



Kevin H. Gardner, Ph.D.

W.W. Caruth Jr. Scholar in Biomedical Research

Associate Professor, Departments of Biochemistry and Pharmacology

Dr. Gardner seeks to elucidate the molecular basis of the sensory and regulatory mechanisms used by the PAS (Per-Arnt-Sim) family of protein/protein interaction domains by combining biophysical, biochemical, and chemical approaches in the study of kinases and transcription factors.



Jin Jiang, Ph.D.

Eugene McDermott Scholar in Medical Research

Associate Professor, Center for Developmental Biology and Department of Pharmacology

Dr. Jiang is carrying out systematic genetic screens to identify genes controlling cell growth and patterning. His research focuses on genes of the Hh and Wnt pathways that have been linked to many types of human cancers.

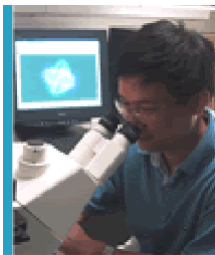


Makoto Kuro-O, M.D., Ph.D.

Southwestern Medical Foundation Scholar in Biomedical Research

Assistant Professor, Department of Pathology

Dr. Kuro-O's research is focused on understanding the molecular basis of aging with a focus on the gene, termed klotho, which is involved in the suppression of aging in mammals. He uses the klotho mouse, a mouse homozygous for a disruption of the klotho locus (kl/kl), as an animal model to study this potential "anti-aging" hormone.

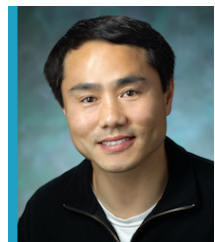


Hongtao Yu, Ph.D.

Michael L. Rosenberg Scholar in Medical Research

Associate Professor, Department of Pharmacology

Dr. Yu studies the molecular mechanisms governing chromosome inheritance and genetic integrity using a multidisciplinary approach. His work focuses on how the mitotic spindle checkpoint proteins form an intracellular signaling network to prevent premature separation of sister chromatids during mitosis of mammalian cells.



Duoja Pan, Ph.D.

Virginia Murchison Linthicum Scholar in Medical Research

Assistant Professor, Department of Physiology

Dr. Pan investigates the molecular mechanisms of growth control and tissue homeostasis. He is best known for pioneering work on the Hippo signaling pathway, an evolutionarily conserved developmental pathway that controls organ size in all animals. Using *Drosophila* as a model, his laboratory made a series of discoveries that defined, in a stepwise manner, the key molecular events in the Hippo signaling pathway.



Michael Gale, Jr., Ph.D.

Nancy Cain and Jeffery A. Marcus Scholar in Medical Research, in Honor of Dr. Bill S. Vowell
Associate Professor, Department of Microbiology and the Simmons Cancer Center

Dr. Gale's research seeks to define the interactions between hepatitis C virus (HCV) and the innate cellular antiviral pathways that are triggered immediately after infection. Specifically, his research aims to define the viral genetic elements and cellular gene products that trigger and control intracellular defenses against HCV, with the application of exploiting these virus/host interactions as novel targets for antiviral therapy.



Stephen R. Hammes, M.D., Ph.D.

W.W. Caruth, Jr. Scholar in Biomedical Research
Associate Professor, Department of Internal Medicine, Division of Endocrinology and Department of Pharmacology

Dr. Hammes studies steroid production and signaling in the ovary, focusing on "nongenomic," or transcription-independent steroid responses. Specifically, Dr. Hammes is interested in androgen-mediated follicle and oocyte development, with a clinical interest in the effects of excess androgen signaling in polycystic ovarian syndrome.



Ege Kavalali, Ph.D.

Effie Marie Cain Scholar in Medical Research
Associate Professor, Center for Basic Neuroscience and Department of Physiology

Dr. Kavalali uses electrophysiological recordings and optical monitoring of synaptic transmission to obtain an understanding of synapse development as well as the dynamics of presynaptic specializations. A primary focus of his work is the coupling between exocytosis and endocytosis, a critical feature of the synaptic vesicle cycle.



Yi Liu, Ph.D.

Louise W. Kahn Scholar in Biomedical Research
Associate Professor, Department of Physiology

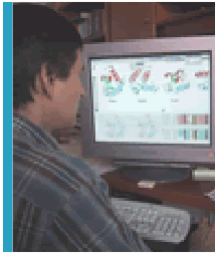
Dr. Liu seeks to understand the molecular mechanisms of the circadian clock. Using *Neurospora*, he uses molecular, biochemical, and genetic approaches to define the components of the input pathway, to characterize environmental influences, to identify the genetic makeup, and to depict rhythmic output events.



Anne B. Satterthwaite, Ph.D.

Southwestern Medical Foundation Scholar in Biomedical Research
Assistant Professor, Department of Internal Medicine, Division of Rheumatology

Dr. Satterthwaite's research takes a genetic approach to study the role of Bruton's tyrosine kinase (Btk) in B cell development and the immune response. Using a transgenic mouse model, she is defining the role of Btk in B cell antigen receptor signaling, in autoimmunity, and in B-1 cell development.



Nikolai Grishin, Ph.D.

Virginia Murchison Linthicum Scholar in Medical Research

Associate Professor, Department of Biochemistry

Dr. Grishin is interested in understanding proteins by using computational approaches to classify sequence-structure data into a biologically relevant, hierarchical system. He is currently developing new mathematical methods for this analysis as well as using available tools for solving biological problems by computer analysis.



Wen-hong Li, Ph.D.

Southwestern Medical Foundation Scholar in Biomedical Research

Assistant Professor, Departments of Cell Biology and Biochemistry

Dr. Li seeks to understand molecular mechanisms regulating dynamics of cell calcium signaling and cell-cell communication through gap junctions. He has been developing cell permeable and photo-activatable probes and new imaging techniques to investigate biological functions of these signaling events under physiological conditions.



Keith A. Wharton, Jr., M.D., Ph.D.

W.W. Caruth, Jr. Scholar in Biomedical Research

Assistant Professor, Departments of Pathology and Molecular Biology

Dr. Wharton uses fruit flies and mice as tools to understand how Naked Cuticle proteins restrain potent Wnt signals that are crucial for development and stem cell renewal.



Christoph Wuelfing, Ph.D.

W.A. "Tex" Moncreif, Jr. Scholar in Medical Research

Assistant Professor, Center for Immunology and Department of Cell Biology

Dr. Wuelfing seeks to understand a fundamental element of cell regulation termed "polarization" and its important role in the activation of immune cells. His work focuses on elucidating the molecular and cellular mechanisms in lymphocytes that regulate the sub-cellular localization of receptors, signaling intermediates, vesicles and the cytoskeleton.



Scott Cameron, M.D., Ph.D.

Children's Cancer Fund Scholar in Medical Research

Assistant Professor, Departments of Pediatrics and Molecular Biology

Dr. Cameron's studies in developmental biology focus on the mechanisms that regulate programmed cell death using the nematode *C. elegans* as a model, and how mutations affecting these mechanisms contribute to human cancers.



Kimberly M. Huber, Ph.D.

Southwestern Medical Foundation Scholar in Biomedical Research

Assistant Professor, Center for Basic Neuroscience and Department of Physiology

Dr. Huber's research focuses on how brain activity induces long-term changes in neuronal connections or synapses and how these changes are maintained. She also studies how synaptic function and plasticity are altered in mental retardation models.



Kristen W. Lynch, Ph.D.

E.E. and Greer Garson Fogelson Scholar in Medical Research

Assistant Professor, Department of Biochemistry

Dr. Lynch is focusing her efforts on understanding how pre-mRNA splicing is regulated to generate different protein isoforms. Her lab is also interested in determining how this process influences the function of the immune system.

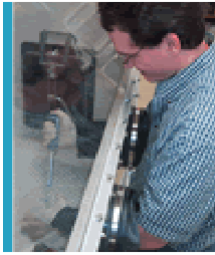


Gang Yu, Ph.D.

Thomas O. Hicks Scholar in Medical Research

Assistant Professor, Center for Basic Neuroscience and Department of Cell Biology

Dr. Yu is seeking to understand the molecular mechanisms of Alzheimer's disease and related neurodegenerative disorders.

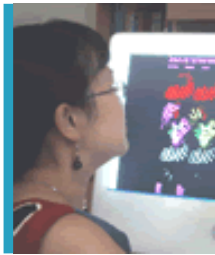


Richard Bruick, Ph.D.

Michael L. Rosenberg Scholar in Medical Research

Assistant Professor, Department of Biochemistry

Dr. Bruick investigates cellular pathways that sense and respond to changes in oxygen availability. His laboratory has identified oxygen-dependent enzymes that regulate a hypoxia-inducible transcription factor, HIF, central to the hypoxic response pathway.



Yuh Min Chook, Ph.D.

Eugene McDermott Scholar in Medical Research

Assistant Professor, Department of Pharmacology

Dr. Chook's research focuses on the role of karyopherin beta proteins (also known as importins and exportins) in macromolecular transport between the nucleus and the cytoplasm of eukaryotic cells.



Qing Richard Lu, Ph.D.

Southwestern Medical Foundation Scholar in Biomedical Research

Assistant Professor, Center for Developmental Biology and Department of Molecular Biology

Dr. Lu is seeking to understand how multipotent neural stem cells become committed and differentiated into specific neural stem cell types (especially macroglial cells) in the mammalian central nervous system.



Kim Orth, Ph.D.

W.W. Caruth, Jr. Scholar in Biomedical Research

Assistant Professor, Department of Molecular Biology

Dr. Orth is interested in the molecular mechanisms utilized by virulence factors from bacterial pathogens. Similar to viral oncogenes, bacterial virulence factors mimic or usurp key signaling factors from eukaryotic cells. How bacteria use these factors to evade and/or destroy the immune system in the infected host is the focus of her research.

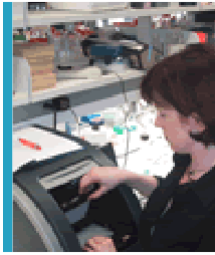


Joachim Seemann, Ph.D.

Virginia Murchison Linthicum Scholar in Medical Research

Assistant Professor, Department of Cell Biology

Dr. Seemann is focusing his efforts on the regulation of the growth and division of the Golgi apparatus in mammalian cells.



Lora Hooper, Ph.D.

Nancy Cain and Jeffrey A. Marcus Scholar in Medical Research, in Honor of Dr. Bill S. Vowell
Assistant Professor, Center for Immunology and Department of Microbiology

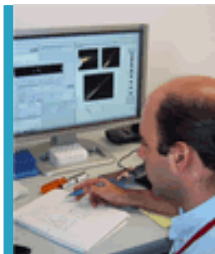
Dr. Hooper studies how commensal host-bacterial relationships in the intestine are established and maintained. She also seeks to understand how resident bacteria communicate with host cells and how these interactions shape innate and adaptive immunity in the gut.



Youxing Jiang, Ph.D.

W. W. Caruth, Jr. Scholar in Biomedical Research
Assistant Professor, Department of Physiology

Dr. Jiang's research seeks to understand the mechanisms of cation channel selectivity and ligand-dependent gating in K channels. He is taking a multidisciplinary approach, utilizing both X-ray crystallography and electrophysiology, to probe these processes.



Michael Kyba, Ph.D.

Virginia Murchison Linthicum Scholar in Medical Research
Assistant Professor, Center for Developmental Biology and Department of Molecular Biology

Dr. Kyba is studying the biology of stem cells. He studies fundamental questions such as how stem cells decide whether to proliferate or differentiate and applies this knowledge to the generation of animal models for stem cell therapies.



Weichun Lin, Ph.D.

Effie Marie Cain Scholar in Medical Research
Assistant Professor, Center for Basic Neuroscience and Department of Cell Biology

Dr. Lin is using the mouse neuromuscular junction as a model to understand the cellular and molecular mechanisms underlying formation, maintenance, and plasticity of synapses.



Joseph M. Ready, Ph.D.

Southwestern Medical Foundation Scholar in Biomedical Research
Assistant Professor, Department of Biochemistry

Dr. Ready is engaged in the discovery and application of new chemical reactions and the total synthesis of complex molecules. Work is focused both on the need to discover new, reliable and general chemical reactions and targeted syntheses.



Chuo Chen, Ph.D.

Southwestern Medical Foundation Scholar in Biomedical Research

Assistant Professor, Department of Biochemistry

Dr. Chen's research interests include synthesis of structurally and biologically intriguing natural products as well as construction of natural product-like small molecule libraries. These natural and synthetic compounds will be used to study cellular pathways and protein functions.



Qinghua Liu, Ph.D.

WA. "Tex" Moncrief, Jr. Scholar in Medical Research

Assistant Professor, Department of Biochemistry

Dr. Liu is interested in how animal cells use small RNAs to specifically silence gene expression and whether the power of RNAi can be harnessed to shut down expression of pathological genes to cure human disease.



Lawrence Lum, Ph.D.

Virginia Murchison Linthicum Scholar in Medical Research

Assistant Professor, Department of Cell Biology

Dr. Lum is interested in how signaling molecules, such as the secreted Hedgehog and Wnt proteins, control cell growth and differentiation. More broadly, he hopes to understand how cells integrate information from multiple signaling molecules during developmental and disease-related processes.



Jonathan Terman, Ph.D.

Rita C. and William P. Clements, Jr. Scholar in Medical Research

Assistant Professor, Center for Basic Neuroscience and Department of Pharmacology

Dr. Terman is interested in characterizing the molecular mechanisms of axon growth, guidance, and regeneration using both *Drosophila* and mammalian model systems.

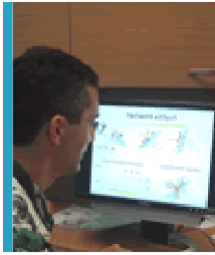


Wade Winkler, Ph.D.

W.W. Caruth, Jr. Scholar in Biomedical Research

Assistant Professor, Department of Biochemistry

Dr. Winkler is exploring the genetic and biochemical characterization of regulation of gene expression with a focused interest on posttranscriptional regulatory mechanisms and riboswitches, metabolite-sensing RNA structures embedded within the 5' untranslated region of mRNAs. Interest in exploring the biochemistry, biological distribution, and biomedical application of riboswitch RNAs is a major focus of this lab.



Steven J. Altschuler, Ph.D.

W. W. Caruth, Jr. Scholar in Biomedical Research

Assistant Professor, Department of Pharmacology

Dr. Altschuler is interested in design principles underlying the spatial-temporal organization of molecular networks. He will be applying high-throughput cytological profiling to make quantitative multidimensional measures of cell states over wide ranges of perturbations.



James Brugarolas, M.D., Ph.D.

Virginia Murchison Linthicum Scholar in Medical Research

Assistant Professor, Center for Developmental Biology, Department of Internal Medicine, Division of Hematology-Oncology, and Simmons Comprehensive Cancer Center.

Dr. Brugarolas is interested in mechanisms of tumor suppression. His current research focuses on understanding the regulation of the TSC1/TSC2 tumor suppressor complex and unraveling new pathways involved in kidney cancer development.



Hanzhang Lu, Ph.D.

TI Scholar in Advanced Imaging Technologies

Assistant Professor, Advanced Imaging Research Center

Dr. Lu's research interest is to use magnetic resonance imaging (MRI) technologies to study physiology and metabolism of the human brain, and to use this information for understanding how the brain functions and how clinical diagnosis of brain disorders can be improved.



Lani F. Wu, Ph.D.

Cecil H. and Ida Green Scholar in Biomedical Computational Science

Assistant Professor, Department of Pharmacology

Dr. Wu's research focuses on design principles underlying the formation of cellular polarity. She combines mathematical modeling and experimental techniques to study yeast bud site selection and human neutrophil chemotaxis.



Gurol Suel, Ph.D.

W. W. Caruth, Jr. Scholar in Biomedical Research

Assistant Professor, Department of Pharmacology

Dr. Suel is interested in identifying systems-level design principles of cellular differentiation circuits. His laboratory combines single cell microscopy and mathematical modeling to investigate how cells choose and execute differentiation programs.



Chengcheng "Alec" Zhang, Ph.D.

Michael L. Rosenberg Scholar in Medical Research

Assistant Professor, Departments of Physiology and Developmental Biology

Dr. Zhang is interested in studying hematopoietic stem cells, mammary gland epithelial stem cells, and their relationship to cancer. His identification of novel growth factors for ex vivo expansion of hematopoietic stem cells will facilitate the development of new strategies for stem cell and gene therapies.



Pinghui Feng, Ph.D.

Virginia Murchison Linthicum Scholar in Medical Research

Michael L. Rosenberg Scholar in Medical Research Assistant Professor, Department of Microbiology

Dr. Feng is interested in understanding the host-virus interaction of human Kaposi's sarcoma-associated herpesvirus (KSHV). In particular, Dr. Feng's lab is exploring the mechanisms that KSHV evades and regulates host immune responses to persist in healthy individuals and cause diseases in immunocompromised humans.



John MacMillan, Ph.D.

Chilton/Bell Scholar in Biochemistry Research

Assistant Professor, Department of Biochemistry

Dr. MacMillan is interested in the discovery of novel, biologically active natural products from culturable marine bacteria and marine invertebrates. Specifically, the lab will look to identify new compounds with antibiotic and anti-cancer activity.



Peter Robin Hiesinger, Ph.D.

Eugene McDermott Scholar in Medical Research

Assistant Professor, Department of Physiology

Dr. Hiesinger is interested in the design principles of brain wiring. His laboratory employs genetics, electrophysiology, 4D imaging and computational visualization techniques to study the fundamental question of neurogenetics—how can a few thousand genes 'encode' synaptic wiring patterns in the brain?