium-term protection against HIV	PI on Subaward from UC Merced	LiWang, Subaward PI: Palmer	07/01/2018 - 06/30/2023	$142,247 *Not Funded*
NIH/NIAID R01 AI144989	Optimizing Griffithsin Biotherapy for Sustained Anti-HIV response	PI	Bailey-Kellogg Fuqua Griswold Palmer	04/01/2019 – 03/31/2024	$3,947,919 Pending Council Review
NIH/NIAID R61 AI147303	Multilayer Film Platforms Offering One Month HIV Protection	PI of subaward from University of Pittsburgh	Rohan Patel	07/01/2019 – 06/30/2024	$587,618 (subaward to UofL only) Pending IRG Review

NIH IDeA Clinical and Translational Research Centers	University of Louisville's Clinical and Translational Research Institute	Key Personnel	Klein	07/01/2019 – 06/30/2024	

Siskind, Leah

Agency/Number	Title	PI	Project Period	Budget Request
1R21CA227385-01 (PQ12)	Repurposing Suramin as a nephroprotectant in cisplatin-induced kidney injury	Siskind, Beverly		
RO1	Regulation of gut-liver-adipose axis by Lactobacillus rhamnosus GG in non-alcoholic fatty liver disease.	Feng, Wenke	9/1/19 – 8/30/24	
RO1	Stimulation of Trained Immunity by Dietary Supplement Beta-Glucan As An Adjunctive Immunotherapy in Cancer	Yan, Jun	9/1/19 – 8/30/24	
S10 OD025178-A1	*Imaging and Physiology Core: High Frequency, High Resolution Ultrasound System*	Jones, Steven	2/1/19 – 1/31/20	
NIH IDeA-CTR	University of Louisville's Clinical and Translational Sciences Institute	Klein, Jon		
Jewish Heritage Foundation Research Enhancement Grant Program	Developing a clinically relevant model for lung cancer chemotherapy	Siskind, Leah	12/1/18 – 11/30/19	
1R21CA227385-01A1 (PQ12)	The role of P2X7 receptor in cisplatin-induced kidney injury	Siskind, Beverly		
1R01CA233478-01	Prevention of cisplatin-induced kidney injury and progression to chronic kidney disease	Siskind, Leah	9/1/19 – 8/31/22	

Song, Joe

Agency/Number	Title	Role	PI	Project	Budget Request
NIH R21EY030186-01 Impact Score 30	The effect of cannabidiol and the role of GPR3 in experimental autoimmune uveitis	Multi-PI	Hui Shao ZH Song	04/01/2019-03/31/2021	$ 423,500
NIH R21EY030280-01	Novel endocannabinoid systems - targets for	PI	ZHSong	04/01/2019-03/31/2021	$ 423,500

	glaucoma therapy				
DoD AR180167P1 (pre-application)	The Role of Endocannabinoid Systems in the Therapeutic Effects of CBD/CBDV in Autism Spectrum Disorders	PI	ZH Song GN Barnes (Partnering PI)	04/01/2019-03/31/2022	$ 500,000

States, Christopher

Agency/Number	Title	Role	PI	Project Period	Budget Request
NIH-NIEHS/P30 ES030283-01	University of Louisville Center for Integrated Environmental Health Sciences	PI	States	04/01/19 - 03/30/24	$7,700,000
NIH-NIEHS/R21 ES030334-01	Alternative splicing in arsenical skin carcinogenesis	PI	States	04/01/19 – 03/31/20	$423,500
Lung Cancer Research Foundation	Targeting the Major Regulator of Mitosis	Mentor	Hoffman	11/01/18 – 10/31/20	$119,861
NIH-NIEHS/K99 ES030474-01	Arsenic-induced miRNA changes: role in cell cycle and chromosomal instability	Mentor	Cardoso	04/01/19 – 03/31/24	$657,858
NIH-NIEHS/R01 ES030930-01	The molecular mechanism of cadmium induced carcinogensis in benign prostate Hyperplasia	Co-I	Damodaran	07/01/19 - 06/30/24	$2,820,896
NIH-NIGMS/U54 GM128728-01A1	University of Louisville's Clinical and Translational Institute	Pilot Project Director	Klein	07/01/19 - 06/30/24	$13,215,636
NIH-NIEHS/R01 ES029956	Particulate Hexavalent Chromium-Induced Lung Carcinogenesis	Collaborator	Wise	07/01/19-06/30/24	$3,310,780
NIH-NIEHS/R35 ES030438	Chromosome Instability in Metal-Induced Lung Cancer	Collaborator	Wise	04/01/19-03/31/27	$9,294,542

Wise, John

Agency/Number	Title	Role	PI	Project Period	Budget Request
NIEHS/R01 ES016893	Particulate Cr(VI) Toxicology in Human Lung Epithelial Cells and Fibroblasts	PI	Wise	01/01/19 - 12/31/24	$3,101,446
NIEHS/R01 ES029956	Particulate Hexavalent Chromium-Induced Lung Carcinogenesis	PI	Wise	07/01/19-06/30/24	$3,310,780
NIEHS/R35 ES030438	Chromosome Instability in Metal-Induced Lung Cancer	PI	Wise	04/01/19-03/31/27	$9,294,542
CDMRP/ LC108624	Hexavalent Chromium-Induced Human Lung Cell Reprogramming	PI	Wise	04/01/19-03/31/20	$154,000
NIEHS/P30 ES030283	University of Louisville Center for Integrated Environmental Health Sciences	Deputy Director	States	04/01/19-03/31/24	$7,700,000

Wise, Sandra

Agency/Number	Title	Role	PI	Project Period	Budget Request
NIEHS/R01 ES029956	Particulate Hexavalent Induced Lung Carcinogenesis	Co-PI	Wise	09/01/18-08/31/23	$3,101,446
NIEHS/ P30 ES030283	University of Louisville Integrated Environmental Sciences	Co-PI	States	04/01/2019 03/31/2024	$7,700,000
NIEHS/ R35 ES030438	Chromosome Instability in Metal-Induced Lung Cancer	Co-PI	Wise	04/01/19-03/31/27	$9,294,542

INVITED SCIENTIFIC PRESENTATIONS

Faculty with Primary Appointments

Antimisiaris, Demetra

1. American Society of Consultant Pharmacists (ASCP) Annual Meeting Nov. 2018 (National Harbor, MD). "Geriatric Clinical Pearls". Plenary session re Asthma in Older Adults Study Research. Antimisiaris D, Pogge E, Lacey S.

2. *Kreft, K. Antimisiaris, D., Polivka, B., Folz, R., Jorayeva, A. (2018 March). Strength of specific medication literacy in older adults with asthma. Great Lakes Regional Pharmacy Conference, held at Purdue University IN. Podium Presentation.
3. 2018- Visiting Scholar- Providence Health System and Eastern Washington University: Alzheimer's Collaborative. March 2018, Spokane, WA. Grand Rounds (hospitalists), Dinner CME (tristate telehealth network broadcast), Washington State University College of Pharmacy Seminar, Alzheimer's Caregiver Training. Topics: Brain Health-medication harm; Polypharmacy; Medication Management and Transitions of Care; Geriatric Pharmacotherapy. Feb 2018
4. Owensboro Health System: Focus on Geriatrics. Two workshops on Polypharmacy and Medication Management. June 6, 2018 Owensboro, Ky.
5. 2018-Webinar: American Society of Consultant Pharmacists. Polypharmacy: The Silent Syndrome. Senior Care Seminar Series. August 1, 2018.
6. Alzheimer's Association Webinar for Care Givers. April 3, 2018. https://alzwebinars.org/docs/Notes_Webinar_04.03.18.pdf

Ceresa, Brian

1. UofL Vision Retreat – "New Strategies for Promoting Corneal Wound Healing"

Chen, Shao-yu

1. Epigenetic mechanisms underlying Fetal Alcohol Spectrum Disorders. Taishan Academic Forum: International Neuroscience and Psychiatry Summit, Taishan, China, Sept. 7, 2018. Invited speaker.
2. Sulforaphane-mediated epigenetic modulation of ethanol-induced apoptosis and birth defects. 16th Global Summit on Toxicology and Applied Pharmacology, Las Vegas, NV, USA. Oct. 15, 2018. Keynote speaker.

Clark, Geoffrey

1. Biochemical Society conference on Small G proteins in Cellular Signaling and Disease, Clare College University of Cambridge, UK.
2. ASBMB: Frontiers in RAS biology and Drug Discovery, Straton Mountain, Vermont.
3. University of Kentucky Breast cancer Symposium.

Freedman, Jonathan

1. Environment Care Consortium, Hebei University, Baoding P.R. China
2. 10th Conference on Metal Toxicity & Carcinogenesis. Albuquerque NM

Fuqua, Joshua

1. Bioprocessing Pharmaceuticals from Plant Production Systems, April 11th, 2018, UofL Bioengineering Department

Gupta, Ramesh

1. Plenary speaker at the 5th International Conference on New developments in Drug Discovery from Natural Products and Traditional Medicines, NIPER, Chandigarh, India, November 2018 (Travel plan cancelled due to unavoidable circumstances)

Hein, David

1. ***The UofL NIEHS T32 Training Program in Environmental Health Sciences.*** Environmental Health Sciences Seminar Series, University of Louisville, Louisville, Kentucky, April 2018.
2. ***Enhanced Risk Assessment Using Principles of Molecular Epidemiology.*** Democritus University of Thrace, Alexandroupolis, Greece, April 2018.
3. ***Importance of Pharmacogenomics in the Success of Drug Therapy.*** Keynote Forum. International Pharma Conference and Expo, Rome Italy, May 2018.
4. ***Translation of Laboratory Research Finds Towards Cancer Risk Assessments from Environmental Chemicals.*** Third International Cancer Study and Therapy Conference, Rome, Italy, May 2018.
5. ***Translating Laboratory Research to Inform Human Risk Assessments Following Exposures to Environmental Chemicals.*** Keynote presentation: 7th International conference (15th Scientific Conference) Cairo University, "One Health: Animal, Human, and Environment: Recent Applications: Ain Sokhna, Egypt, August 2018.

Hood, Joshua

1. **Hood JL**. James Graham Brown Cancer Center seminar series. University of Louisville, Louisville Kentucky, May 23, 2018, *"Advancing exosome isolation via development of cyclical electrical field-flow fractionation"*
2. **Hood JL**. Session B, Poster Presentation for the American Society of Exosomes and Microvesicles Conference (ASEMV), Baltimore Waterfront Marriott Conference Center, Baltimore Maryland, USA, October 22, 2018,*"Macrophage Polarization Status Influences Macrophage Responsiveness to Lung Cancer Exosome-derived Nanocarriers"*
3. **Hood JL**. Invited Speaker for the American Society of Exosomes and Microvesicles Conference (ASEMV), Baltimore Waterfront Marriott Conference Center, Baltimore Maryland, USA, October 23, 2018, *"Effect of exosomes on macrophage polarization state"*
4. **Hood JL**. Hepatobiology & Toxicology research center, University of Louisville, Louisville Kentucky, December 3, 2018, *"Exosome-based immunotherapy for hepatocellular carcinoma*"

Kidd, LaCreis

1. **Kidd, L.R.**, Hein, D.W. *Preparing the Next Generation of Cancer Researchers.* International Cancer Education Conference: Solving Cancer Education Challenges through Innovative, Interdisciplinary, Community and Global Collaboration, October 3-5, 2018, Atlanta, GA.

2. Kidd, L.R. Micro-RNa-186-5p inhibition attenuates proliferation, anchorage independent growth and invasion in metastatic prostate cancer cell. Cancer Center, Senegal, Dakar.

Kouokam, Calvin

1. **Kouokam JC.** Invited Speaker for the GRFT-PREVENT Annual meeting. November 6, 2018: **"Safety studies of Q-GRFT in cultured cell lines and mice with DSS- induced colitis"**.

Lukashevich, Igor

1. 2018 ASM Biothreats Meeting. "Advanced DNA-Launched Vaccine for Venezuelan Equine Encephalitis Virus (VEEV)", January 2018, Baltimore, MD
2. WHO R&D Blueprint Roadmap: Consultation on Lassa fever. In-person consultation and presentation on Lassa fever and vaccine development. London, January 18-20, 2018
3. International Conference "Virus-Like Particles & Nano-Particle Vaccines – VLPNPV 2018. "Arenavirus-Based Virus-Like Particle Vectors Expressing Multiple Glycoproteins to Control Arenaviral Hemorrhagic Fevers", Bern, 25-27 September
4. 66th Japan Society for Virology. "Use of recombinant ML29 platform to generate polyvalent live-attenuated vaccines against Lassa fever and other infectious diseases", Kyoto University, Oct 2018

Matoba, Nobuyuki

1. "Development of novel biopharmaceutical proteins using plant viral vectors" Life Innovation Institute, Denka Company Limited, Tokyo, Japan, November 27,2018.
2. "Development of novel biopharmaceutical proteins using plant viral vectors" Department of Biological and Environmental Engineering, University of Tokyo, Tokyo, Japan, November 28, 2018.
3. "Research and development of plant-made protein pharmaceuticals: From bench to clinic" International Center for Biotechnology, Osaka University, Osaka, Japan, November 30, 2018.

Palmer, Kenneth E.

1. Hosted and organized the 3 day PREVENT U19 Annual Meeting in Louisville, KY, November 5 to 7, 2018, with 40 participants from the USA, Canada and Sweden. I chaired the meeting and participated in all sessions.

Siskind, Leah

1. Invited Speaker, Stony Brook University, Department of Nephrology, Talk title: Repeated low dose cisplatin dosing induces CKD. October 2018, Long Island, NY
2. Invited Seminar Speaker, University of Louisville Dental School, Oral Biology Graduate Program Seminar Series, Title: Mechanisms of Cisplatin Nephrotoxicity, October 26, 2018

3. Invited Seminar Speakr, University of Louisville School of Engineering, Department of Bioengineering, Improved Models for Studying Mechanisms of Cisplatin Nephrotoxicity, Spetember 11, 2018
4. Invited Speaker, Gordon Research Conference: Glycolipids and Sphingolipids, Galveston, TX, February 11-16, 2018
5. Invited Speaker, Gordon Research Conference: Glycolipids and Sphingolipids, Galveston, TX, February 11-16, 2018

Song, Joe

1. Novel molecular targets of cannabidiol, University of Louisville Autism Center, January 26, 2018
2. Cannabinoid receptors as novel therapeutic targets. University of Louisville Visual Science Retreat, September 26, 2018

States, J. Christopher

1. "RNA splicing, miRNAs and Aneuploidy in Arsenic-induced Skin Carcinogenesis", School of Health Science, Purdue University, West Lafayette, IN, March 17, 2018
2. Platform presentation, 10th Conference on Metal Toxicity and Carcinogenesis (2018)
3. Platform presentation, 13th Conference of the International Society for Trace Element Research in Humans (2019)

Wise, John

1. Keynote Speaker: "Chromosome Instability in Metal Carcinogenesis: Mechanisms of Particulate Cr(VI) Induced Centrosome Amplification from a One Environmental Health Perspective". Presented at the Tenth Conference on Molecular Mechanisms of Metal Toxicity and Carcinogenesis, University of New Mexico, Albuquerque, New Mexico.
2. Invited Speaker: "A Whale of a Tale: Metals and Genotoxicity in Great Whales Considered from a One Health Perspective.", Presented at the annual meeting of the Environmental Mutagenesis and Genomics Society (EMGS), San Antonio, Texas.
3. Invited Speaker: "A Global Perspective of Metal Toxicology in Whales", University of the Basque Country, Plentzia, Spain
4. Invited Speaker: "Of Whales and Men, Lessons about Chromium Genotoxicity from a One Environmental Health Perspective", University of the Basque Country, Plentzia, Spain
5. Invited Speaker: "Metal Genotoxicity and Carcinogenesis in Humans and Wildlife: Gators and Turtles and Whales - Oh My!" Annual meeting of the Genetics and Environmental Mutagenesis Society (GEMS) of North Carolina, Research Triangle Park, North Carolina.

Wise, Sandra

1. Invited Speaker: "The Effects of Chronic Hexavalent Chromium in Human Lung Cells" Presented at the Cancer Center Colloquia Series, University of Louisville. December 2018

INVENTIONS, DISCLOSURES, LICENSE/OPTION AGREEMENTS, PATENT AWARDS, AND BUSINESS STARTUPS

Faculty with Primary Appointments

Antimisiaris, Dee

- U.S. Provisional Patent Application; Serial No. 62/115,280; DISEASE MANAGEMENT PLATFORM AND METHOD FOR PROVIDING PATIENTS AND CAREGIVERS WITH INFORMATION NECESSARY IN THE TREATMENT OF DEMENTIA
- U of L OTT RDF#13052
- Care-Mentor LLC (startup)

Fuqua, Joshua

- Griffithsin oxidation resistant mutants. **PCT/US15/550,323**. Inventors: O'Keefe BR, Palmer KE, **Fuqua JL**, Rohan LC. Assignee: University of Louisville, National Cancer Institute/Public Health Service, University of Pittsburgh.

Gupta, Ramesh

- Research Disclosure filed to ULRF and licensed to 3P Biotechnoloies, Inc. (November 20, 2017) and licensed to 3P Biotechnologies (February 2018). "Milk exosomes for Delivery of siRNA" Inventors: **R.C. Gupta**, F. Aqil, J. Jeyabalan, A.K. Agrawal, A-H. Kayukulaga and R. Munagala.
- U.S. Patent Issued dated April 2018. "Milk Derived Microvesicle Compositions and Related Methods". Inventors: **R.C. Gupta**, R. Munagala, F. Aqil and J. Jeyabalan.
- PCT non-provisional patent application. October 04, 2018 (No. PCT/US18/54450). "Exosomal Delivery of Anthocyanidins and of Curcumin". Inventors: **R.C. Gupta**, F. Aqil, J. Jeyabalan and R. Munagala.

Matoba, Nobuyuki

- US10066238B2 (Award Date: 9/4/2018)
  Title: Methods for Producing Antibodies
- US10160789B2 (Award Date: 12/25/2018)
  Title: Polypeptides having immunoactivating activity and methods of producing the same

Palmer, Kenneth

- US Patent Application **PCT/US15/550,323**. Griffithsin mutants. Inventors: O'Keefe BR, **Palmer KE**, Fuqua J, Rohan LC. Assignee: University of Louisville, National Cancer Institute/Public Health Service, University of Pittsburgh.
- Founder and Managing Director of Intrucept Biomedicine LLC

DEPARTMENTAL COURSES

Pharmacology instruction in the medical school curriculum was provided in an integrated Disease and Therapeutics course. Dr. Brian Ceresa served as thread director.

Pharmacology and Dental Therapeutics course (BMSC 807-05; 4 credits) to dental (D3) students. Dr. David Hein served as course director and Kyung Hong served as course co-director.

Pharmacology course (DHED 402- 4 credits) to students in the Dental Hygiene Program. Dr. Joshua Thornburg served as course director.

The Department team taught several courses for graduate students. The individual courses and course directors are listed below:

- PhTx 641; Pharmacology I -3 credits (Dr. Leah Siskind)
- PhTx 642; Pharmacology II – 3 credits (Dr. Joe Song)
- PhTx 606; Seminar -1 credit (Dr. Calvin Kouokam)
- PhTx 625; Scientific Writing – 2 credits (Dr. Gavin Arteel)
- PhTx 618; Topics-Statistics – 2 credits (Dr. La Creis Kidd)
- PhTx 619; Research (Dr. Leah Siskind)
- PhTx 643, Toxicology I – 3 credits (Dr. John Wise)
- PhTx 644, Toxicology II – 3 credits (Dr. Geoff Clark)
- PhTx 661, Molecular Toxicology- 3 credits (Dr. Gavin Arteel)
- PhTx 631, Introduction to Human Risk Assessment – 1 credit (Dr. John Lipscomb)

STANDING COMMITTEES

Graduate Affairs Committee

Dr. Leah Siskind (Chair)
Dr. Geoff Clark (ex officio)
Dr. Brian Ceresa (2019)
Dr. Chris States (2020)
Dr. Zhao-hui (Joe) Song (2020)

Graduate Recruitment and Admissions Committee

Dr. Geoff Clark (Chair)
Dr. Leah Siskind (Ex officio)
Dr. Shao-yu Chen (2017)
Dr. John Wise Sr. (2018)
Dr. Nobuyuki Matoba (2020)
Dr. La Creis Kidd (2020)

SIBUP/Grievance Committee

Nobuyuki Matoba (Chair)
Dr. Ramesh Gupta (2017)
Dr. Joe Song (2018)
Dr. Michael Merchant (2019)

Teaching Evaluation Committee

Dr. John Wise Sr. (Chair)
Dr. Joshua Hood (2020)
Dr. Demetrius Antimisiaris (2020)

Seminar Committee

Dr. Calvin Kouokam (Chair)
Dr. Geoff Clark (2018)
Dr. Levi Beverly (2019)
Dr. Jon Freedman (2020)
Dr. John Wise, Sr. (2020)

Events Committee

Dr. La Creis Kidd (Chair)
Dr. Sandra Wise (2018)
Dr. Irina Kirpich (2019)
Blair Cade
Kelly Holland
Aaron Howell

NCI CANCER RESEARCH PROGRAM A video regarding the Cancer Education program was broadcast on WHAS Great Day Live!

Fadumo Abdullahi

University of Louisville undergraduate
Faculty Mentor: La Creis R. Kidd, Ph.D.
Research Project: Impact of Chemokine Single Nucleotide Polymorphism (SNP) Pair Jointly Modified Prostate Cancer Risk among men of African Descent

Cady Barbour

University of Kentucky undergraduate
Faculty Mentor: Ramesh C. Gupta, Ph.D.
Research Project: Role of Anthocyanidins on Immune Checkpoint Protein, PD-L1 in HCT116 and HT-29 Colorectal Cancer Cells

Lloyd Bartley

University of Louisville undergraduate
Faculty Mentor: Chi Li, Ph.D.
Research Project: A CRISPR Platform for Rapid and Inducible Genome Editing in Human Non-small Cell Lung Cancer Cells

Campbell Bishop

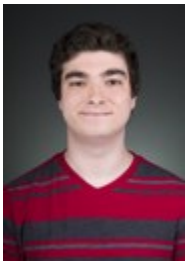
University of Louisville medical student
Faculty Mentor: Susan Galandiuk, M.D.
Research Project: Expression of Long Non-Coding RNA in Colon Adenocarcinoma and Matched Normal Adjacent Epithelium

Tessa Blevins

University of Kentucky undergraduate
Faculty Mentor: Sandy Sephton, Ph.D.
Research Project: Factors Related to Cancer Patients' Willingness to Participate in an iPod-based MBSR Intervention

Caleb Bridgwater

University of Louisville undergraduate
Faculty Mentor: Haixun Guo, Ph.D.
Research Project: Development of a PD-L1 PET Imaging Biomarker for Cancer Immunotherapy



Keegan Curry

University of Louisville undergraduate
Faculty Mentor: Jill Steinbach-Rankins, Ph.D.
Research Project: The Development of Hybrid Lipid-Polymer Nanoparticle Architectures for the Sustained-Release of Small Hydrophilic Molecules

Brittani D'Angelo

University of Louisville undergraduate
Faculty Mentor: Jonathan Freedman, Ph.D.
Research Project: The Effects of Cadmium on Kidney Tissue

Erica Daly

University of Kentucky undergraduate
Faculty Mentor: Craig McClain, M.D.
Research Project: Hyaluronic Acid is a Biomarker for Hemangiosarcoma Development

Damion Davis

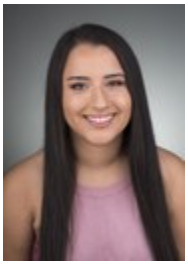
University of Louisville undergraduate
Faculty Mentor:Levi Beverly, Ph.D.
Research Project: Cloning of Ubiqilin-1 Gene

Evan Delfino

University of Louisville medical student
Faculty Mentor: Melissa Potts, M.D..
Research Project: Radioembolization with Yttrium-90 in Patients with Unresectable Hepatocellular Carcinoma and a Transjugular Intrahepatic Portosystemic Shunt

Alisha Deshmukh

University of Louisville undergraduate
Faculty Mentor: Shirish Barve, PhD
Research Project: Histone Deacetylation is the Primary Epigenetic Mechanism for Silencing of Tumor Suppressor Gene - Tissue Factor Pathway Inhibitor-2 in Hepatocellular Carcinoma Cells



Sara Frigui

Stanford University undergraduate
Faculty Mentor: John Trent, Ph.D.
Research Project: Biophysical Investigation of Tyrosine Kinase Inhibitors as Ligands of G-quadruplexes

Devin Frisby

College of Wooster undergraduate
Faculty Mentor: Robert Mitchell, Ph.D.
Research Project: Glutamine Dependent Regulation of PD-L1 Expression in Macrophages and non-small cell lung cancer

Mariah Geisen

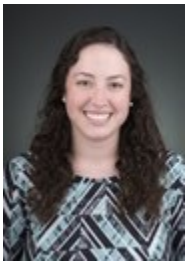
Bellarmine University undergraduate
Faculty Mentor: John Wise Sr., Ph.D.
Research Project: Comparative Effects of Particulate Hexavalent Chromium on Mitotic Stages in Human and Whale Lung Fibroblasts

Delana Gilkey

University of Louisville undergraduate
Faculty Mentors: Richard Baumgartner, Ph.D. and Kathy Baumgartner, Ph.D.
Research Project: Epidemiologic Evaluation of Black:White Breast Cancer Disparities by Age in Kentucky

Alana Gipson

University of Louisville undergraduate
Faculty Mentor: Jorge Gomez-Gutierrez, Ph.D.
Research Project: Targeting Breast Cancer Resistance to Palbociclib via Oncolytic Virotherapy



Jenci Hawthorne

University of Louisville medical student
Faculty Mentors: Haval Shirwan, Ph.D. and Esma Yolcu, Ph.D.
Research Project: Assessing the Efficacy of the SA-4-1BBL Checkpoint Stimulator for Cancer Immunotherapy (embargoed)

Talaijha Haynes

Jackson State University undergraduate
Faculty Mentor: Robert C.G. Martin, M.D., Ph.D.
Research Project: Surgical Quality of Acute Diverticulitis at the University of Louisville

Sherrika Denise Howell

University of Louisville undergraduate
Faculty Mentor: Sucheta Telang, M.D.
Research Project: The Effect OF PFKFB Inhibition on Cell Survival in Lung Cancer

Olivia Jacobs

University of Louisville undergraduate
Faculty Mentor: Leah Siskind, Ph.D.
Research Project: Chronopharmacology Studies in a Clinically-relevant Mouse Model of Cisplatin Nephrotoxicity

Jeremy Jones

University of Louisville medical student
Faculty Mentor: Joshua Hood, M.D., Ph.D.
Research Project: Macrophage Polarization Status Influences Macrophage Responsiveness to Lung Cancer Exosome-derived Nanocarriers

Cyrus Khalily

University of Louisville undergraduate
Faculty Mentor: Zhao-hui Song, Ph.D.
Research Project: GPR12-Mediated Alteration of the mTOR Pathway by Phytocannabinoids

Dara McDougal

North Carolina Central University undergraduate
Faculty Mentor: La Creis R. Kidd., Ph.D.
Research Project: Complex Interactions Among Toll-Like Receptor Related Sequence Variants and Prostate Cancer Susceptibility Among Men of African Descent

Evan Meiman

University of Louisville medical student
Faculty Mentor: Sucheta Telang, M.D..
Research Project: 6-Phosphofructo-2-kinase/fructose-2,6-bisphosphatase 4 (PFKFB4) Inhibition in Lung Cancer

Paige Mitchell

Arizona State University undergraduate
Faculty Mentor: David W. Hein, Ph.D.
Research Project: The Relationship between NAT1 and N-Acetylasparagine or N-Acetylputrescine

Asim Mohiuddin

University of Louisville medical student
Faculty Mentor: Nejat Egilmez, Ph.D.
Research Project: Effects of Lung Microbiota on Lung Tumorigenesis

Evgeniya Molotkova

Georgia Institute of Technology undergraduate
Faculty Mentor: Geoff Clark, Ph.D.
Research Project: Characterization of a First-in-Class Targeted Inhibitor of the RALGDS Oncoprotein

Lexina Patel

University of Louisville undergraduate
Faculty Mentor: Elizabeth Cash, PhD
Research Project: Neighborhood Socioeconomic Stressor Effect in Head and Neck Cancer Patients

Zachary Pulliam

University of Louisville medical student
Faculty Mentor: Robert C.G. Martin, M.D., Ph.D.
Research Project: Electrochemotherapy Augments Pancreatic Ductal Adenocarcinoma Tumor Cell Killing by Inducing Apoptosis and Disrupting Cell Adhesion

Charmi Shah

University of Louisville undergraduate
Faculty Mentor: Levi Beverly, Ph.D.
Research Project: Effects of Alterations on SAM/Met Pathway on Normal HSPCs

Kendall Smith

Hanover College undergraduate
Faculty Mentor: Norman Lehman, M.D., Ph.D.
Research Project: The Aurora-A Inhibitor Alisertib is Synergistic with VEGFR Inhibitors in Glioblastoma Cell Lines

Cibi Sripathi

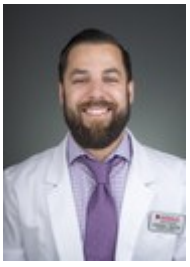
University of Louisville undergraduate
Faculty Mentor: Chendil Damodaran, Ph.D.
Research Project: Identification of a Novel Molecule for the Treatment of Muscle-Invasive Bladder Cancer

Manasa Sunkara

University of Cincinnati undergraduate
Faculty Mentor: Michael Egger, M.D.
Research Project: Effect of Preoperative Narcotics and Benzodiazepines on Perioperative and Postoperative Outcome in Cancer- related Surgeries

Kennedy Walls

University of Louisville undergraduate
Faculty Mentor: Dr. Leah Siskind
Research Project: Repeated Administration of Cisplatin Increases EGFR/EGFR Activation and Renal Fibrosis in Kras4bG12D Lung Adenocarcinoma-bearing Mice, but Kidney Injury is Further Exacerbated with Erlotinib/Cisplatin Combination Treatment



Stephen Winter

University of Louisville medical student
Faculty Mentor: Jill Steinbach-Rankins, Ph.D.
Research Project: Evaluation of Surface Modified Nanoparticle Transport and Metastatic Invasion using a Novel Multicellular Ovarian Tumor Spheroid Model

Alexandra Wright

University of Louisville undergraduate
Faculty Mentor: Jun Yan, M.D., Ph.D.
Research Project: Modulation of Macrophage Polarization by Urolithin A

Manting Xu

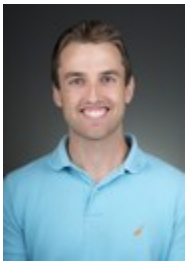
Williams College undergraduate
Faculty Mentor: Hari Bodduluri, Ph.D.
Research Project: Localization of Rab35 to Lipidosome During Crystalline Silica-Induced Inflammation

Daniel Zetter

University of Louisville medical student
Faculty Mentor: Robert C. G. Martin, M.D., Ph.D.
Research project: Laproscopic Liver Resection: A 17-Year Analysis of Outcomes, Patient Selection and Changing Trends

Yue Zhang

Massachusetts Institute of Technology undergraduate
Faculty Mentor: Shao-yu Chen, Ph.D.
Research project: MicroRNAs are Involved in DNA Damage and Cytotoxicity in Human Bronchial Epithelial Cells Concurrently Exposed to Ambient Particulate Matter and Ethanol



Corey Ziemba

University of Louisville medical student
Faculty Mentor: John Wise, Sr., Ph.D.
Research Project: Effects of Prolonged Hexavalent Chromium Exposure on Homologous DNA Recombination in Human Epithelial Cells Grown in Minimal Serum Media

Cancer Education Program shapes future scientists and clinicians

New class of students begins 10 week experience

By JULIE HEFLIN - MAY 31, 2018

693

2018 Cancer Education Program participants, photo courtesy Ron Burgis / West Louisville Visual News

Unraveling the complexities of cancer continues as the next generation of scientists pick up the baton and blaze new trails of discovery. Influencing students to pursue cancer research careers is at the heart of the University of Louisville's National Cancer Institute-funded Cancer Education Program, now in its seventh year.

A new class of more than 40 undergraduate and medical students representing 13 institutions including Stanford University and MIT, begins the 10-week program this month.

Sarah Mudra completed the program in 2014. Inspired by her experience in Louisville, she'll start medical school at UofL this summer. Mudra, who plans to pursue the School of Medicine's Distinction in Research Track, will conduct research in collaboration with Beth Riley, M.D., F.A.C.P., associate professor of medicine and deputy director of clinical affairs at the James Graham Brown Cancer Center.

Sara Mudra

Riley was Mudra's primary mentor in the Cancer Education Program.

"I witnessed the multi-faceted nature of medicine as Dr. Riley balanced relational care with scientific inquiry and ethical decision-making – I became fascinated with the field of oncology," Mudra said. "Dr. Riley became a steadfast encourager and mentor, prompting me to ask complex research questions and examine new bodies of literature."

Throughout the 10 weeks, Mudra worked with Riley to analyze data from individuals who were diagnosed with breast cancer through testing on the cancer center's mammography van. They engaged in conversations about patient care and population-based research, including the utility of mobile mammography for reducing health disparities.

Mudra said it was her participation in the Cancer Education Program that laid the foundation for continued scientific exploration as a post-baccalaureate research fellow at the National Institutes of Health in Bethesda, Md. During the two-year fellowship, she worked to refine her research techniques and develop a novel protocol for human microbiome analysis.

"It is remarkable how the Cancer Education Program molded my professional and scientific development, serving as my foundation," Mudra said. "I would advise all students interested in scientific growth to pursue a dedicated period of research in a field of interest. Be inquisitive and curious. Exercise a willingness to learn any aspect of a project, and uphold a tireless work ethic. Above all, demonstrate gratitude for the opportunity to be shaped through a mentor's guidance."

The directors of the program, David Hein, Ph.D., Peter K. Knoefel Endowed Chair of Pharmacology and chair of the Department of Pharmacology & Toxicology, and La Creis Kidd, Ph.D., Our Highest Potential Endowed

Chair in Cancer Research and associate professor in the Department of Pharmacology and Toxicology, outlined the success of UofL's program in an article published in the *Journal of Cancer Education*.

Since 2011, 188 students have completed UofL's program.

Julie Heflin

Office of Communications & Marketing, HSC Campus

M.S./Ph.D. Program Plan – Pharmacology and Toxicology

FIRST YEAR				SECOND YEAR		Years 3 & 4 (5 if needed)	Final Semester
August Orientation	**Fall Semester**	**Spring Semester**	**Summer Semester**	**Fall Semester**	**Spring/Summer Semester**		
During Orientation: • Program Overview • Meet potential mentors • Attend training & obtain certifications Take Diagnostic Exam Diagnostic Exam Review	Attend department seminars Choose potential mentor Written qualifying exam I (end of semester)	Finalize mentor choice Attend department seminars Written qualifying exam II (end of semester) Present mini seminar IDP and Annual Progress Report are due by **May 31st**:	Concentrated research Attend department seminars Submit research abstract to Research!Louisville	Attend department seminars Present summer research poster at Research!Louisville Written qualifying exam III (end of semester) Brief Research Report (due end of semester) Form Research Committee and submtt SIGS Advisory Committee form	Attend department seminars Register as Masters Candidate Apply for M.S. degree Submit MS Thesis and PhD Proposal to Committee (two weeks before defense) M.S. defense/Dissertation Proposal defense/Doctoral oral qualifying exam Revise thesis and/or proposed PhD research plan; submit thesis to SIGS Awarding of M.S. degree IDP and Annual Progress Report are due by May 31st:	Attend department seminars Register for Doctoral Candidacy Concentrated research Annually meet with Committee Present at Research!Louisville and at regional, national meetings Write and publish papers IDP and Annual Progress Report are due by **May 31st**:	Apply for Ph.D. degree Finalize dissertation with mentor Submit dissertation to Committee (2 weeks before defense) Ph.D. Defense Revise dissertation if needed Submit Committee signed dissertation to SIGS Conferring of Ph.D. degree
	Need to Register for: PHTX-606 Seminar (1) PHTX-617 Lab Rotations (1) PHTX-641 Pharmacology I (3) BIOC-545 Biochemistry I (4) PHTX-643 Toxicology I (3) PHZB-602 Gen. Physiology	**Need to Register for:** PHTX-606 Seminar (1) PHTX-617 Lab Rotations (1)** PHTX-619 Research (1) PHTX 642 Pharmacology II (3) PHTX 644 Toxicology II (3) BIOC-630 Research Ethics (1) BIOC-667 Cell Biology (3)	**Need to Register for:** PHTX-619 Research (4) PHTX-632 Data Analysis (2)	**Need to Register for:** PHTX-606 Seminar (1) PHTX-619 Research (4) PHTX-625 Scientific Writing (2) Electives (X)	**Need to Register for:** MAST-600-01 (0-9) Electives (X)	**Need to Register for:** DOCT-600	**Need to Register for:** DOCT-600

** Enroll in PHTX 617 if you did not choose a lab during Fall semester.

Annual Committee Meeting

PHTX Form #1

Student's Name: _____ Date of Meeting: _____

Scientific Development

Student's understanding of the research for stage of development.	☐Satisfactory	☐ Needs Improvement	☐Unsatisfactory
Student's ability to apply scientific methods in independent research.	☐Satisfactory	☐ Needs Improvement	☐Unsatisfactory
Student's ability to communicate science in oral and written English.	☐Satisfactory	☐ Needs Improvement	☐Unsatisfactory
Student's success in publication for the period.	☐Satisfactory	☐ Needs Improvement	☐Unsatisfactory
Individual Development Plan Completed	☐Satisfactory	☐ Needs Improvement	☐Unsatisfactory
Completed Annual Progress Report	☐Satisfactory	☐ Needs Improvement	☐Unsatisfactory

Professional Development

Departmental Citizenship (seminar attendance)	☐Satisfactory	☐ Needs Improvement	☐Unsatisfactory
Project Management (Independence, timeliness)	☐Satisfactory	☐ Needs Improvement	☐Unsatisfactory
Responding to Criticism (Mentor, Committee, Reviewers)	☐Satisfactory	☐ Needs Improvement	☐Unsatisfactory
Career Development (Career, Networking, Meetings, etc.)	☐Satisfactory	☐ Needs Improvement	☐Unsatisfactory

Comments (Required)– attach additional pages if necessary:

Role	Printed Name	Signature	Date
Major Professor		NEW	
Committee Member			
Committee Member			
Committee Member			
Committee Member			
Director Graduate Studies			
Student			

M.S. Thesis Defense & Ph.D. Proposal Defense

PHTX Form #2

Student's Name: _____ Date of Meeting: _____

- ☐ **MS Thesis Defense only (complete sections A, B and comments)**
- ☐ **PhD Proposal Defense only (complete sections A, C, page 2 and comments on both pages)**
- ☐ **Joint MS Thesis & PhD Proposal Defense (complete ALL sections on both pages)**

Section A

Student's understanding of the research for stage of development.	☐Satisfactory	☐Unsatisfactory
Student's ability to apply scientific methods in independent research.	☐Satisfactory	☐Unsatisfactory
Student's ability to communicate science in oral and written English.	☐Satisfactory	☐Unsatisfactory
Student's success in publication for the period.	☐Satisfactory	☐Unsatisfactory
Individual Development Plan Completed	☐Satisfactory	☐Unsatisfactory

Section B (Select only one):

- ☐ This student has successfully presented and defended work sufficient for the M.S. degree. When the thesis and documentation are in final form, the Committee recommends this student be awarded the M.S. degree.
- ☐ This student's M.S. defense is unsatisfactory. Additional work, presentation or research will be required before a recommendation can be made to award the M.S. degree.

Section C (Select only one):

- ☐ This student has successfully presented and defended his/her Dissertation Research Proposal and is recommended for Doctoral Candidacy.
- ☐ Changes and review of the Research Plan are required as delineated below before progression to Doctoral Candidacy.
- ☐ This student's presentation/defense of the Research Proposal is unsatisfactory. Additional work, presentation or research will be required before a recommendation can be made to progress to Doctoral Candidacy.

Comments (Required)– attach additional pages if necessary

NEW

Ph.D. Dissertation Defense

PHTX Form #3

Student's Name: _____ Date of Meeting: _____

Section A

Student's understanding of the research for stage of development.	☐Satisfactory	☐Unsatisfactory
Student's ability to apply scientific methods in independent research.	☐Satisfactory	☐Unsatisfactory
Student's ability to communicate science in oral and written English.	☐Satisfactory	☐Unsatisfactory
Student's success in publication for the period.	☐Satisfactory	☐Unsatisfactory
Individual Development Plan Completed	☐Satisfactory	☐Unsatisfactory

Section B (Select only one):

☐ This student has successfully presented and defended work sufficient for the Ph.D. degree. When the dissertation and documentation are in final form, the Committee recommends this student be awarded the Ph.D. degree.

☐ This student's Ph.D. defense is unsatisfactory. Additional work, presentation or research will be required before a recommendation can be made to award the Ph.D. degree.

Comments (Required)– attach additional pages if necessary:

Role	Printed Name	Signature	Date
Major Professor			
Committee Member			
Committee Member			
Committee Member			
Committee Member			
Director Graduate Studies			
Student			

Rubric for Use in Defense of Dissertation Proposal/Oral Qualifying Exam for the Ph.D. in Pharmacology and Toxicology

Defense of written dissertation proposal:	**Satisfactory**	**Needs improvement**	**Unsatisfactory**
Proposal definition: Delineates the proposed research & its key questions and hypotheses.			
Literature of proposal: Demonstrates sound knowledge of the literature of the research area and the field.			
Project approach: Applies appropriate methodology /technology. Understands the basis & interpretations thereof.			
Context: Student communicates the broader implications of the research, basic and/or applied.			
Oral defense of proposal: Presentation: Orally communicates concepts and details of the written proposal.			
Response to questions: Addresses questions and concerns with knowledge and professionalism.			
Comments (Required):			

Role	Printed Name	Signature	Date
Major Professor			
Committee Member			
Committee Member			
Committee Member			
Committee Member			
Director Graduate Studies			
Student			

GRADUATE STUDENT PROGRESS REPORT
Department of Pharmacology and Toxicology

Student Name:
Student ID:
Semester:
Year: 2018

General Information
Degree Program: ☐ M.S./Ph.D. ☐ M.S. ☐ M.D./Ph.D ☐ Ph.D.
Year Admitted:
Anticipated Graduation Semester & Year:

Graduate Advisory Committee Information
Advisor:
Committee Members:
Date of last committee meeting:
Date of next planned committee meeting:

Course Work (List all courses completed with the grade achieved as well as courses currently enrolled in):

Lab Rotation Credits 0

Research Credits 0

Written Qualifying Examinations:
☐ QE1 ☐ QE2 ☐ QE3
Total points: 0
Total questions passed: 0

Oral Qualifying Examination
Date: Result: N/A
Date: Result: N/A

MS thesis accepted by Graduate School: Date:

Ph.D. Dissertation Proposal Accepted by Committee: Date:

NEW

GRADUATE STUDENT PROGRESS REPORT
Department of Pharmacology and Toxicology

Research Activities

Date of most recent annual presentation:

Publications:

Abstracts:

Meetings/Symposia Attended:

Honors and Awards

Student's Development Plan (Please attach completed/updated IDP – Spring Semester only)

Mentor's Comments on student's overall performance and progress (expand with additional pages or supporting material as needed)

Requirements for the PhD Proposal:

The Graduate Affairs Committee met and discussed at length the PhD proposal and the goals for student development that the program is striving to achieve. These goals are to prepare the student to competently compose and present a research plan, present themselves to potential employers, and to reflect and self-evaluate.

The committee is proposing several changes to the current format.

Changes to the PhD proposal:

1. All students will write the proposal in the format of a F31 proposal with a one-page specific aims page and 6-page research strategy.

2. Students are highly encouraged, but not required, to submit their PhD proposal as a NIH F31 grant proposal. Submission to another scientific foundation (i.e. AHA, ACS, etc) is also encouraged.

3. The list of components that are required in the PhD proposal is below. All students must follow the instructions (attached) on format and content that are specified for NIH F31 proposals. The page numbers below indicate the pages in the NIH Fellowship Instructions (attached) where detailed information on content and links to formatting can be found.

Contents of the PhD Proposal:

1. Project Summary/ Abstract (see pages F-35 to F-36)
2. Project Narrative (see page F-36)
3. Specific Aims (see page F-58 to F-59)
4. Research Strategy (see pages F-59 to F-61)
5. Bibliography/ References Cited (see pages F-36 and F-37)
6. Student Biographical Sketch (see pages F-47 to F-51; no more than 5 pages in length)
7. Statement of Applicant's Background and Goals for Fellowship Training (see pages F-57 to F-58)
8. Selection of Sponsor and Institution Statement (see page F-62)
9. Vertebrate Animals and/ or Human Subjects Sections, if applicable (see pages F-67 to F-68)
10. Select Agents Research (see page F-69 to F-70)

4. Your dissertation committee will be responsible for ensuring that you have all of the above components in your PhD proposal before they will sign the PhD proposal defense form. In addition, students are required to submit a hard copy of the final completed PhD proposal, containing all of the above items, with the Proposal Defense Form to obtain the signature of the Director of Graduate Studies. A completed proposal is required before a student will be allowed to advance to PhD candidacy.

NIH Fellowship Instructions:

https://grants.nih.gov/grants/how-to-apply-application-guide/forms-e/fellowship-forms-e.pdf