

Research News

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Department of Pediatrics

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Research Highlights: Pediatric Nephrology

NEWS: Scheinman Leaves No Stone Unturned

LEAVE NO STONE UNTURNED. (Idiom) Definition If you look everywhere to find something, or try everything to achieve something, you leave no stone unturned.

When Research News last talked to **Dr. Jon Scheinman** (October, 2003), he was looking at the process of treating patients primary hyperoxaluria via different strategies to determine the effectiveness of those strategies in reducing the risk for kidney stone disease. Please congratulate Dr. Scheinman! Dr. Scheinman has just enrolled his first patient in his NIH-funded R21 grant, entitled “**A clinical trial of**

piridoxamine to lower oxalate excretion in idiopathic kidney stone disease and hyperoxaluria.” Dr. Scheinman modestly calls this “not very much money”....but at \$275,000 over two years...we should all be so lucky! But wait! – was it more than luck? This investigative reporter (and “research wannabe”) talked to Jon Scheinman in the hopes of discovering the secrets to getting NIH funding.

Dr. Scheinman has a longstanding interest in hyperoxaluria. Kidney stones have a prevalence of 5% in the adult population – and the recurrence risk for kidney stones reaches 50-70% within 10 years. Most kidney stones are calcium oxalate (CaOx). Although the nidus (“seed”) of most CaOx stones is calcium phosphate, the development of stones depends upon urinary oxalate, and the level of urinary oxalate is one of the greatest risk factors for kidney stones. If there’s less oxalate, there will be less stones. development of stones depends upon urinary oxalate, and the level of urinary oxalate is one of the greatest risk factors for kidney stones. If there is less oxalate, there will be less stones.

Dr. Scheinman began his research on hyperoxaluria and the molecular biology of the kidney basement membrane at the University of Minnesota. He continued his work at Duke University and then the Medical College of Virginia. And then he arrived at KU....

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(Tip #1). PAY ATTENTION: **“Chance favors the prepared mind.”** (Louis Pasteur)

Dr. Scheinman presented his data on hyperoxaluria at a physiology conference at KUMC in 2000. In 2000, **Billy Hudson**, Ph.D., was the director of biochemistry, and he attended that conference. Dr. Scheinman had known Dr. Hudson for 20 years because of his work on basement membrane chemistry and diabetic kidney disease. Dr. Hudson was looking at how to bind the caramelizing material that causes diabetic kidney disease. Hearing how humans make oxalate, he thought that the oxalate precursors: glycoaldehyde and glyoxalate might be bound by a drug he was exploring to prevent diabetic kidney disease. Dr. Scheinman and Billy Hudson talked. And then, with Paul Voziyan in Hudson’s lab) they did some in vitro studies – and found that piridoxamine could bind those chemicals in the test tube. Then they proved it in rats given antifreeze (ethylene glycol) to cause hyperoxaluria.

Besides Paul Voziyan and Billy Hudson, Ph.D. (now at Vanderbilt), Dr. Scheinman has collaborated on this research with John Belmont, Ph.D., and Debra Sullivan, RD. He also collaborates with nephrologists in New York and with the Litholink Corporation in Chicago.

(Tip #2) WRITE THE GRANT! **“You may be disappointed if you fail, but you are doomed if you don’t try.”** (Beverly Sills)

In 2001 Dr. Scheinman and Dr. Hudson applied for a **Small Business Technology Transfer grant**. The STTR Program requires research partners at universities and other non-profit research institutions to have a formal collaborative relationship with the small business concern. The STTR grant was funded with **BioStratum, Incorporated** to study the therapeutic use of pyridoxamine (Pyridorin) in experimental hyperoxaluria in rats. Rats who drink antifreeze (ethylene glycol) don’t do well – suffering (like humans) with kidney damage due to hyperoxaluria. Scheinman and Hudson found that in ethylene glycol-induced hyperoxaluria, pyridoxamine treatment resulted in significantly lower levels of urinary glycolate and oxalate excretion compared to untreated hyperoxaluric animals and that there was a significant reduction in calcium oxalate crystal formation. BioStratum, Incorporated allowed the investigators to apply to the NIH for a grant to study the drug in oxalate excretion and kidney stones in humans.

Dr. Scheinman and his colleagues applied for a R21 from the NIH in 2004. It was triaged (so bad they couldn’t get a score). They pointed fingers (at themselves, read the criticisms, rewrote, and reapplied in 2005, with great success). The **NIH R21** is intended to encourage exploratory /developmental research projects by providing support for the early and conceptual stages of development. There will be two phases for this grant. In the first phase (Phase II) the researchers will investigate dietary contribution to hyperoxaluria in 24 adults with kidney stones. In addition, eight patients with hyperoxaluria will be recruited and will receive either placebo or drug (two different dosages) over four 4-week periods. BUN, creatinine and oxalate will be measured with the goal of lowering oxalate excretion. If this study is successful, it is anticipated that this will result in a large R01, or even that there will be investors who will fund a Phase III study.

So, congratulate Dr. Scheinman on his expertise and his persistence – the necessary qualities for a successful NIH researcher!

And remember - “If you’re not part of the solution, you’re part of the precipitate” (Steven Wright)

Current Pediatric Grants

Barnard, M (PI) “Writing Interventions for Teens whose Parents Have Cancer” 07/01/04-8/31/07
Turning Points – Total direct costs: \$5,000

Dileepan, K (PI), **Belmont, J (Co-I)** 2/1/06-1/31/11
“Mast Cell-Induced Inflammation in Vascular Disease”
NIH RO1 HL070101-01 – Total Direct Costs: \$1,250,000

Barkley, H.W., **Lowry, J., Veal, K.,** Pierce, J.T. 02/01/04 – 01/31/07
"Development of the Region VII Pediatric Environmental Health Specialty Unit at the University of Kansas Medical Center"
AOEC & ATSDR – Total costs: \$128,000/yr

Davis, A.M. (PI) 04/15/05-04/14/10
“Enhancing Nutrition and Activity of Rural Children”
NIH/NIDDK - Total Direct Costs \$566,721

Davis, K. (PI)
“Connected Kansas Kids: Connecting Schools and Students with Special Health Needs”
Kan-Ed - Total direct costs: \$100,000, plus \$85,000 for year two
** see website at www.connectedkansaskids.com

Davis, K. (PI)
“Distance Learning Presentations for Students”
Kan-Ed – Total direct costs: \$25,000

Ellerbeck, K. (PI), Reese, M. (Co-Investigator) & Jacobson, J. (Co-Investigator) 02/01/05-02/01/07
"Sex Differences in Autism: Potential Role of Oxytocin Signaling"
Cure Autism Now (CAN) Foundation – Total direct costs: \$120,000

Gilmer, L (PI) 7/1/05-6/30/07
“Evaluating Clinical Competency of Ped Res. Cont Clinic”
Children’s Miracle Network Total Direct Costs \$9076

Hardy, J. (PI)
“Reach out and Read”
Francis Family Foundation – Total Direct Costs - \$50,000

Johnson, C (PI) 7/1/05-6/30/07
“Pediatric Consultation, PKU, Seizure, Rheumatology/Cardiology Outreach”
Kansas Department of Health and Environment (KDHE)-Total Direct Costs \$125,362

Johnson, C. (PI); Reese, M. (CO-PI) 7/1/06-6/30/11
“Interdisciplinary leadership education in neurodevelopmental disabilities (LEND).”
Maternal and Child Health—Total Direct Costs (1st year): \$558,227

Lindsley, C (PI) 7/29/03-12/31/08
“Juvenile RH North Short Long Island Jewish Health”
Total Direct Costs \$390

Lowry, J (PI) 9/1/05-8/31/06
“Poison Control Stablization and Enhance”
Poison Control Center – Total Direct Costs \$154,088

Nelson, E. (PI), Davis, K (Co-I) 2006-2008
“TeleHelp: A Comprehensive School-based Telemedicine Program for Urgan Youth At-Risk for Depression”
Health Care Foundation of Greater Kansas city – Total Project Funding with matching \$197,972

Nelson, E (PI)
“Telekidcare Teachng Tool for Cultural Competence”
Aetna Foundation Regional Community Health – Total Direct Costs \$40,000

Peacock, G. (Co-PI) & Nelson, E. (Co-PI) 07/01/06-06/30/07
Implementing the American Academy of Pediatrics Attention-Deficity/Hyperactivity Disorder Diagnostic
Guidelines in a School-based Telemedicine Clinic.
Children’s Miracle Network - \$9,980

Rapoff, M. (PI), Belmont, J. (Co-I) 07/04 – 06/07
"Headstrong Intervention for Recurrent Pediatric Headache"
R01, National Institute of Neurological Disorders and Stroke-Total Costs: \$563,090

Rapoff, M.A.. (PI) & Wassom, M.C. (Co-PI) 07/01/06-06/30/07
“A minimal contact cognitive-behavioral intervention for pediatric
functional gastrointestinal disorders: A pilot study of Gutstrong.”
Children’s Miracle Network - \$9,963

Reese, M (PI) 11/1/05-10/31/06
“Kansas Institute for Positive Behavioral Support Grant”
KAN28535 – Total Direct Costs \$18,374

Scheinman, J. (PI).....9/1/06-9/1/08
“Effect of pyridoxamine in oxalate excretion in stone
disease and hyperoxaluria.”
NIH (R21)—Total Direct Costs \$275,000

Steele, R (PI), Davis, A (Co-I) 1/19/06-12/31/09
“Effectiveness of a treatment for pediatric obesity”
DHHS, (HRSA) R40MXO6631-01-00 Total Costs
\$626,846

Human Subjects Committee Information

Deadline**	Meeting
October 2, 2006	October 16, 2006
November 6, 2006	November 20, 2006
December 4, 2006	December 18, 2006

all deadlines are at **noon**
* Office is G006 Sudler.*

Hours: 8:00 AM - 4:30 PM
For more information, go to
http://www2.kumc.edu/researchcompliance/hs_csubprocess.htm or call 913-588-1240.

Trueworthy, Robert (PI)

3/1/03-3/28/07

“Children’s Oncology Group Chair’s Grant”

Salary for Data Manager

National Childhood Cancer Foundation Total Direct Costs\$44,302

Veal, K.(PI), Lowry, J (Co-I)

7/1/05-6/30/07

“A Pilot Study to Evaluate Effects of Exposure to School Bus Diesel Fuel Emissions on Pediatric Respiratory Health”

Children’s Miracle Network – Total Direct Costs - \$10,000

Current Pediatric Clinical Trials

Casey, J. (PI), Delrosario, G. (Co-PI)

“The Genetics and Neuroendocrinology of Short Stature International Study”

Eli Lilly and Company –

Casey, J. (PI)

“Growth Hormone Study”

Genentech Inc.

Casey, J. (PI)

“Kabi International Growth Study”

Pharmacia Upjohn

Casey, J. (PI)

“Natural History Study Development of Type I Diabetes”

NIH-TrialNet

Ellerbeck K (PI)

“Safety and efficacy of oral human immunoglobulin in the treatment of gastrointestinal dysfunction associated with Autistic Disorder”

Oralgam Corp

Harris, Jo-Ann (PI)

Phase 3 evaluation vaccine lots for safety and immunogenicity of GSK Biological's Haemophilus Influenzae type and Neisseria meningitidis serogroups C and Y-Tetanus toxoid conjugate vaccine combined compared to monovalent Hib vaccine in healthy infants

Glaxo

Olson, N (PI)

“Allergy Immunology Rheumatology:

Pharmacia Cor

Raghuveer, Talkad (PI)

“Do dietary components influence the severity of oxygen-induced vascular pathology in newborn rat retina”

School of Medicine Bridging Grant

Scheinman, Jon (PI)

“Focal Glomerulosclerosis Trial”
Medical City Dallas Hospital

Shaw, P (PI)

“An Oral Health Program for Kansas”
United Methodist Health Ministry Fund

Recent Pediatric Publications

Bursch, B. & Hyman, P. (2006). Parent perceptions of the psychological functioning of their children diagnosed with pediatric motility disorders and that of family members. *Gastroenterology Nursing*, 29, 209-216.

Connelly, M. & Rapoff, M.A. (2006). Assessing health-related quality of life in children recurrent headache: Reliability and validity of the PedsQL™ 4.0 in a pediatric headache sample. *Journal of Pediatric Psychology*, 31, 698-702.

Connelly, M., Rapoff, M.A., Thompson, N., & Connelly, W. (2006). Headstrong: A pilot study of a CD-ROM intervention for recurrent pediatric headache. *Journal of Pediatric Psychology*, 31, 737-747.

Hyman, P. E. (2006). Adolescents and young adults with Hirschsprung's Disease. *Current Gastroenterology Reports*, 8, 425-429.

Hyman, P.E. (2006). Chronic intestinal pseudo-obstruction. In R. Wyllie & J.S. Hyams (eds.). *Pediatric gastrointestinal and liver disease: Pathophysiology /Diagnosis/ Management* (pp. 681-690). Philadelphia: Elsevier.

Scheinman, J. (2006). Tools to detect and modify sickle cell nephropathy. *Kidney International*, 69, 1927-1930.

Faculty Presentations

Delrosario, Genevieve: Can You Hear Me Now? An Overview Of Early Hearing Loss Detection and Prevention. Kansas Academy of Physician Assistants Annual Meeting. July 6, 2006.

Veal, Kathryn: Effect of Schoolyard Exposure to Diesel School Bus Emissions on Pediatric Respiratory Health.” 2006 PEHSU Program Annual Meeting, Washington Plaza Hotel, Washington, D.C., September 28, 2006.

Veal, Kathryn: Moderator: Emerging Pediatric Environmental Health Issues. 2006 PEHSU Program Annual Meeting, Washington Plaza Hotel, Washington, D.C., September 29, 2006.

Faculty Honors

Dr. Carol Lindsley has recently received two prestigious awards:

1. Dr. Lindsley was selected as a “Master” by the American College of Rheumatology, which is one of the highest honors the College bestows. The designation of Master is conferred on members who have made outstanding contributions to the field of rheumatology through scholarly achievement and/or service to their patients, students, and profession.

2. Dr. Lindsley was also given the *James T. Cassidy Award* by the Section on Rheumatology of the American Academy of Pediatrics, which recognizes an individual who has distinguished herself through her service to the field of pediatric rheumatology.

Dr. Leone Mattioli is one of two faculty members of the School of Medicine to receive the Lifetime Achievement Mentoring Award (“The Jayhawk”) for Professors with 20+ years at KUSOM. This is the first year for this award and we are all very proud of Dr. Mattioli who has mentored many of us, as well as countless medical students, residents, and fellows.

Dr. John Belmont, upon his recent retirement, was named Emeritus Professor of Pediatrics. Dr. Belmont richly deserves this designation and we are happy to report that he plans to continue to work on research projects and papers with faculty within and outside of Pediatrics.