

Division of Nephrology and Hypertension

DIVISION PROFILE	
Number of Faculty	11
Number of Fellows	
Clinical Fellows	3
Number of Support Personnel	13
Annual Total Grant Support (direct)	\$1,027,978
Annual Total Industry Contracts (direct)	\$42,323
Number of Peer Reviewed Publications	22
Patient Encounters	
Outpatient	2,735
Inpatient	1,988

FACULTY LISTING

Prasad Devarajan, MD, Professor of Pediatrics, Director, Louise M. Williams Professor of Pediatrics and Developmental Biology
John Bissler, MD, Associate Professor of Pediatrics, Associate Director of Residency Training Program, Research; Director, Nephrology Fellowship Program
Virginia H. Donaldson, MD, Professor of Pediatrics Emeritus
Jens Goebel, MD, Associate Professor of Pediatrics, Medical Director of Kidney Transplantation
Elizabeth Jackson, MD, Associate Professor of Pediatrics
Paul T. McEnery, MD, Professor of Pediatrics Emeritus
Mark Mitsniefes, MD, Assistant Professor of Pediatrics
Larry T. Patterson, MD, Research Assistant Professor
C. Frederic Strife, MD, Professor of Pediatrics, Medical Director of the Dialysis Unit
Clark D. West, MD, Professor of Pediatrics Emeritus
Kamyar A. Zahedi, PhD, Research Assistant Professor

OVERVIEW

The Division of Nephrology and Hypertension continues its missions to provide the best possible clinical care for children and adolescents with renal, electrolyte, and hypertensive disorders, to pursue state-of-the-art research in clinical nephrology and the basic sciences, to actively participate in the education of medical students, residents and fellows, and to provide specialized clinical laboratory services. The busy clinical service has focused primarily on out-patient consultations and follow-up, transplant evaluations and follow-up, kidney biopsies, acute and chronic dialysis, and in-patient consultations. Specialized multidisciplinary clinics staffed by our faculty in conjunction with other divisions include the Hypertension clinic, Lupus clinic, Tuberos Sclerosis clinic, Voiding Dysfunction clinic, Myelomeningocele clinic, and Complex Bladder clinic. Additional out-patient consultative services are provided at several satellite centers, including Mason, University Pointe at West Chester, Fairfield, Northern Kentucky, and University of Kentucky at Lexington. Fields of clinical research interest include complement alterations in glomerulonephritides (West), outcomes measures in renal transplantation (McEnery, Goebel), management of osteodystrophy and anemia in chronic renal failure (Strife), novel biomarkers for acute renal injury (Devarajan), innovations in renal replacement therapy (Bissler), treatment of tuberous sclerosis (Bissler), management of complex bladder conditions (Jackson), and cardiovascular abnormalities in chronic renal disease (Mitsniefes). Areas of basic research expertise include complement biology (West, Zahedi), molecular and cell biology of acute renal injury (Devarajan, Zahedi), mechanisms of DNA replication, damage and repair (Bissler), molecular pathogenesis of polycystic kidney disease (Bissler), T-cell immunobiology (Goebel), and regulation of renal development (Patterson).

Dr. Prasad Devarajan serves as director of the division, and has the overall administrative responsibility for the division's activities. Dr. Frederic Strife is the medical director of the Dialysis Unit. Dr. Jens Goebel is the medical director of Kidney Transplantation, and Dr. John Bissler is the fellowship director.



Left to Right: P. Devarajan, K. Zahedi, C. West, M. Mitsnefes, J. Goebel, C.F. Strife, J. Bissler, E. Jackson, P. McEney, L. Patterson

HIGHLIGHTS

Dr. Prasad Devarajan's research is funded by the NIH (R01 and Center of Excellence Consortium), American Heart Association, and the CCHMC Translational Research Initiative. He has initiated and runs new nephrology outreach clinics at Mason and West Chester.

Dr. Jens Goebel's research is funded by the NIH (K08) and the CCHMC Translational Research Initiative. As medical director of Kidney Transplantation, he has initiated the process of streamlining the clinical data entry portals for transplanted patients, and has the overall responsibility of establishing one of the nation's premier renal transplant centers. He has also established and staffs the new nephrology outreach clinic in Northern Kentucky.

Dr. Elizabeth Jackson was recruited to spearhead a unique joint venture between Nephrology and Urology, and is responsible for the medical management of children with complex urologic problems. She has also established and runs the nephrology clinic at the University of Kentucky in Lexington.

Dr. John Bissler's research is funded by the NIH (R01 and R21) Polycystic Kidney Disease Foundation and the LAM Foundation. He continues to direct the fellowship program, and has initiated an innovative collaborative clinic with Neurology for the management of patients with tuberous sclerosis.

Mr. Mark Mitsnefes' research is funded by the NIH (K23 and Chronic Kidney Disease Consortium), National Kidney Foundation (Clinical Investigator Award), and several industry-sponsored clinical trials. He has established a highly successful hypertension clinic in collaboration with Cardiology.

Dr. Frederic Strife is a co-investigator on a NIH grant to study renal osteodystrophy, and on industry-sponsored clinical trials. He has initiated a novel Lupus clinic in conjunction with Rheumatology.

Dr. Larry Patterson has established a very successful outreach clinic in Fairfield. His NIH-funded research has opened up several new avenues for furthering his research interests in developmental nephrology.

TRAINING

Bradley Dixon, MD	PL-5	Cincinnati Children's Hospital Medical Center
Ridwan Tarabishi, MD	PL-7	Medical College of Ohio
Hiren Patel, MD	PL-7	Cincinnati Children's Hospital Medical Center

GRANTS, CONTRACTS AND INDUSTRY AGREEMENTS

Grant and Contract Awards Annual Direct/Project Period Direct

Bissler, J		
Utility of Rapamycin for the Treatment of Renal Angiolipomas		
LAM Foundation	01/15/03 – 01/14/05	\$50,000/\$100,000
Utility of Rapamycin for the Treatment of Renal Angiolipomas		
Tuberous Sclerosis Alliance	07/01/03 – 06/30/05	\$50,000/\$100,000
Utility of Rapamycin for the Treatment of Renal Angiolipomas		
National Institutes of Health R21 CA 103486	09/01/03 – 08/31/05	\$222,500/\$445,000
DNA Replication Fork: Pausing, Recombination and Disease		
National Institutes of Health R01 DK 61458	05/01/03 – 02/29/08	\$196,563/\$1,025,002
Devarajan, P		
Mechanisms of N, K-ATPase Polarity During Nephrogenesis		
National Institutes of Health (University of Iowa subcontract) P50 DK 052612	09/01/03 – 08/31/08	\$49,180/\$277,900
Dixon, B		
Genomic Stability and the Variable Expression of Renal Disease		
American Heart Association – Ohio Valley Affiliate	07/01/03 – 06/30/05	\$37,000/\$76,000
Goebel, J		
The Cytoskeleton, Rafts, and the Interleukin-2 Receptor		
National Institutes of Health K08 AI 049241	09/15/03 – 05/31/06	\$110,750/\$332,250
Mitsnefes, M		
Cardiac Disease in Children with Chronic Renal Failure		
National Institutes of Health K23 HL 69296	08/20/02 – 06/30/07	\$115,750/\$578,750
ABPM and End-Organ Damage in Pediatric Transplantation		
National Kidney Foundation	07/01/03 – 06/30/05	\$25,000/\$75,000
Patterson, L		
Regulation of Metanephric Kidney Patterning and Growth		
National Institutes of Health K08 DK 02702	05/01/01 – 04/30/05	\$115,688/\$441,500
Zahedi, K		
Transcriptional Regulation of CL Inhibitor		
National Institutes of Health (Center for Blood Research subcontract) R01 HD 33727	08/01/00 – 07/31/05	\$47,319/\$240,410

Polyamine Metabolism in Heart & Kidney Ischemic Reperfusion Injury

National Institutes of Health (University of Cincinnati subcontract)

R21 DK 066589

01/06/04 – 12/31/05

\$8,228/\$16,785

Current Year Direct

\$1,027,978

Industry Contracts

Mitsnefes, M

Novartis Pharmaceuticals Corporation

\$10,148

King Pharmaceuticals

31,020

Strife, CF

Dallas Hospital

\$1,155

Current Year Direct Receipts

\$42,323

TOTAL

\$1,070,301

PUBLICATIONS

1. Fricke BL, Donnelly LF, Casper KA, **Bissler JJ**. Frequency and imaging appearance of hepatic angiomyolipomas in pediatric and adult patients with tuberous sclerosis. *AJR Am J Roentgenol* 2004;182(4):1027-30.
2. Patel HP, Lu L, Blaszkak RT, **Bissler JJ**. PKD1 intron 21: triplex DNA formation and effect on replication. *Nucleic Acids Res* 2004;32(4):1460-8.
3. Braun MC, Kelly CN, Prada AE, Mishra J, Chand D, **Devarajan P, Zahedi K**. Human PRMT5 expression is enhanced during in vitro tubule formation and after in vivo ischemic injury in renal epithelial cells. *Am J Nephrol* 2004;24(2):250-7.
4. Del Rio M, Imam A, DeLeon M, Gomez G, Mishra J, Ma Q, Parikh S, **Devarajan P**. The death domain of kidney ankyrin interacts with Fas and promotes Fas-mediated cell death in renal epithelia. *J Am Soc Nephrol* 2004;15(1):41-51.
5. **Devarajan P**, Mishra J, Supavekin S, **Patterson LT**, Steven Potter S. Gene expression in early ischemic renal injury: clues towards pathogenesis, biomarker discovery, and novel therapeutics. *Mol Genet Metab* 2003;80(4):365-76.
6. **Devarajan P**. Has HGF met other partners? Met-independent epithelial morphogenesis induced by HGF. focus on "Hepatocyte growth factor induces MDCK cell morphogenesis without causing loss of tight junction functional integrity". *Am J Physiol Cell Physiol* 2004;286(3):C475-7.
7. Glezerman I, Patel H, Glicklich D, Croizat H, **Devarajan P**. Angiotensin-converting enzyme inhibition induces death receptor apoptotic pathways in erythroid precursors following renal transplantation. *Am J Nephrol* 2003;23(4):195-201.
8. Mishra J, Mori K, Ma Q, Kelly C, Barasch J, **Devarajan P**. Neutrophil gelatinase-associated lipocalin: a novel early urinary biomarker for cisplatin nephrotoxicity. *Am J Nephrol* 2004;24(3):307-15.
9. Rao R, Logan B, Forrest K, Roszman TL, **Goebel J**. Lipid rafts in cytokine signaling. *Cytokine Growth Factor Rev* 2004;15(2-3):103-10.
10. Schafer K, Muller K, Hecke A, Mounier E, **Goebel J**, Loskutoff DJ, Konstantinides S. Enhanced thrombosis in atherosclerosis-prone mice is associated with increased arterial expression of plasminogen activator inhibitor-1. *Arterioscler Thromb Vasc Biol* 2003;23(11):2097-103.
11. Mishra J, Ma Q, Prada A, **Mitsnefes M, Zahedi K**, Yang J, Barasch J, **Devarajan P**. Identification of neutrophil gelatinase-associated lipocalin as a novel early urinary biomarker for ischemic renal injury. *J Am Soc Nephrol* 2003;14(10):2534-43.

12. **Mitsnefes M**, Ho PL, **McEnergy PT**. Hypertension and Progression of Chronic Renal Insufficiency in Children: A Report of the North American Pediatric Renal Transplant Cooperative Study (NAPRTCS). *J Am Soc Nephrol* 2003;14(10):2618-22.
13. Castaneda MP, Swiatecka-Urban A, **Mitsnefes MM**, Feuerstein D, Kaskel FJ, Tellis V, **Devarajan P**. Activation of mitochondrial apoptotic pathways in human renal allografts after ischemiareperfusion injury. *Transplantation* 2003;76(1):50-4.
14. **Mitsnefes MM**, Khoury PR, **McEnergy PT**. Early posttransplantation hypertension and poor long-term renal allograft survival in pediatric patients. *J Pediatr* 2003;143(1):98-103.
15. **Mitsnefes MM**, Kimball TR, Border WL, Witt SA, Glascock BJ, Khoury PR, Daniels SR. Impaired left ventricular diastolic function in children with chronic renal failure. *Kidney Int* 2004;65(4):1461-6.
16. **Mitsnefes MM**, Kimball TR, Border WL, Witt SA, Glascock BJ, Khoury PR, Daniels SR. Abnormal cardiac function in children after renal transplantation. *Am J Kidney Dis* 2004;43(4):721-6.
17. **Patterson LT**, Potter SS. Atlas of Hox gene expression in the developing kidney. *Dev Dyn* 2004;229(4):771-9.
18. Schwab K, **Patterson LT**, Aronow BJ, Luckas R, Liang HC, Potter SS. A catalogue of gene expression in the developing kidney. *Kidney Int* 2003;64(5):1588-604.
19. Chand DH, Rhoades T, Poe SA, Kraus S, **Strife CF**. Incidence and severity of vesicoureteral reflux in children related to age, gender, race and diagnosis. *J Urol* 2003;170(4 Pt 2):1548-50.
20. Chand DH, Quattrocchi J, Poe SA, Terezhalmay GT, **Strife CF**, Cunningham RJ. Trial of metronidazole vs. azithromycin for treatment of cyclosporine-induced gingival overgrowth. *Pediatr Transplant* 2004;8(1):60-4.
21. Omoloja AA, Kumar K, Crawford AH, **Strife CF**. Epiphyseal stapling and recombinant human growth hormone for correction of genu valgum in children with chronic renal insufficiency. *J Pediatr Orthop* 2003;23(5):639-42.
22. **Zahedi K**, Wang Z, Barone S, Tehrani K, Yokota N, Petrovic S, Rabb H, Soleimani M. Identification of stathmin as a novel marker of cell proliferation in the recovery phase of acute ischemic renal failure. *Am J Physiol Cell Physiol* 2004;286(5):C1203-11.