

KUMC Summer Student Enrichment Program

The Kansas PKD-RTCC Summer Student Enrichment Program will support up to six predoctoral summer students for a 10-week period each summer between the months of May and August to carry out PKD research in the labs of the Jared Grantham Kidney Institute. Applications will be accepted from undergraduate students or graduates in MD, PhD or MD/PhD programs who desire a summer experience in PKD research in the Kidney Institute. The primary activity of the summer students will be basic or clinical research. It is hoped that students will gain an interest in pursuing a PKD research career. In addition to research, students will attend lab meetings, nephrology division conferences, research methods talks, and will have opportunities to join patient-oriented activities. At the finish of their research experience, students will present their summer activities to the faculty, fellows, and students in the Kidney Institute, and will be encouraged by their faculty mentor to present their research results nationally. For further information and to apply, go to the [KUMC Summer Student Research](#) website.

KUMC PKD Faculty Research Areas

Alan Yu -- Epithelial ion transport, claudins, drug development, epidemiological and outcomes research methods in ADPKD by mining electronic medical records.

Aron Fenton -- Warburg metabolism in PKD; allosteric regulation of M2PYK, mass spectrometry methods to study post-translational modifications in mouse kidney in vivo.

Chad Slawson -- O-GlcNAc post-translational modification in cystic disease, methods to detect and analyze O-GlcNAc posttranslational modification in kidneys.

Christopher Ward -- Polycystin protein complex, urinary exosomes; gene targeting, purification, and analysis of polycystin-interacting proteins from urinary exosomes; gene editing

Darren Wallace -- Ca²⁺, cAMP, and B-Raf signaling to mTOR; periostin biology, use of primary ADPKD cells to study cell proliferation, fluid secretion, and cyst formation.

Franz Winklhofer -- ADPKD observational and interventional clinical trials, managing a PKD clinic and recruiting patients into observational and interventional clinical trials.

Gustavo Blanco -- Ouabain and NaK-ATPase regulation in PKD, regulation of epithelial fluid secretion mechanisms and cell proliferation by ouabain.

James Calvet -- The role of the polycystins as a receptor-channel GPCR complex, understanding the key questions needing to be answered in the future of PKD research.

Jason Stubbs -- Impact of phosphaturia on renal osteopontin production and PKD, methods for assessing mineral metabolism in PKD progression using mouse models.

Katherine Swenson-Fields -- Innate immune system and the regulation of PKD progression, methods for quantitative RT-PCR and genotyping; mouse models; methods for kidney harvest.

Kenneth Peterson -- PKD1 gene structure and analysis; genetic mouse models, YAC transgenics, stem cell biology; gene editing.

Madhulika Sharma -- Notch signaling in PKD and the role of iron and ferritin in cyst growth, microcyst assays in 3D gels to study mechanisms of cyst formation, and preclinical drug testing.

Michele Pritchard -- Congenital hepatic fibrosis in ARPKD, liver cyst formation, histochemical assays for collagen, ECM, and hyaluronan; immunofluorescence.

Pamela Tran -- Role of cilia dysfunction in renal cystic disease; cilia mouse models, immunofluorescence methods to detect normal and PKD primary cilia in genetic models.

Reem Mustafa -- Methods in outcomes research; surveys and focus groups, research study designs to establish PKD patient-centered, shared decision outcomes.

Reena Rao -- Renal fibrosis, cyst microenvironment, circadian rhythms in PKD, vasopressin signaling, PKD tissue analysis, histological methods, immunohistochemistry, immunofluorescence.

Robin Maser -- Polycystin-1 biochemistry, signaling & adhesion GPCR function of PC1, metanephric organ culture to study genetic mouse models of polycystic kidney disease.

Stephen Parnell -- GPCR signal transduction in PKD; mouse models and drug testing, use of conditional mouse models to investigate signal transduction in PKD.

Timothy Fields -- Innate immune regulation of PKD progression using mouse models, analysis by quantitative RT-PCR, genotyping, mouse organ harvest; pathological analysis.

Udayan Apte -- HNF-4 α , Wnt/ β -catenin & hippo kinase in liver regeneration, methods for studying liver injury and cyst formation in ARPKD.