Research Electives

Pediatrics Research Electives

During the fourth year, opportunities exist for many varieties of advanced clinical or research experiences.

Ana Maria Arbeláez, MD
Northwest Tower, 10th Floor
Phone: 314-286-1138

Clinical research in diabetes mellitus; clinical research studies on hypoglycemia-associated autonomic failure in patients with type 1 diabetes mellitus and on cystic fibrosis–related diabetes

Charles E. Canter, MD
Northwest Tower, Division of Cardiology, 8th Floor
Phone: 314-454-6095

Single-center and multicenter clinical studies and trials in pediatric cardiomyopathy, heart failure and heart transplantation

F. Sessions Cole, MD, and Jennifer Wambach, MD, MS
Northwest Tower, 8th Floor, and McDonnell Pediatric Research Building, 5th Floor
Phone: 314-454-6148

Using candidate gene sequencing, exome sequencing, whole genome sequencing, and computational prediction and filtering strategies for the discovery of deleterious variants in population-based cohorts, case-control cohorts, and trios of affected infant and parents, our laboratory focuses on discovering novel candidate genes associated with neonatal respiratory distress syndrome and understanding the contribution of genetic variation in candidate genes of the pulmonary surfactant metabolic pathway (including surfactant protein B, surfactant protein C, NKX2-1, and ABCA3) to the risk of neonatal respiratory distress syndrome.

Vikas Dharnidharka, MD, MPH
Northwest Tower, 10th Floor
Phone: 314-286-1574

The focus of this lab is on clinical and translational research in childhood kidney disease. Our group is involved in several different types of clinical and translational research, including multicenter clinical intervention trials to improve teen adherence with transplant medications and to test new medications in children on dialysis; translational biomarker studies in transplant acute and chronic rejection and genomic studies or post-transplant lymphoproliferative disease; and large transplant database epidemiological analyses for associations of immunosuppressive regimens with efficacy and morbidity balance.

Stephanie A. Fritz, MD, MSCI
Northwest Tower, Room 10125
Phone: 314-454-4115

Our research team studies the epidemiology, microbial virulence mechanisms, and host defenses against community-associated methicillin-resistant Staphylococcus aureus (CA-MRSA) colonization, transmission and disease. We are investigating the transmission dynamics of CA-MRSA in households as well as interventions to interrupt the transmission of CA-MRSA and to prevent subsequent infections. Our lab also explores the microbial and host genomic determinants as well as the host immune response to staphylococcal toxins implicated in the pathogenesis of CA-MRSA in patients across the spectrum of disease states. Our goal is to develop novel approaches for the prevention of CA-MRSA infections.

Carmen Halabi, MD, PhD
McDonnell Pediatric Research Building, 4th Floor, Room 4107
Phone: 314-286-1376

Our focus is on the extracellular matrix in vascular development and disease. Specifically, we study the extracellular matrix proteins that make up the elastic fibers of blood vessels. Elastic fibers convey elasticity to blood vessels, allowing large arteries to store energy during systole and release it during diastole. Abnormalities in elastic fiber components lead to various complications, including hypertension, stiff vessels, and aneurysms. In the laboratory, we utilize mouse models to understand how abnormalities in these proteins lead to disease, which helps us not only to learn about the normal function of these proteins but also to identify potential novel therapeutic targets.

Robert J. Hayashi, MD
St. Louis Children’s Hospital, Suite 9S
Phone: 314-454-4118

Our clinical research interests include stem cell transplantation and its complications, including post-transplant lymphoproliferative disease and the long-term side effects of therapy.

Keith A. Hruska, MD
McDonnell Pediatric Research Building, 5th Floor
Phone: 314-286-2772

The research in the laboratory focuses on chronic kidney disease and its complications of the chronic kidney disease mineral bone disorder syndrome, which involves skeletal frailty, cardiovascular disease, and vascular calcification. The lab has discovered important new pathologic mechanisms of disease leading to vascular calcification through systemic effects of factors involved in renal repair and
Our research interests include structure/function relationships in facilitative glucose transporters, congenital and acquired lipodystrophy syndromes, and insulin resistance associated with HIV protease inhibitor therapy.

David A. Hunstad, MD
McDonnell Pediatric Research Building, Room 6106
Phone: 314-286-2710

Work in our lab focuses on the interactions of pathogenic bacteria with their hosts. We aim to elucidate the modulation of host immune responses by pathogens and to determine the mechanisms by which these bacteria present specific virulence factors on their surfaces. Currently, we use cultured bladder epithelial cell models and murine models of cystitis to investigate the ability of uropathogenic Escherichia coli to modulate host innate and adaptive immune responses. In addition, we are studying the molecular mechanisms by which selected outer membrane proteins contribute to the virulence of uropathogenic E. coli. Our primary goal is to discover novel targets for interventions that will prevent and better treat bacterial infections of the urinary tract. Along these lines, we are leveraging recent discoveries in UTI pathogenesis to design nanoparticle-based therapies for the prevention of acute and recurrent UTI. We have also launched a new translational study of immune responses to UTI in male and female infants, paired with an innovative new mouse model of male UTI that permits first-ever studies of sex differences in these infections.

S. Celeste Morley, MD, PhD
McDonnell Pediatric Research Building, Room 6105
Phone: 314-286-2136

Our laboratory investigates the molecular mechanisms underlying immune cell signaling and trafficking using mouse models. We hope to identify the molecules that are critical for host defense against infectious organisms such as pneumococcus. Our focus is currently on an actin-binding protein called L-plastin, which is required for normal T and B cell motility.

Alan L. Schwartz, PhD, MD
425 McDonnell Sciences Building
Phone: 314-286-1109

Our investigative efforts are aimed at understanding the biology of cell surface receptors, including the biochemical and molecular dissection of the mechanisms responsible for the receptor-mediated endocytosis of blood coagulation proteins and the regulation of intracellular protein turnover.

Paul Hruz, MD, PhD
McDonnell Pediatric Research Building, 3rd Floor
Phone: 314-286-2797

Our research interests include structure/function relationships in facilitating glucose transporters, congenital and acquired lipodystrophy syndromes, and insulin resistance associated with HIV protease inhibitor therapy.
David B. Wilson, MD, PhD
St. Louis Children’s Hospital, Northwest Tower, 9th Floor
Phone: 314-286-2834

Our research is focused on the molecular switches that regulate control genes during early embryonic development and differentiation.