Edward Mallinckrodt
Department of Pediatrics

Website: http://pediatrics.wustl.edu

Research Electives

Pediatrics Research Electives

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

Ana Maria Arbelaez, 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 immnosuppressive 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.
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: 314-286-1709

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.

**Shalini Shenoy, MD**
St. Louis Children's Hospital, Suite 9S
Phone: 314-454-6018

Investigation of novel reduced-intensity transplant strategies for pediatric nonmalignant disorders and the immunologic basis of graft-versus-host disease and graft rejection.

**Gregory A. Storch, MD; Kristine Wylie, PhD; Todd Wylie, BS; and Richard S. Buller, PhD**
St. Louis Children's Hospital, Suite 2N52
Phone: 314-454-6079

Our focus is the study of infectious disease genomics. Our laboratory is interested in applying genomic analysis to a variety of problems in infectious diseases, mostly related to viral infections. Recent studies include the use of next-generation sequencing to define the human virome in immunocompromised children; improved methods for detecting viruses using next-generation sequencing; the use of next-generation sequencing for clinical diagnosis; analysis of the human transcriptome response to acute infections; sequencing of the genome of enterovirus D68; and the development of a rapid diagnostic test for enterovirus D68. Students would have the opportunity to learn genomic techniques, including informatics analysis.

**Phillip I. Tarr, MD**
McDonnell Pediatric Research Building, Room 6103
Phone: 314-286-2848

Our work involves research in the areas of pediatric gastroenterology, hepatology and nutrition. Students have opportunities in broadly encompassing research projects. Investigators in the division have funded and vibrant projects in liver disease (fatty liver disease, acute liver failure, biliary atresia, liver transplants, cystic fibrosis liver disease), inflammatory bowel diseases (Crohn's disease, ulcerative colitis), infections of the gastrointestinal tract (diarrhea), acute liver failure,
Hirschsprung disease, diarrhea, gut microbiome, aflatoxin injury to the liver and stunting, health services research, necrotizing enterocolitis, antibiotic-resistant pathogens in the human gut, and quality improvement, particularly related to inflammatory bowel disease management. Short- and long-term projects can be arranged around these and other related efforts. The exact nature of the project depends on the time that the student can contribute to the effort and the availability of any of the division faculty, who all have established track records as mentors. Interested students should contact any of our faculty or Dr. Tarr to discuss the possibilities.

Neil H. White, MD, CDE
St. Louis Children's Hospital, Northwest Tower, 10th Floor
Phone: 314-286-1157

Our work involves patient-oriented research in the management of diabetes in children. Arrangements can be made for involvement in or the development of projects aimed at improving outcomes of or the prevention of diabetes mellitus and its complications.

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.