AIRWAY BIOLOGY/CYSTIC FIBROSIS

Joseph Alcorn, PhD, Associate Professor, Department of Pediatrics [https://med.uth.edu/ibp/faculty/joseph-l-alcorn/]
Research Interest: Hormonal, developmental, and cell-specific regulation of pulmonary surfactant proteins
His research is directed at understanding the molecular mechanisms involved in pulmonary surfactant protein gene expression and function.

Michael Blackburn, PhD, Professor and Director of Center for Pulmonary Excellence, Biochemistry and Molecular Biology; Co-Dean of the GSBS; EVP and Chief Academic Officer, UTHealth [https://med.uth.edu/bmb/faculty/michael-blackburn/]
Research Interest: adenosine signaling and chronic lung disease
His laboratory uses mouse models to study pathways that regulate the chronicity of pulmonary fibrosis, such as that which occurs in cystic fibrosis, with the intent of developing novel therapeutic strategies. Most of his projects focus on mechanisms by which adenosine receptor signaling influences lung inflammation and remodeling.

Richard A. Johnston, PhD, Assistant Professor and Associate Director of Research Division of Pediatric Critical Care Medicine [https://med.uth.edu/ibp/faculty/richard-a-johnston/]
Research Interest: Obesity and lung disease, air pollution, respiratory mechanics, and acute lung injury
Heidi Kaplan, PhD, Associate Professor, Department of Microbiology and Molecular Genetics [https://med.uth.edu/mmg/faculty/heidi-b-kaplan/]
Research Interest: Microbial biofilms in cystic fibrosis airway defense
Her laboratory studies the *M. xanthus* fruiting body as a model single-species biofilm, similar to that of Pseudomonas aeruginosa, which causes persistent and chronic lung infections in cystic fibrosis patients. They are studying the cell-surface components necessary for the flagella-independent surface motility, termed social gliding, that initiates biofilm formation.

CELL AND MEMBRANE BIOLOGY/CELL SIGNALING/REGENERATIVE BIOLOGY

Xiadong Cheng, PhD, Professor, Integrative Biology and Pharmacology [https://med.uth.edu/ibp/faculty/xiaodong-c-cheng/]
Research Interest: cAMP-mediated cell signaling and drug discovery studies
His laboratory uses multidisciplinary approaches, coupling biochemistry, biophysics and cell biology with pharmacology and chemical biology, to understand the structure and function of exchange proteins directly activated by cAMP (EPAC). His goal is to unravel the signaling intricacies of EPAC proteins and to design pathway specific probes for these important signaling molecules so that their functions can be pharmaceutically exploited and modulated for the treatment of human diseases.

Carmen Dessauer, PhD, Professor, Department of Integrative Biology and Pharmacology [https://med.uth.edu/ibp/faculty/carmen-w-dessauer/]
Research Interest: Mechanisms of adenylyl cyclase regulation
Her group uses structural, biochemical, and molecular biological techniques to understand the regulation of adenylyl cyclase by heterotrimeric GTP-binding proteins. This signaling pathway is directly relevant to gut, kidney, and CFTR-mediated epithelial ion transport, insulin secretion, and diabetic nephropathy.

John Hancock, PhD, Professor and Chair, Department of Integrative Biology and Pharmacology, Vice Dean for Basic Research, and Executive Director of the Brown Foundation Institute of Molecular Medicine for the Prevention of Human Diseases, [https://med.uth.edu/ibp/faculty/john-f-hancock/]
Research Interest: Plasma membrane nanostructure and signal transduction
He is an internationally regarded expert in membrane nanodomains, particularly caveolae, important for the proper transport function of polarized epithelia of kidney and gut, and of endothelium.

Ilya Levental, PhD, Assistant Professor, Department of Integrative Biology and Pharmacology; CPRIT Scholar [https://med.uth.edu/ibp/faculty/ilya-levental/]
Research Interest: Membrane structure and post-translational lipidation
The overall goal of his research is to develop strategies to modulate the mechanisms by which lateral membrane structure regulates cell function for potential treatment of human diseases.

**Emil Martin, PhD** Associate Professor of Medicine [https://med.uth.edu/internalmedicine/faculty-staff/emil-martin/](https://med.uth.edu/internalmedicine/faculty-staff/emil-martin/)
*Research Interest: Regulation of soluble guanylate cyclase and nitric oxide signaling*
His laboratory explores nitric oxide-dependent and independent regulation of soluble guanylate cyclase, including regulation by cellular thiols, nucleotides, interacting proteins and protein kinases. Mechanisms of action of pharmacological agents known to modulate sGC function in cells and whole organisms are investigated.

**Kevin Morano, PhD** Professor of Microbiology and Molecular Genetics. [https://med.uth.edu/mmg/labs/morano-lab/](https://med.uth.edu/mmg/labs/morano-lab/)
*Research Interest: Protein quality control and the stress response*
His laboratory uses yeast as a model system to study heat shock proteins in adaptive transcriptional responses, such as occurs in acute kidney injury, and as protein chaperons for transporters.

**Agnes Schonbrunn, PhD**, Professor, Department of Integrative Biology and Pharmacology [https://gsbs.uth.edu/faculty/faculty-agnes-schonbrunn/](https://gsbs.uth.edu/faculty/faculty-agnes-schonbrunn/)
*Research Interest: Signaling Mechanisms and Regulation of Receptors for Neuroendocrine Peptides*
Her laboratory studies somatostatin receptor function and regulation, important for control of secretion from the pancreas and GI tract. She investigates the role of receptor phosphorylation in the desensitization and internalization of somatostatin receptors as well as in directing receptor signaling.

**Irina Serysheva, PhD** Associate Professor, Department of Biochemistry and Molecular Biology [https://med.uth.edu/bmb/faculty/serysheva-irina/](https://med.uth.edu/bmb/faculty/serysheva-irina/)
*Research Interest: Structure and Function of Integral Membrane Proteins*
Her laboratory uses a combination of electron microscopy and computer reconstruction techniques in conjunction with biochemical, electrophysiology and molecular biological approaches to analyze structure-function relationships of calcium ion channels.

**Claudio Soto, PhD** Professor of Neurology, Director, The George and Cynthia W Mitchell Center for Alzheimer’s disease and Other Brain Related Illnesses [https://med.uth.edu/neurology/faculty/claudio-soto/](https://med.uth.edu/neurology/faculty/claudio-soto/)
*Research Interest: Protein misfolding disorders*
His laboratory studies the molecular basis of neurodegenerative diseases associated with the misfolding and brain accumulation of proteins, particularly focusing in Alzheimer’s and prion-related disorders. Protein misfolding occurs in many renal diseases.

**John Spudich, PhD** Professor and Robert A. Welch Distinguished Chair in Chemistry, Professor of Biochemistry and Molecular Biology, Director of the Center for Membrane Biology [https://med.uth.edu/bmb/faculty/spudich-john/](https://med.uth.edu/bmb/faculty/spudich-john/)
*Research Interest: Membrane proteins structure and function*
He is an internationally regarded authority on ion channel structure/function and molecular motors important in renal ciliopathies.

**Shao-Cong Sun, PhD** Professor and Moshe Talpaz Endowed Chair in Immunology; Director, Center for Inflammation and Cancer, Department of Immunology, UTMDACC [https://gsbs.uth.edu/faculty/faculty-directory/faculty-profiles.htm?id=1346953](https://gsbs.uth.edu/faculty/faculty-directory/faculty-profiles.htm?id=1346953)
*Research Interest: Signaling pathways that regulate innate immunity and T-cell activation*
He is an internationally regarded authority on signal transduction regulating immune functions, with a focus on the NF-kB pathway.

**Ah-Lim Tsai, PhD** Professor of Medicine at UT-Houston, and Adjunct Professor of Biochemistry at Rice University [https://gsbs.uth.edu/faculty/faculty-directory/faculty-profiles.htm?id=1346403](https://gsbs.uth.edu/faculty/faculty-directory/faculty-profiles.htm?id=1346403)
*Research Interest: Structure and function of heme proteins in cardiovascular disease*
His group examines structure-function relationships of nitric oxide synthases and prostaglandin H synthases involved in cell signaling, acute kidney, intestinal, and hepatic injury, and the control of vascular tone. His laboratory offers experience in enzyme preparation, physical and chemical characterization, fast kinetic measurements and basic mathematical modeling.

**Michael X. Zhu, PhD** Professor, Department of Integrative Biology and Pharmacology [https://med.uth.edu/lbp/faculty/michael-x-zhu/](https://med.uth.edu/lbp/faculty/michael-x-zhu/)
*Research Interest: Ion channels for calcium signaling*
His laboratory investigates the molecular function and regulation of TRPC channels in intestinal motility.
Young Zhou, PhD  Assistant Professor, Department of Integrative Biology and Pharmacology  
https://med.uth.edu/ibp/faculty/yong-zhou/  
Research Interest: MAPK signaling cascade, molecular mechanism for bile acid-induced inflammation in cholestasis  
His laboratory studies the ability of bile acids to alter spatiotemporal organization of components in the MAPK signaling cascade on the plasma membrane as a molecular mechanism for bile acid-induced inflammation in cholestasis. He exploits quantitative imaging techniques, such as wide-field microscopy, confocal microscopy, wide-field fluorescence lifetime imaging microscopy (FLIM), confocal FLIM, total internal reflection fluorescence microscopy (TIRF) and electron microscopy (EM) combined with statistical spatial mapping.

Diabetes, Obesity, Metabolism

Catherine Ambrose, PhD  Associate Professor, Department of Orthopedic Surgery  
https://med.uth.edu/ortho/faculty/catherine-ambrose/  
Research Interest: Bone complications in diabetic patients  
Her laboratory uses sophisticated bone imaging technologies to study bone disease and complications of joint replacements in diabetic patients.

Rebecca Berdeaux, PhD  Associate Professor, Department of Integrative Biology and Pharmacology  
https://med.uth.edu/ibp/faculty/rebecca-berdeaux  
Research Interest: Signal-dependent transcription in metabolic tissues  
Her laboratory uses genetically modified mice and primary cultures of hepatocytes to explore the role of cAMP-response element binding protein and the serine/threonine kinase SIK1 in the regulation of insulin signaling and hepatic metabolism.

Eric Boerwinkle, PhD  Professor and Director, Institute of Molecular Medicine Center for Human Genetics, Kozmetsky Family Chair in Human Genetics, and Professor and Dean SPH  
https://www.uth.edu/imm/profile.htm?id=1002755  
Research Interest: Genetics coronary artery disease, hypertension, and type II diabetes  
An internationally regarded authority on the complex genetics of common chronic diseases in humans, he has led major research programs using genome-wide mapping to analyze genes involved in obesity, type 2 diabetes mellitus, chronic kidney diseases, and hypertension.

Zheng Chen, PhD  Associate Professor, Department of Biochemistry and Molecular Biology  
https://med.uth.edu/bmb/faculty/chen-zheng/  
Research Interest: Small molecular probes of biological clocks and disease  
His group exploits clock-modulating small molecules as chemical probes of normal and aberrant clocks in metabolic disease, including type II diabetes.

William Dowhan, PhD  John S. Dunn Endowed Chair, Professor of Biochemistry and Molecular Biology  
https://med.uth.edu/bmb/faculty/741/  
Research Interest: Structure, assembly, and function of cell membrane components  
He is an authority on membrane lipid metabolism, membrane biology, membrane protein structure and function and mitochondrial function. He currently holds an R37 MERIT award and an R01 in these areas.

Susan Fisher-Hoch, MBBS, MD  Professor of Epidemiology, UT SPH Regional Campus in Brownsville  
Research Interest: Epidemiology and outcomes of diabetes in minority populations  
She is Director of the Diabetes Core of the NCMHD funded Center of Excellence on Diabetes in Americans of Mexican Descent, and director the Clinical Research Unit in Brownsville. She directs the Cameron County Hispanic Cohort, funded by NIMHD. These studies include gene expression and immunopathology in diabetes.

Absalon Guitierrez, MD  Assistant Professor, Department of Internal Medicine  
https://med.uth.edu/internalmedicine/faculty-staff/absalon-d-guitierrez/  
Research Interest: Clinical studies of insulin action, diabetes, and cardiovascular disease  
His research focuses on insulin action and cardiovascular effects in Type 2 diabetes and atherosclerosis and the resulting metabolic complications.

D. Michael Hallman, PhD  Assistant Professor of Genetics at the UT-Houston SPH.  
https://gsbs.uth.edu/faculty/faculty-directory/faculty-profiles.htm?id=1346051  
Research Interest: Genetic epidemiology of type 2 diabetes
His research involves studies of the genetics of diabetic microvascular complications, as well as longitudinal analyses of cardiovascular disease risk factors, including obesity, through childhood and adolescence to search for genes having differing effects before and after puberty.

Craig L. Hanis, PhD  Professor of Genetics at the SPH  [https://gsbs.uth.edu/faculty/faculty-directory/faculty-profiles.htm?id=1346215]
Research Interest: Familial aggregation of diabetes, obesity, hypertension, and cardiovascular disease
His principal research interest is to understand the genetics and epidemiology of common chronic diseases. These efforts include the detection of genetic variation in genes known to be important in lipid and carbohydrate metabolism. Analytical methods include segregation and linkage analysis and extensive use of linear model approaches. His is one of 5 groups funded in the NIDDK's T2D-GENES multiethnic consortium. In this project, they are obtaining whole exome sequencing data on 10,000 individuals.

Deanna Hoelscher, PhD, RD, LD, CNS  Director, Michael & Susan Dell Center for Healthy Living  John P. McGovern Professor in Health Promotion  [https://sph.uth.edu/research/centers/dell/who-we-are/msd-center-faculty/deanna-hoelscher/]
Research Interests: Design, implementation, and evaluation of programs, policies, and measurement tools related to child obesity

Mikhail Kolonin, PhD  Associate Professor, The Brown Foundation Institute of Molecular Medicine, Director The Brown Foundation Institute of Molecular Medicine, Center for Metabolic & Degenerative Diseases, Annie & Bob Graham Distinguished Chair in Stem Cell Biology  [https://med.uth.edu/lbl/faculty/mikhail-kolonin/]
Research Interest: Cancer progression in obesity
His laboratory is studying stem cells, obesity, and the relationship of obesity with cancer. Based on peptide-directed drug delivery, he co-invented an approach to obesity reversal through directed ablation of white fat vasculature. A compound targeting prohibitin on adipose endothelium, currently under commercial development, has proven effective as an anti-obesity drug in rodents and primates. His group also identified delta-decorin as the first known marker selectively expressed on adipose progenitors.

Jordan Lake, MD, MSc  Associate Professor, Department of Internal Medicine  [https://med.uth.edu/internalmedicine/faculty-staff/absalon-d-gutierrez/]
Research Interest: Metabolic consequences of HIV infection
Her research focuses on adipose tissue dysfunction and metabolic derangements in HIV-infected patients.

Joseph McCormick, MD, MS  James H. Steele Professor and Regional Dean of the UT SPH Regional Campus in Brownsville  [https://sph.uth.edu/Campuses/Brownsville/Message-from-the-Regional-Dean/]
Research Interest: Epidemiology, outcomes, and interventions in diabetes and obesity
He established the Hispanic Health Research Center of the Lower Rio Grande Valley and later its NMCH-funded Center of Excellence in Diabetes in Americans of Mexican Descent and the Cameron County Hispanic Cohort at that to provide on-site wet and clinical research laboratory facilities and initiatives designed to target the obesity and diabetes epidemics in this population.

Belinda Reininger, DrPh  Associate Professor of Health Promotion and Behavioral Science at the University of Texas School of Public Health at Brownsville  [https://sph.uth.edu/chppr/2011/12/09/reininger-belinda-m-drph/]
Research Interest: Evaluation research, community-based health promotion, health disparities
Adherence to preventive health behaviors for chronic diseases would avert 80% of all heart disease, stroke, type II diabetes, and more than 40% of cancer cases. Her groups studies and intervenes with preventive health behaviors for chronic diseases among Mexican Americans residing along U.S.-Mexico border and in the U.S.

Nahid Rianon, MD, MPH  Associate Professor, Department of Internal Medicine  [https://med.uth.edu/internalmedicine/faculty/nahid-j-rianon-mbbs-drph/]
Research Interest: Effects of diabetes on bone metabolism and fracture risk
She performs clinical studies in geriatric and diabetic patients to examine risk factors and biomarkers for increased fracture risk.

Kai Sun, MD, PhD  Assistant Professor, Center for Metabolic and Degenerative Diseases, Institute of Molecular Medicine.  [https://www.uth.edu/imm/profile.htm?id=01892d4e-f58a-417c-99df-9abc8b6c485d]
Research Interest: Adipose tissue remodeling
He studies the dichotomous effects of MT1-MMP in adipose tissue remodeling, specifically study whether the activation
of MT1-MMP during early stage of adipose tissue expansion is beneficial, associated with potential protective effects from abnormal ECM development, whereas MT1-MMP action in the context of preexisting unhealthy fat pads produces endotrophin, which triggers fibrosis and inflammation, further leading to adipose tissue dysfunction and systemic insulin resistance.

**Heinrich Taegtmeyer, MD, DPhil** Professor of Internal Medicine  
http://thetaegtmeyerlab.weebly.com/dr-heinrich-taegtmeyer.html

**Research Interest:** Metabolic regulation of cardiac gene expression and heart failure

His group examines the dynamics of energy transfer and of alterations in workload on gene expression of the heart. At the molecular level, they examine mechanisms by which metabolically generated signals regulate signaling pathways of cardiac growth, including the expression of cardiac specific genes. They use a variety of models, including genetic mouse strains, the hypertrophied and atrophied heart in vivo, isolated working hearts, and isolated heart muscle cells in culture. At the clinical level, they study molecular mechanisms of heart failure and the effects of diabetes and obesity on the heart.

**Ba-Bie Teng, PhD** Professor in the Center for Human Genetics at the IMM.  
http://www.uthouston.edu/imm/profile.htm?id=1005496

**Research Interest:** Molecular mechanisms of dyslipidemia and atherosclerosis

Using genetically modified dyslipidemia mouse models, her group studies the pathogenesis of dyslipidemias and tests novel somatic gene and cell therapy to regulate disease development. Her lab is experienced in viral vector production.

**Qungchun Tong, PhD** Associate Professor, Center for Metabolic and Degenerative Disease, IMM  
http://www.uthouston.edu/imm/profile.htm?id=1236426

**Research Interest:** Neural regulation of feeding, energy expenditure and glucose homeostasis

His laboratory studies how neurocircuitry in the brain controls feeding, energy expenditure and glucose homeostasis. Dr. Tong’s group generates mouse models with gene-deletion restricted to defined groups of brain neurons using Cre-loxP technology. Using these animal models, he seeks to delineate neural pathways in the brain underlying food intake, body weight and glucose homeostasis, and provide a framework for anti-obesity drug design.

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**DIGESTIVE DISEASES AND NUTRITION**

**Jennifer Bailey, MA, PhD** Assistant Professor, Department of Internal Medicine  
https://med.uth.edu/internalmedicine/faculty/jennifer-m-bailey-ma-phd/

**Research Interest:** Molecular mechanisms of pancreatic diseases

Her laboratory studies the activation of Kras during the most initial stages of pancreatic cancer, even before a tumor or precancerous abnormality (known as pancreatic intraepithelial neoplasm, or PanIN) is detectable. Analyses of the genetic and biochemical features of cells immediately following Kras activation provide insights into the earliest stages of pancreatic cancer.

**Michelle Barton, PhD** Ashbel Smith Endowed Professor, Department of Biochemistry and Molecular Biology, at UT-MDACC, Co-Director, Center for Stem Cell and Developmental Biology at UT-MDACC, and Co-Dean of the UT-Houston GSBS  
http://faculty.mdanderson.org/Michelle_Barton/  
**Research Interest:** Mechanisms of regulated and aberrant liver gene expression during development, tissue regeneration and cancer

She is an internationally regarded leader in transcriptional programs that occur in stem cell differentiation and liver regeneration. Her group uses deep sequencing, proteomic analyses and bioinformatics to determine chromatin interactions, post-translational modifications and protein partners of p53, and model systems that include embryonic stem cells and liver regeneration. She has extensive mentorship experience, and has received multiple mentoring honors.

**Yanna Cao, MD, MSc** Associate Professor, Department of Surgery  
https://med.uth.edu/surgery/faculty/yanna-cao/  
**Research interest:** Molecular pathogenesis of pancreatitis

Her laboratory studies molecular mechanisms involved in chronic pancreatitis and pancreatic fibrosis.

**Tiaping Chen, PhD** Associate Professor, Department of Epigenetics and Molecular Carcinogenesis, UTMDACC-Smithville Campus  
http://faculty.mdanderson.org/Taiping_Chen/  
**Research interest:** Epigenetic control of intestinal stem cells

His laboratory studies epigenetic mechanisms in health and disease. He utilizes model systems, including mice, embryonic stem cells, and other cell lines, to investigate the roles of epigenetic modifiers in various biological processes, including epigenetic control of intestinal stem cells.
Charles Cox, Jr., MD The Children’s Fund Distinguished Professor; Director, Children’s Program in Regenerative Medicine, Department of Pediatric Surgery.

Research interests: Regenerative medicine, intestinal failure
His laboratory has projects involving intestinal failure and the use of novel signaling molecules and regenerative medicine methods to mitigate this process.

Herbert Dupont, MD, MACP Mary W. Kelsey Distinguished Chair in the Medical Sciences, Professor of Medicine, Director, Center for Infectious Diseases, UT School of Public Health  https://gsbs.uth.edu/faculty/faculty-directory/faculty-profiles.htm?id=1346639

Research Interest: Epidemiology, immunology, genetic resistance, clinical features, control, prevention and therapy of enteric infectious diseases.

Danielle Garsin, PhD Associate Professor of Microbiology and Molecular Genetics  https://med.uth.edu/mmg/faculty/danielle-a-garsin/

Research Interest: Mechanisms of the innate immune response
She uses C. elegans as a model system to study the generation of reactive oxygen species as a protective innate immune mechanism in intestinal epithelial cells.

Randy Johnson, PhD Professor, Department of Cancer Biology, UTMDACC  http://faculty.mdanderson.org/Randy_Johnson/Default.asp?SNID=578243929

Research Interest: Molecular analysis of liver development.
His research includes genetic analysis of the Hippo signaling pathway in in regulating liver progenitor cell differentiation, proliferation, and self-renewal. He has been funded by NIH grants for the past 20 years as an independent investigator and authored or co-authored more than 100 peer reviewed manuscripts during this period. He has extensive mentorship experience and has been awarded the Outstanding Faculty Award by the Graduate School of Biomedical Sciences.

John R. Klein, PhD Professor of Immunology, UT-Houston School of Dentistry  https://gsbs.uth.edu/faculty/faculty-directory/faculty-profiles.htm?id=1346595

Research Interest: Mucosal immunity
His laboratory seeks to define and characterize the development, regulation, and function of murine intestinal intraepithelial lymphocytes, particularly inflammatory bowel diseases. His research involves knockout mouse models, analysis of microRNAs, and sophisticated methods to analyze colonic T cell activation.

Tien C. Ko, MD Jack H. Mayfield Distinguished Professor of Surgery, Department of Surgery  https://med.uth.edu/surgery/faculty/tien-c-ko/

Research Interest: Pancreatic disease
His laboratory studies molecular mechanisms resulting in acute and chronic pancreatitis.

Lenard Lichtenberger, PhD Professor, Department of Integrative Biology and Pharmacology  https://med.uth.edu/ibp/faculty/lenard-m-lichtenberger/

Research Interest: Mechanism and treatment of GI ulcer disease and cancer
His laboratory studies the surface barrier properties of the stomach in health and disease states both in clinical tissue and in animal models of peptic ulcer disease and colitis, as well as mechanisms by which aspirin and related NSAIDs reduce the incidence and metastatic spread of cancer.

Craig D. Logsdon, PhD Lockton Distinguished Professor of Cancer Biology at UT-MDACC  http://faculty.mdanderson.org/Craig_Logsdon/

Research Interest: Diagnosis and treatment of pancreatitis and pancreatic cancer
He is an internationally regarded investigator and thought leader in the area of molecular mechanisms underlying acute and chronic pancreatitis. Dr. Logsdon is a Past-President of the American Pancreatic Association (2007), and serves on the Governing Board of the American Pancreatic Association, and the Scientific Advisory Board, National Pancreas Foundation.

J. Marc Rhoads, MD Professor and Chief, Division of Pediatric Gastroenterology, Department of Pediatrics  https://med.uth.edu/pediatrics/faculty/j-marc-rhoads/

Research Interest: Infantile colic
His laboratory conducts translational investigations of neonatal and infantile intestinal diseases.
**Allison Speer, MD**  Assistant Professor, Department of Pediatric Surgery  
[https://med.uth.edu/pediatricsurgery/faculty/allison-speer/](https://med.uth.edu/pediatricsurgery/faculty/allison-speer/)

**Research Interest:** Translational medicine in intestinal failure  
A surgeon and basic-translational scientist, she studies regenerative medicine strategies for intestinal failure that results in short gut syndrome following trauma or surgery. Her long-term goal is to develop and utilize tissue-engineered intestine and cell-based therapies in this condition.

**Karen Uray, PhD** is Associate Professor, Department of Pediatric Surgery.  
[https://med.uth.edu/ibp/faculty/karen-l-uray/](https://med.uth.edu/ibp/faculty/karen-l-uray/)

**Research Interest:** Gastrointestinal physiology  
Her laboratory studies the molecular mechanisms of gut edema-induced dysfunction that occurs after trauma or surgery. Molecular signaling cascades that result in myosin light chain dephosphorylation are interrogated along with functional outcomes including intestinal transit, contractility, and permeability.

**Ambro van Hoof, PhD** Professor of Microbiology and Molecular Genetics  
[https://med.uth.edu/mmg/faculty/ambro-van-hoof/](https://med.uth.edu/mmg/faculty/ambro-van-hoof/)

**Research Interest:** Molecular mechanisms of mRNA surveillance  
Tricho-hepato-enteric syndrome (a.k.a. syndromic diarrhea) is a lethal disease with poor treatment options that is caused by mutations in the TTC37 or SKIV2L genes. THE syndrome presents with persistent diarrhea in infants, which is treated by long term total parenteral nutrition. Later in life patients suffer from an ineffective immune response and liver failure. Dr. van Hoof studies the function of the TTC37 and SKIV2L genes, using yeast as a model organism. This work has shown that these genes are critical for mRNA degradation by the cytoplasmic RNA exosome.

**Hematopoiesis, Benign Hematological Diseases**

**Barry Davis, MD, PhD** Professor of Biostatistics in the School of Public Health, Director, Coordinating Center for Clinical Trials, and Guy S. Parcel Chair in Public Health.

**Research Interests:** Clinical trials in hypertension, sickle cell disease, and cardiovascular disease  
He has participated in and led numerous large-scale hypertension clinical trials, including serving as PI or Co-PI in the NIH-sponsored Hypertension Detection and Follow-up Program (HDFP), Systolic Hypertension in the Elderly Program (SHEP), ALLHAT, and Genetics of Hypertension Associated Treatment (GenHAT), and in the industry-sponsored the Cholesterol and Recurrent Events Trial (CARE). He serves on the data safety monitoring board of the NIDDK-sponsored LookAHEAD Trial and is PI on an R01 conducting a randomized trial designed to compare transfusion therapy versus hydroxyurea in sickle cell anemia patients.

**Sudhir Paul, PhD** Professor, Department of Pathology and Laboratory Medicine; Director, Chemical Immunology Research Center  
[https://med.uth.edu/pathology/faculty/sudhir-paul/](https://med.uth.edu/pathology/faculty/sudhir-paul/)

**Research Interest:** Development of covalent binding and catalytic activity in antibodies  
His laboratory engineers electrophile antigen analogs that induce proteolytic antibodies by recruitment of the innate nucleophilic antibody repertoire and adaptive improvement of the antibody combining site. These agents have been used in treatment in experimental models of amyloidosis and Factor VIII immune tolerance in Hemophilia A patients.

**Keri Smith, PhD** Assistant Professor, Department of Pathology and Laboratory Medicine  
[https://med.uth.edu/pathology/faculty/keri-c-smith/](https://med.uth.edu/pathology/faculty/keri-c-smith/)

**Research Interest:** Inhibitor antibodies in hemophilia  
Her laboratory is focused on the investigation of the immunologic mechanisms that underlie the stimulation of B cells secreting anti-FVIII antibodies in hemophilia patients receiving therapeutic FVIII. An important consideration is the linking of inflammatory vs. regulatory pathways of T cell help. She is also investigating the use of novel tolerogenic agents to control inflammatory immune responses against FVIII and prevent the production of anti-FVIII inhibitor antibodies.

**Pamela L. Wenzel, PhD** Assistant Professor of Pediatric Surgery, Center for Stem Cell and Regenerative Medicine of the IMM.  
[https://med.uth.edu/pediatricsurgery/faculty/pamela-l-wenzel/](https://med.uth.edu/pediatricsurgery/faculty/pamela-l-wenzel/)

**Research Interest:** Biophysical cues of stem cell biology  
Her laboratory focuses on hematopoietic stem cell biology. She studies extrinsic factors, including biomechanical force, soluble molecules, and pharmacological compounds that endow hematopoietic precursors with the ability to contribute to the adult blood system.

**Yang Xia, MD, PhD** Professor of Department of Biochemistry and Molecular Biology  
[https://med.uth.edu/bmb/faculty/xia-yang/](https://med.uth.edu/bmb/faculty/xia-yang/)

**Research Interest:** Translational research in cardiovascular, kidney, and sickle cell disease
Her work centers on the roles of angiotensin receptors and autoimmunity in preeclampsia and on metabolite signaling molecules in sickle cell disease pathophysiology. Her laboratory utilizes metabolomics combined with biochemistry, molecular genetics, physiology, histology and vascular biology approaches.

**Kidney Diseases, Hypertension, and Vascular/Lymphatic Biology**

**Mark Bedford, PhD** Professor of Molecular Carcinogenesis at UT-MDACC [http://faculty.mdanderson.org/Mark_Bedford/](http://faculty.mdanderson.org/Mark_Bedford/)

*Research Interest: Epigenetic control of fetal hematopoiesis and epithelial-mesenchymal transitions*

His group studies epigenetic changes mediated by arginine methyltransferases in control of fetal hematopoiesis and epithelial-mesenchymal transitions important in kidney fibrosis. His group uses mouse gain- and loss-of-function PRMT models, transcriptome analysis and ChIP-seq on these null mice to identify the repertoire of genes that they regulate, protein microarrays screens for methyl-binding proteins, biochemical screens for PRMT substrates, and screens for chemical inhibitors of PRMTs.

**Eric Boerwinkle, PhD** (see above)


*Research Interest: RhoA, microRNAs, and stem cell regulation in kidney diseases*

His laboratory studies molecular mechanisms, in particular the role of RhoA kinase and microRNAs, of diabetic kidney disease.

**Barry Davis, MD, PhD** (see above)

**Peter A. Doris, PhD** Professor, The Brown Foundation Institute of Molecular Medicine, Center for Human Genetics.

[https://med.uth.edu/ibp/faculty/peter-a-doris/](https://med.uth.edu/ibp/faculty/peter-a-doris/)

*Research Interest: Pathogenesis of hypertension and hypertensive end organ disease*

His laboratory explores the genetic basis of susceptibility that causes increased renal sodium reabsorption and the mechanisms by which this leads to hypertension. Using gene expression arrays and quantitative proteomics technologies, new pathways in the renal mechanism of hypertension have been uncovered. The genes in these pathways are being mapped and their contribution to the inheritance of high blood pressure is being investigated.

**Yong-Jian Geng, MD, PhD** Professor, Department of Internal Medicine, Director of Stem Cells and Heart Failure Research at Texas Heart Institute.

[https://med.uth.edu/internalmedicine/faculty/yong-jian-geng-md-phd/](https://med.uth.edu/internalmedicine/faculty/yong-jian-geng-md-phd/)

*Research Interest: Vascular biology and atherosclerosis*

His laboratory uses molecular and regenerative medicine approaches to study aspects of vascular dysfunction, with multiple projects related to ischemic renal disease.

**Jacqueline Hecht, PhD** Professor, Director, Pediatric Research Center, Vice Chair for Research, Department of Pediatrics, Associate Dean for Research, UTHealth School of Dentistry [https://med.uth.edu/pediatrics/faculty/jacqueline-t-hecht-phd/](https://med.uth.edu/pediatrics/faculty/jacqueline-t-hecht-phd/)

*Research Interest: Gene discovery and medical genetics in bone disorders*


*Research Interest: Matrix biology in organ fibrosis, vascular biology, and stem cell biology*

He is an internationally acclaimed authority on matrix biology as it applies to genetic and acquired kidney diseases, organ fibrosis, vascular biology, and stem cell biology. His group has now isolated several tissue-specific basement membranes and performed in vitro self-assembly studies, that are preludes to tissue engineering and propagation of stem cell cultures, which ultimately may be used to repair matrix defects in the kidney and elsewhere.

**Rodney Kellems, PhD** Professor and Chair, Department of Biochemistry and Molecular Biology

[https://med.uth.edu/bmb/faculty/kellems/](https://med.uth.edu/bmb/faculty/kellems/)

*Research Interest: Angiotensin receptors, autoantibodies, and disease*

He is an authority on tissue-specific and developmentally controlled gene expression. He has most recently been examining the molecular mechanisms of pregnancy-induced hypertension and pre-eclampsia, which includes kidney injury, as a gestation-induced autoimmune condition leading to the systemic activation of the AT1 angiotensin receptor.
Yi-Ping Li, PhD Associate Professor, Department of Integrative Biology and Pharmacology
https://med.uth.edu/lbp/faculty/yi-ping-li/

*Research Interest: Signaling mechanism of striated muscle remodeling*

His laboratory explores molecular mechanisms of muscle wasting, including those that contribute to morbidity in patients with end-stage kidney disease. His group pursues signaling mechanisms of inflammatory mediator stimulation of the ubiquitin-proteasome pathway and the autophagy-lysosome pathway, which are responsible for accelerated muscle protein degradation.

Yahuan Lou, PhD Professor, Department of Diagnostic and Biomedical Sciences, School of Dentistry, Adjunct Professor of Medicine https://dentistry.uth.edu/directory/bios/yahuan-lou

*Research Interest: Immune-mediated glomerulonephritis*

His laboratory investigates immune-mediated glomerulonephritis using modern techniques such as gene profiling and mutant mouse models. In addition, Dr. Lou serves as the course director for Microbiology/Immunology and as a lecturer for general pathology and advanced basic sciences to dental students and graduate students.

Rachel K. Miller, PhD Assistant Professor, Department of Pediatrics https://med.uth.edu/pediatrics/faculty/rachel-k-miller-ph-d/

*Research Interest: Planar cell polarity and tubulogenesis*

Her laboratory studies epithelial tubulogenesis and planar cell polarity. Using Xenopus laevis embryos, supplemented in some contexts with zebrafish embryos as model systems, she assesses the roles of non-canonical Wnt planar cell polarity components in kidney tubule morphogenesis. Using transgenic approaches, she tests in living animals the role of planar cell polarity/non-canonical Wnt signals in shaping and moving cells that are undergoing/ contributing to kidney tubule morphogenesis.

Roger O'Neil, PhD Professor and Vice-Chair, Department of Integrative Biology and Pharmacology
https://med.uth.edu/lbp/faculty/roger-g-oneil/

*Research Interest: Calcium signaling and ion channels*

His laboratory is broadly focused on cell signaling and the mechanisms by which cells sense and transduce extracellular signals into chemical changes within the cell. He is particularly interested in calcium signaling and the structure and function of calcium-permeable channels and their assembly into calcium signaling plexes with a special focus on the superfamily of “transient receptor potential” channels (TRP channels).

Oleh Pochynyuk, PhD Associate Professor, Department of Integrative Biology and Pharmacology.
https://med.uth.edu/lbp/faculty/oleh-m-pochynyuk/

*Research Interest: Mechanisms of renal sodium reabsorption*

His laboratory studies renal epithelial ion transport, focusing on epithelial sodium and calcium channels in glomerular podocytes and collecting ducts. His laboratory explores how various paracrine signals modulate the function of these channels. His group is one of the only laboratories in the world capable of patch clamping podocytes and the split-open collecting duct.

Joshua Samuels, MD, MPH Professor of Pediatrics and the Center for Clinical Research and Evidence Based Medicine, and Fellowship Program Director for Pediatric Nephrology. https://med.uth.edu/pediatrics/faculty/joshua-samuels/

*Research Interest: Clinical epidemiology of pediatric hypertension and kidney disease*

His research involves the clinical epidemiology of hypertension and chronic kidney disease in children and adolescents, as well as critical care nephrology. He has been a site PI for the NIDDK-funded Chronic Kidney Disease in Children (CKiD) prospective cohort study.

Eva Sevick, PhD Professor and Cullen Chair in Molecular Medicine, Director Center for Molecular Imaging, IMM

*Research Interest: Development and translational application of novel imaging technologies*

https://www.uth.edu/imm/profile.htm?id=1005459

She leads the National Cancer Institute Center for Translational Research, which focuses on the development and validation of new imaging instrumentation, algorithms, and imaging agents and their clinical translation. She has pioneered the development of near-infrared fluorescence optical imaging and tomography for molecular imaging and currently has two clinical trials underway Hospital that employ the technology for novel diagnostic imaging of lymphatic function.