

Division Data Summary

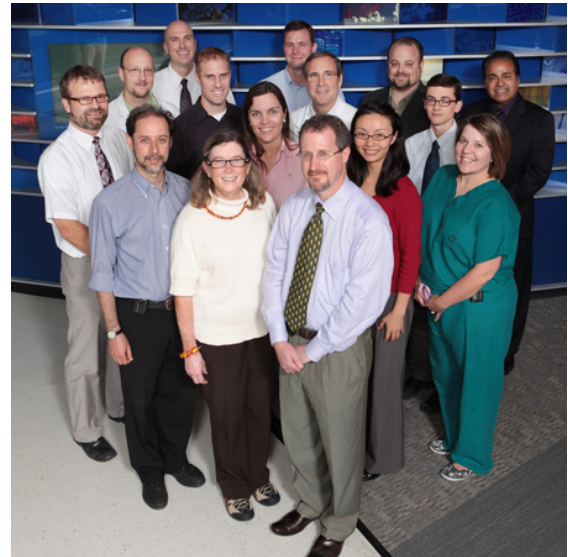
Research and Training Details

Number of Faculty	12
Number of Research Fellows	6
Number of Support Personnel	7
Direct Annual Grant Support	\$322,515
Direct Annual Industry Support	\$375,141
Peer Reviewed Publications	60

Clinical Activities and Training

Number of Clinical Fellows	6
Inpatient Encounters	3989
Outpatient Encounters	2869

Division Photo



Row 1: E Jackson, S Goldstein
Row 2: M Mitsnefes, R Malatesta, N Xiao, D Claes
Row 3: J Goebel, E Nehus, J Bissler, M O'Rourke
Row 4: B Dixon, R Vandevoorde, D Hooper, M Bennett, P Devarajan

Significant Publications

Haase M, **Devarajan P** (co-first authors), Haase-Fielitz A, Bellomo R, Cruz DN, Wagener G, Krawczeski CD, Koyner JL, Murray P, Zappitelli M, **Goldstein SL**, Makris K, Ronco C, Martensson J, Martling C-R, Venge P, Siew E, Ware LB, Ikizler A, Martens PR. **The outcome of NGAL-positive subclinical acute kidney injury: a multicenter pooled analysis of prospective studies.** *J Am Coll Cardiol.* 57(17):1752-61. Apr 26, 2011.

This is the first study to demonstrate the superior performance of NGAL as a biomarker of acute kidney injury above and beyond current diagnostic parameters.

Dixon BP, Henry J, Siroky BJ, Chu A, Groen PA, **Bissler JJ**. **Cell cycle control and DNA damageresponse of conditionally immortalized urothelial cells.** *PLoS One.* 6(1):e16595. Jan 28, 2011.

This manuscript describes the derivation and characterization of a novel conditionally immortalized urothelial cell line, which will serve as an important reagent in the study of cancers of both the native and augmented bladder.

Piyaphanee N, Czech K, **Mitsnefes M**, Greis K, **Devarajan P**, **Bennett MR**. **Discovery and initial validation of a1-B glycoprotein fragmentation as a diferential urinary biomarker in pediatric steroid resistant nephritic syndrome.** *Proteomics Clin Appl.* 5(5-6):334-42. Jun, 2011.

We discovered a biomarker with potential diagnostic and pathophysiological implications for a more advanced subset of pediatric patients with steroid resistant nephrotic syndrome.

Saland J, Pierce C, **Mitsnefes M**, Flynn J, **Goebel J**, Kupferman J, Warady B, Furth S. **Dyslipidemia in Children with Chronic Kidney Disease: A Report of The Chronic Kidney Disease in Children (CKiD) Study.** *Kidney*

Int. 78(11):1154-63. 2010.

This study is the first to show that combined dyslipidemia is very frequent in children with mild to moderate chronic kidney disease.

Moffett BS, Goldstein SL. **Acute kidney injury and increasing nephrotoxic-medication exposure in noncritically-ill children.** *Clin J Am Soc Nephrol.* 6(4): 856-863. 2011.

This is the first study to highlight the high rate of nephrotoxic medication exposure in hospitalized children, and quantify the risk of AKI in children exposed to nephrotoxic medications, which is now being used to design QA projects to decrease unnecessary exposure.

Division Collaboration

Heart Institute; ; » Catherine Krawczeski;

Co-investigator on studies entitled "Novel biomarkers in cardiac surgery to detect acute kidney injury" and "Ancillary Studies in the natural history of acute kidney injury"

Heart Institute; Heart Institute; Radiology ; Radiology » Michael Taylor; Kan Hor; Janaka Wansapura; Diana Lindquist

Co-investigators on study "Early biomarkers of cardiac dysfunction in pediatric chronic kidney disease: cardiac MRI study"

Rheumatology; » Hermine Brunner

Co-investigator on studies entitled "Forecasters of progression of chronic kidney disease" and "Advanced Proteomics for the early prediction of lupus nephritis"

Rheumatology » Hermine Brunner

Co-PI on study entitled "*Biomarkers to distinguish classes of lupus nephritis*" and Research Associate on "Advanced Proteomics for the early prediction of lupus nephritis"

Developmental Biology » Steven Potter

Co-investigator on studies entitled "Glomerulosclerosis in human FSGS and mouse models"

Developmental Biology » Alex Kuan

Co-investigator on studies entitled "Implications of JNK pathways in renal ischemia-reperfusion injury"

Critical Care Medicine » Derek Wheeler

Use of Novel Urine and Blood Biomarkers to Optimize Fluid Dosing in Critically Ill Children with Acute Kidney Injury

James M. Anderson Center for Health Care Excellence » Carole Lannon

Co-Investigator and Project Lead - "Predicting and Preventing Nephrotoxic Medication-Associated Acute Kidney Injury in Non-Critically Ill Hospitalized Children" for CERT Grant

Neurology » James Collins

Co-investigator on study entitled "Transcriptomics and Proteomics in Merosin Deficient CMD Patients"

Hematology/Oncology » Sonata Jodele

Co-Investigator on study entitled "A Prospective Analysis of Clinical and Biochemical Markers for Pediatric Stem Cell Transplant-Associated Thrombotic Microangiopathy"

James M. Anderson Center for Health Systems Excellence » Adam C. Carle

Co-investigator for studies entitled: "Interaction between Tacrolimus and intravenous nicardipine in the treatment of post-kidney transplant hypertension at pediatric hospitals" and "The Quality of Cardiovascular Disease Care and Formal Transition for Adolescents with Kidney Disease: A Midwest Pediatric Nephrology

Consortium Study"

Center for Education and Research in Therapeutics » Shannon Saldana

Co-investigator for study entitled: "Characteristics of successful recruitment in prospective pediatric pharmacogenetic studies"

Pediatric Pharmacology Research Unit and the Center for Environmental Genetics at UC » Sander Vinks; Tsuyoshi Fukuda

Collaborating faculty for studies entitled: "Risk of Tacrolimus Toxicity in CYP3A5 Non-Expressors Treated with Intravenous Nicardipine After Kidney Transplantation" and "Genotype as a Predictor of Mycophenolate Mofetil Related Leucopenia in Pediatric Transplant Recipients"

Faculty Members

Prasad Devarajan, MD, Professor

Louise M. Williams Endowed Chair

Director, Division of Nephrology & Hypertension

Research Interests Pathogenesis, biomarkers, and novel therapies of acute kidney injury; Pathogenesis and biomarkers of focal segmental glomerulosclerosis; Pathogenesis and biomarkers of lupus nephritis

Michael Bennett, PhD, Assistant Professor

Director, Biomarker Laboratory

Research Interests Biomarker discovery in acute and chronic kidney disease; focal segmental glomerulosclerosis

John J. Bissler, MD, Professor

Director, Nephrology Fellowship Training Program

Associate Program Director for Research and Academic Careers

Clark D. West Chair of Nephrology

Research Interests Polycystic kidney disease, renal tumors, tuberous sclerosis complex, Renal Cell Biology

Kimberly Czech, MD, PhD, Instructor

Research Interests Focal segmental glomerulosclerosis

Bradley P. Dixon, MD, Assistant Professor

Assistant Director, Nephrology Fellowship Training Program

Research Interests DNA damage and repair, cell biology of the augmented bladder, atypical hemolytic uremic syndrome and thrombotic thrombocytopenic purpura

Jens Goebel, MD, Associate Professor

Medical Director of Transplantation

Clinical Director, Nephrology

Research Interests Advancing basic and translational investigations into immunological aspects especially relevant to the field of transplantation

Stuart Goldstein, MD, Professor

Director, Center for Acute Care Nephrology

Medical Director, Pheresis Service

Research Interests Acute Kidney Injury, End Stage Renal Disease, Multi-Organ Dysfunction Syndrome, Continuous Renal Replacement Therapy, Cardio-Renal Syndrome, Nephrotoxic medication injury

Elizabeth Jackson, MD, Associate Professor

Research Interests Nocturnal enuresis, pelvic pain syndromes, kidney stones

Paul McEnery, MD, Professor Emeritus

Research Interests Glomerulonephritis; vitamin D resistant rickets; End Stage Renal Disease

Mark Mitsnefes, MD, Associate Professor

Research Interests Cardiovascular abnormalities and risk factors for increased cardiac morbidity and mortality in children with CKD; evaluation of LVH; cIMT; hypertension

Larry Patterson, MD, Associate Professor

Research Interests Understanding and control of developmental mechanisms leading to the end of nephron production

C. Frederic Strife, MD, Professor Emeritus

Research Interests Clinical aspects of glomerulonephritis and dialysis

Rene Vandevoorde, MD, Assistant Professor

Medical Director, Dialysis Unit

Research Interests Chronic Kidney Disease; Dialysis including Infant Dialysis; Epidemiology of Renal Diseases; Medical Education

David Hooper, MD, Assistant Professor

Research Interests Reliable and innovative chronic disease management, cardiovascular outcomes following kidney transplantation

Trainees

- Edward Nehus, MD, PL-2
- Rossana Malatesta-Muncher, MD, PL-2
- Ahmad Kaddourah, MD, PL-1
- Donna Claes, MD, PL-1
- Benjamin Laskin, MD, PL-3
- Megan Lo, MD, PL-3

Significant Accomplishments

Center for Acute Care Nephrology

The incidence of acute kidney injury has reached epidemic proportions globally, afflicting one third of critically ill children and often resulting in death or chronic kidney disease. The urgent need to develop optimal care for patients with or at risk for acute kidney injury led us to launch the Center for Acute Care Nephrology (CACN). The collaboration among Nephrology, the Heart Institute and Critical Care had a stellar first year. Our clinical accomplishments include launching the first in-house consultative acute Pheresis Service in February 2011 and implementation of proactive peritoneal dialysis in children at risk for acute kidney injury after cardiac surgery. These initiatives have dramatically improved outcomes for children as they receive state-of-the-art care without complications.

In addition, the CACN spearheaded a collaboration with the James M. Anderson Center for Health Systems Excellence to implement an institution-wide initiative to reduce nephrotoxic medication-associated kidney injury. On the research side, the CACN secured more than \$350,000 in extramural funding. One pioneering project involves using the novel biomarker NGAL to direct institution of early treatments in critically ill children.

Kidney Transplant Center

The multidisciplinary Kidney Transplant Center has performed nearly 500 kidney transplants in children since 1965. Our mission is to optimize the quality of life of children suffering from chronic kidney disease by providing the foremost clinical care, education and research pertaining to pediatric kidney transplantation. Recent years have seen many advances, thanks to novel protocols that optimize the care of children with the most complex malformations, antibody-mediated rejection and BK virus nephropathy. Despite the complexity, our kidney transplant program continues to achieve patient and graft survival rates at or above the national benchmarks, while the lengths of stay for the initial transplant surgery are shorter than the national average. These successes have established our program as one of the premier transplant centers in the Midwest, and more than half of our patients come from distant cities and states. During 2011, we performed 21 kidney transplants, which places us within the top five busiest pediatric kidney transplant centers in the country. These achievements are fueled by ongoing funded research aimed at improving these outcomes, with focus areas in immunology, adherence and quality improvement.

Dialysis Unit

The Dialysis Unit is the second largest in the Midwest and among the 10 largest in the country. By far the most challenging and complex dialysis patients are infants. Over the past decade, we cared for only one infant on home dialysis. Over the past 18 months, this demanding population has soared, and we now care for seven infants on home dialysis. Most infants have come from outside the Cincinnati area, many referred via our Fetal Care Program because of lack of complex dialysis expertise at their home institutions. The care of these infants is optimized through a coordination of services orchestrated by the dialysis unit, bringing together their medical, surgical, nutritional, developmental and psychosocial needs. New policies for aggressive feeding, hormonal and dialytic treatments have resulted in improved physical and mental development, and earlier kidney transplantation. Such initiatives have assured optimal care and set best practice care standards for this unique dialysis population.

Division Publications

1. Alon US, VandeVoorde RG. **Beneficial effect of cinacalcet in a child with familial hypocalciuric hypercalcemia.** *Pediatr Nephrol.* 2010; 25:1747-50.
2. Bagshaw SM, Bellomo R, Devarajan P, Johnson C, Karvellas CJ, Kutsiogiannis DJ, Mehta R, Pannu N, Romanovsky A, Sheinfeld G, Taylor S, Zappitelli M, Gibney RT. **[Review article: Acute kidney injury in critical illness].** *Can J Anaesth.* 2010; 57:985-98.
3. Bagshaw SM, Bellomo R, Devarajan P, Johnson C, Karvellas CJ, Kutsiogiannis DJ, Mehta R, Pannu N, Romanovsky A, Sheinfeld G, Taylor S, Zappitelli M, Gibney RT. **Review article: Renal support in critical illness.** *Can J Anaesth.* 2010; 57:999-1013.
4. Basu RK, Devarajan P, Wong H, Wheeler DS. **An update and review of acute kidney injury in pediatrics.** *Pediatr Crit Care Med.* 2011; 12:339-47.
5. Basu RK, Wheeler DS, Goldstein S, Doughty L. **Acute renal replacement therapy in pediatrics.** *Int J Nephrol.* 2011; 2011:785392.
6. Bell PD, Fitzgibbon W, Sas K, Stenbit AE, Amria M, Houston A, Reichert R, Gilley S, Siegal GP, Bissler J, Bilgen M, Chou PC, Guay-Woodford L, Yoder B, Haycraft CJ, Siroky B. **Loss of primary cilia upregulates renal hypertrophic signaling and promotes cystogenesis.** *J Am Soc Nephrol.* 2011; 22:839-48.
7. Bennett M, Devarajan P. **Characteristics of an Ideal Biomarker of Kidney Diseases.** *Biomarkers of Kidney Disease.* Academic Press; 2010: 1-24. .
8. Bennett MR, Devarajan P. **Proteomic analysis of acute kidney injury: biomarkers to mechanisms.** *Proteomics Clin Appl.* 2011; 5:67-77.

9. Brunskill EW, Lai HL, Jamison DC, Potter SS, Patterson LT. **Microarrays and RNA-Seq identify molecular mechanisms driving the end of nephron production.** *BMC Dev Biol.* 2011; 11:15.
10. Campbell K, Ng V, Martin S, Magee J, Goebel J, Anand R, Martz K, Bucuvalas J. **Glomerular filtration rate following pediatric liver transplantation--the SPLIT experience.** *Am J Transplant.* 2010; 10:2673-82.
11. DeFoor WR, Jackson E, Minevich E, Caillat A, Reddy P, Sheldon C, Asplin J. **The risk of recurrent urolithiasis in children is dependent on urinary calcium and citrate.** *Urology.* 2010; 76:242-5.
12. Devarajan P. **Acute Kidney Injury.** *Clinician's Manual of Pediatric Nephrology.* World Scientific Publishing Company; 2011.
13. Devarajan P. **Acute Kidney Injury.** *Pediatric Nephrology: A Handbook for Training Healthcare Providers.* 2011.
14. Devarajan P. **Biomarkers for the early detection of acute kidney injury.** *Curr Opin Pediatr.* 2011; 23:194-200.
15. Devarajan P. **The use of targeted biomarkers for chronic kidney disease.** *Adv Chronic Kidney Dis.* 2010; 17:469-79.
16. Devarajan P, Krawczeski CD, Nguyen MT, Kathman T, Wang Z, Parikh CR. **Proteomic identification of early biomarkers of acute kidney injury after cardiac surgery in children.** *Am J Kidney Dis.* 2010; 56:632-42.
17. Dixon BP, Henry J, Siroky BJ, Chu A, Groen PA, Bissler JJ. **Cell cycle control and DNA damage response of conditionally immortalized urothelial cells.** *PLoS One.* 2011; 6:e16595.
18. Dixon BP, Hulbert JC, Bissler JJ. **Tuberous sclerosis complex renal disease.** *Nephron Exp Nephrol.* 2011; 118:e15-20.
19. Du Y, Zappitelli M, Mian A, Bennett M, Ma Q, Devarajan P, Mehta R, Goldstein SL. **Urinary biomarkers to detect acute kidney injury in the pediatric emergency center.** *Pediatr Nephrol.* 2011; 26:267-74.
20. Endre ZH, Pickering JW, Walker RJ, Devarajan P, Edelstein CL, Bonventre JV, Frampton CM, Bennett MR, Ma Q, Sabbiseti VS, Vaidya VS, Walcher AM, Shaw GM, Henderson SJ, Nejat M, Schollum JB, George PM. **Improved performance of urinary biomarkers of acute kidney injury in the critically ill by stratification for injury duration and baseline renal function.** *Kidney Int.* 2011; 79:1119-30.
21. Franz DN, Bissler JJ, McCormack FX. **Tuberous sclerosis complex: neurological, renal and pulmonary manifestations.** *Neuropediatrics.* 2010; 41:199-208.
22. Fukuda T, Goebel J, Thogersen H, Maseck D, Cox S, Logan B, Sherbotie J, Seikaly M, Vinks AA. **Inosine monophosphate dehydrogenase (IMPDH) activity as a pharmacodynamic biomarker of mycophenolic acid effects in pediatric kidney transplant recipients.** *J Clin Pharmacol.* 2011; 51:309-20.
23. Go AS, Parikh CR, Ikizler TA, Coca S, Siew ED, Chinchilli VM, Hsu CY, Garg AX, Zappitelli M, Liu KD, Reeves WB, Ghahramani N, Devarajan P, Faulkner GB, Tan TC, Kimmel PL, Eggers P, Stokes JB. **The assessment, serial evaluation, and subsequent sequelae of acute kidney injury (ASSESS-AKI) study: design and methods.** *BMC Nephrol.* 2010; 11:22.
24. Goebel J, DeFoor WR. **Pediatric Renal Transplantation: Medical and Surgical Aspects.** *Pediatric Urology.* Philadelphia: Saunders-Elsevier; 2010: 606-630. .
25. Goebel J, DeFoor WR, Sheldon C. **Pediatric Kidney Transplantation: Perioperative Management.** *Clinician's Manual of Pediatric Nephrology.* World Scientific; 2011.
26. Goldstein SL. **Continuous renal replacement therapy: mechanism of clearance, fluid removal, indications and outcomes.** *Curr Opin Pediatr.* 2011; 23:181-5.
27. Goldstein SL. **Advances in pediatric renal replacement therapy for acute kidney injury.** *Semin Dial.* 2011; 24:187-91.
28. Goldstein SL, Devarajan P. **Acute kidney injury in childhood: should we be worried about progression to CKD?** *Pediatr Nephrol.* 2011; 26:509-22.

29. Guilfoyle SM, Goebel JW, Pai AL. **Efficacy and flexibility impact perceived adherence barriers in pediatric kidney post-transplantation.** *Fam Syst Health.* 2011; 29:44-54.
30. Haase M, Devarajan P, Haase-Fielitz A, Bellomo R, Cruz DN, Wagener G, Krawczeski CD, Koyner JL, Murray P, Zappitelli M, Goldstein SL, Makris K, Ronco C, Martensson J, Martling CR, Venge P, Siew E, Ware LB, Ikizler TA, Mertens PR. **The outcome of neutrophil gelatinase-associated lipocalin-positive subclinical acute kidney injury: a multicenter pooled analysis of prospective studies.** *J Am Coll Cardiol.* 2011; 57:1752-61.
31. Herzer M, Goebel J, Cortina S. **Transitioning cognitively impaired young patients with special health needs to adult-oriented care: collaboration between medical providers and pediatric psychologists.** *Curr Opin Pediatr.* 2010; 22:668-72.
32. Hooper DK, Carle AC, Schuchter J, Goebel J. **Interaction between tacrolimus and intravenous nicardipine in the treatment of post-kidney transplant hypertension at pediatric hospitals.** *Pediatr Transplant.* 2011; 15:88-95.
33. Ingerski L, Perrazo L, Goebel J, Pai AL. **Family strategies for achieving medication adherence in pediatric kidney transplantation.** *Nurs Res.* 2011; 60:190-6.
34. Kaplan HC, Brady PW, Dritz MC, Hooper DK, Linam WM, Froehle CM, Margolis P. **The influence of context on quality improvement success in health care: a systematic review of the literature.** *Milbank Q.* 2010; 88:500-59.
35. Koralkar R, Ambalavanan N, Levitan EB, McGwin G, Goldstein S, Askenaz D. **Acute kidney injury reduces survival in very low birth weight infants.** *Pediatr Res.* 2011; 69:354-8.
36. Koyner JL, Vaidya VS, Bennett MR, Ma Q, Worcester E, Akhter SA, Raman J, Jeevanandam V, O'Connor MF, Devarajan P, Bonventre JV, Murray PT. **Urinary biomarkers in the clinical prognosis and early detection of acute kidney injury.** *Clin J Am Soc Nephrol.* 2010; 5:2154-65.
37. Krawczeski CD, Vandevoorde RG, Kathman T, Bennett MR, Woo JG, Wang Y, Griffiths RE, Devarajan P. **Serum cystatin C is an early predictive biomarker of acute kidney injury after pediatric cardiopulmonary bypass.** *Clin J Am Soc Nephrol.* 2010; 5:1552-7.
38. Krawczeski CD, Woo JG, Wang Y, Bennett MR, Ma Q, Devarajan P. **Neutrophil gelatinase-associated lipocalin concentrations predict development of acute kidney injury in neonates and children after cardiopulmonary bypass.** *J Pediatr.* 2011; 158:1009-1015 e1.
39. Laskin BL, Goebel J, Davies SM, Khoury JC, Bleesing JJ, Mehta PA, Filipovich AH, Paff ZN, Lawrence JM, Yin HJ, Pinkard SL, Jodele S. **Early clinical indicators of transplant-associated thrombotic microangiopathy in pediatric neuroblastoma patients undergoing auto-SCT.** *Bone Marrow Transplant.* 2011; 46:682-9.
40. Li S, Krawczeski CD, Zappitelli M, Devarajan P, Thiessen-Philbrook H, Coca SG, Kim RW, Parikh CR. **Incidence, risk factors, and outcomes of acute kidney injury after pediatric cardiac surgery: A prospective multicenter study.** *Crit Care Med.* 2011; 39:1493-1499.
41. Liu G, Chen X, Bissler JJ, Sinden RR, Leffak M. **Replication-dependent instability at (CTG) x (CAG) repeat hairpins in human cells.** *Nat Chem Biol.* 2010; 6:652-9.
42. Mammen C, Goldstein SL, Milner R, White CT. **Standard Kt/V thresholds to accurately predict single-pool Kt/V targets for children receiving thrice-weekly maintenance haemodialysis.** *Nephrol Dial Transplant.* 2010; 25:3044-50.
43. Moffett BS, Goldstein SL. **Acute kidney injury and increasing nephrotoxic-medication exposure in noncritically-ill children.** *Clin J Am Soc Nephrol.* 2011; 6:856-63.
44. Mrug M, Bissler JJ. **Simulation of real-time ultrasound-guided renal biopsy.** *Kidney Int.* 2010; 78:705-7.
45. Pai AL, Gray E, Kurivial K, Ross J, Schoborg D, Goebel J. **The Allocation of Treatment Responsibility**

scale: a novel tool for assessing patient and caregiver management of pediatric medical treatment regimens. *Pediatr Transplant.* 2010; 14:993-9.

46. Pai AL, Ingerski LM, Perazzo L, Ramey C, Bonner M, Goebel J. **Preparing for transition? The allocation of oral medication regimen tasks in adolescents with renal transplants.** *Pediatr Transplant.* 2011; 15:9-16.
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48. Parikh CR, Lu JC, Coca SG, Devarajan P. **Tubular proteinuria in acute kidney injury: a critical evaluation of current status and future promise.** *Ann Clin Biochem.* 2010; 47:301-12.
49. Piyaphanee N, Ma Q, Kremen O, Czech K, Greis K, Mitsnefes M, Devarajan P, Bennett MR. **Discovery and initial validation of alpha 1-B glycoprotein fragmentation as a differential urinary biomarker in pediatric steroid-resistant nephrotic syndrome.** *Proteomics Clin Appl.* 2011; 5:334-42.
50. Potter SS, Brunskill EW, Patterson LT. **Microdissection of the gene expression codes driving nephrogenesis.** *Organogenesis.* 2010; 6:263-9.
51. Saland JM, Pierce CB, Mitsnefes MM, Flynn JT, Goebel J, Kupferman JC, Warady BA, Furth SL. **Dyslipidemia in children with chronic kidney disease.** *Kidney Int.* 2010; 78:1154-63.
52. Sanchez-Pinto LN, Laskin BL, Jodele S, Hummel TR, Yin HJ, Goebel J. **BK virus nephropathy in a pediatric autologous stem-cell transplant recipient.** *Pediatr Blood Cancer.* 2011; 56:495-7.
53. Sherwin CM, Fukuda T, Brunner HI, Goebel J, Vinks AA. **The evolution of population pharmacokinetic models to describe the enterohepatic recycling of mycophenolic acid in solid organ transplantation and autoimmune disease.** *Clin Pharmacokinet.* 2011; 50:1-24.
54. Shroff R, Quinlan C, Mitsnefes M. **Uraemic vasculopathy in children with chronic kidney disease: prevention or damage limitation?** *Pediatr Nephrol.* 2011; 26:853-65.
55. Siroky BJ, Yin H, Bissler JJ. **Clinical and molecular insights into tuberous sclerosis complex renal disease.** *Pediatr Nephrol.* 2011; 26:839-52.
56. Soto K, Coelho S, Rodrigues B, Martins H, Frade F, Lopes S, Cunha L, Papoila AL, Devarajan P. **Cystatin C as a marker of acute kidney injury in the emergency department.** *Clin J Am Soc Nephrol.* 2010; 5:1745-54.
57. Srivaths PR, Goldstein SL, Silverstein DM, Krishnamurthy R, Brewer ED. **Elevated FGF 23 and phosphorus are associated with coronary calcification in hemodialysis patients.** *Pediatr Nephrol.* 2011; 26:945-51.
58. Tonshoff B, David-Neto E, Ettenger R, Filler G, van Gelder T, Goebel J, Kuypers DR, Tsai E, Vinks AA, Weber LT, Zimmerhackl LB. **Pediatric aspects of therapeutic drug monitoring of mycophenolic acid in renal transplantation.** *Transplant Rev (Orlando).* 2011; 25:78-89.
59. Weissberg-Benchell J, Zielinski TE, Rodgers S, Greenley RN, Askenazi D, Goldstein SL, Fredericks EM, McDiarmid S, Williams L, Limbers CA, Tuzinkiewicz K, Lerret S, Alonso EM, Varni JW. **Pediatric health-related quality of life: Feasibility, reliability and validity of the PedsQL transplant module.** *Am J Transplant.* 2010; 10:1677-85.
60. Zappitelli M, Moffett BS, Hyder A, Goldstein SL. **Acute kidney injury in non-critically ill children treated with aminoglycoside antibiotics in a tertiary healthcare centre: a retrospective cohort study.** *Nephrol Dial Transplant.* 2011; 26:144-50.

Grants, Contracts, and Industry Agreements

DEVARAJAN, P**Research Training in Pediatric Nephrology**

National Institutes of Health

T32 DK 007695

07/01/07-06/30/12

\$126,804

Progression of Acute Kidney Injury to Chronic Kidney Disease

National Institutes of Health(Yale University School of Medicine)

U01 DK 082185

07/01/10-06/30/11

\$59,530

Novel Biomarkers in Cardiac Surgery to Detect Acute Kidn

National Institutes of Health(Yale University School of Medicine)

R01 HL 085757

07/01/10-06/30/11

\$20,000

GOEBEL, J**Chronic Kidney Disease in Children (CKiD)**

National Institutes of Health(Children's Mercy Hospital)

U01 DK 066143

09/27/09-09/26/11

\$11,475

GOLDSTEIN, S**Pediatric Kidney Disease: AKI and Acute Kidney Function**

Casey Lee Ball Foundation

02/01/11-01/31/12

\$50,000

SIROKY, B**Environmental Carcinogenesis and Mutagenesis**

University of Cincinnati

T32 ES 007250

07/01/11-06/30/12

\$54,706

Current Year Direct**\$322,515****Industry Contracts****BISSLER, J**

Novartis Pharmaceuticals

\$307,460

GOEBEL, J

Abbott Laboratories

\$7,775

GOLDSTEIN, S

Baxter Healthcare Corp.

\$46,200

MITSNEFES, M

Novartis Pharmaceuticals

\$13,706

Current Year Direct Receipts**\$375,141****Service Collaborations****GOLDSTEIN**

Watermark

\$30,000

McGill

\$25,000

Current Year Direct**\$55,000****Total****\$752,656**