

Multidisciplinary Benign Urology Research Day

Friday, May 11, 2018

Albert Eye Research Institute Auditorium, Duke University

Sponsored by Duke Multidisciplinary K12 Urologic Research Career Development Program (KURc)
and Duke Pelvic Medicine Research Consortium (PMRC)

Friday, May 11, 2018

8:00 AM to 3:30 PM

**Albert Eye Research Institute
Roz & Milton Lachman Family Auditorium
Duke University Medical Center
Durham, North Carolina**

- 8:00 AM Registration and Poster Viewing
Coffee, Tea, Light Breakfast
- 8:30 AM **Welcome and Introductions**, Cindy Amundsen, MD, KURe PI and PD
- 8:40 AM **Moderator:** Dan Wollin, MD
Keynote Speaker: Greg Tasian, MD, MSc, MSCE, University of Pennsylvania
“Pediatric Urinary Stone Disease: Epidemiology and the Exposome”
- 9:20 AM **Moderator:** R. Ann Word, MD
Oral Trainee Presentations:
- 9:20 AM **Best Basic Science Abstract:** Nathan Hirshman, BS, Duke University
“Symptoms of Diabetic Bladder Dysfunction may be Explained by Specific NLRP3-induced Changes in Bladder Afferent Nerves”
- 9:35 AM **Best Clinical Science Abstract:** Leonid I Aksenov, BS, Duke University
“Analgesic Prescribing Patterns in Emergency Departments for Acute Symptomatic Urinary Stone Disease, 2006-2014”
- 9:50 AM **Poster Session-1 (odd numbered posters)** and Refreshments
- 10:45 AM **Moderators:** Evan Carlos, MD and Ashley Wietsma, MD
Panel Discussion: From Molecules to the Masses: Emerging Evidence on Oxidative Stress and Urinary Stone Disease
Panelists: David Goldfarb, MD, Nephrology, NYU.
Dietary and Environmental Exposures
Tanecia Mitchell, PhD, Urology, University of Alabama.
Molecular Mechanisms
Jonathan Routh, MD, Pediatric Urology, Duke Univ.
Clinical and Economic Impact
Charles D. Scales Jr., MD, Urology, Duke University. *Epidemiology*
Greg Tasian, MD, MSc, MSCE, Urology, University of Pennsylvania
- 11:45 PM **Lunch with the Experts**
- 12:45 PM **Poster Session-2 (even numbered posters)**
- 1:40 PM **Moderator:** Claire Wiley, VMD
Keynote Speaker: Sheela Sathyanarayana, MD, MPH, University of Washington
“Environmental Endocrine Disrupting Chemicals and Sex Specific Genitourinary Development”
- 2:20 PM **Moderators:** Benjamin Harris, MD and Kelly Acharya, MD
Panel Discussion: Genitourinary Development and Disease
Role of Environmental Exposures and Lifestyle
Panelists: Emily S. Barrett, PhD, Epidemiology, Rutgers School of Public Health
Susan K. Murphy, PhD, Ob/Gyn, Duke University
Heather Patisaul, PhD, Neuroscience, Endocrinology, & Toxicology, NCSU
Sheela Sathyanarayana, MD, MPH, Pediatrics, University of Washington
- 3:20 PM **Presentation of Trainee Awards**, Matthew O. Fraser, PhD
- 3:25 PM **Conclusions**

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This conference is supported by grant K12DK100024 from the NIDDK
Duke Multidisciplinary **K12 Urologic Research Career Development Program (KURe)**

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Distinguished Judges**Oral Presentation Awards:**

KURe Advisory Board

Poster Presentation Awards:

David Goldfarb, MD
Tanecia Mitchell, PhD
Jonathan Routh, MD
Charles D. Scales, Jr., MD
Greg Tasian, MD, MSc, MSCE
Emily S. Barrett, PhD
Susan K. Murphy, PhD
Heather Patisaul, PhD
Sheela Sathyanarayana, MD, MPH

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Trainee Oral Presentation: Best Basic Science Abstract (O-1)

Symptoms of diabetic bladder dysfunction may be explained by specific NLRP3-induced changes in bladder afferent nerves.

Nathan, Hirshman, Francis M. Hughes, Jr, Huixia Jin, J. Todd Purves
Duke University Medical Center, Urology, Durham, NC

Research Area: Bladder Inflammation, Diabetes, Neurourology

Trainee Oral Presentation: Best Clinical Science Abstract (O-2)

Analgesic Prescribing Patterns in Emergency Departments for Acute Symptomatic Urinary Stone Disease, 2006-2014

Aksenov, Leonid I^{1,2}; Wietsma, Ashley C^{1,2}; Lipkin, Michael E¹; Routh, Jonathan C¹; Preminger, Glenn M¹; Scales Jr., Charles D^{1,2}.

¹Duke University School of Medicine, Division of Urologic Surgery, Durham, NC

²Duke Clinical Research Institute, Durham, NC

Research Area: Health Sciences Research, Nephrolithiasis

P# odd is presented in the AM-session; P# even is presented in the PM session

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Dangerous Temperatures can be Generated During Ureteroscopic Holmium Laser Lithotripsy, an *in vitro* Assessment

Li, Jingqiu¹, Wollin, Daniel A.², Carlos, Evan C.², Winship, Brenton B.², Tom, Westin R.³, Simmons, Walter N.⁴, Preminger, Glenn M.², Lipkin, Michael E.²

1. Duke-NUS Medical School, Singapore
2. Division of Urology, Duke University Medical Center, Durham, NC
3. Duke University School of Medicine, Durham, NC
4. Department of Mechanical Engineering and Material Science, Duke University, Durham, NC

Research Area: Nephrolithiasis

Trainee (P-2)

Components of Urinary Stones Activate the NLRP3 Inflammasome in Bladder Urothelium

Leidig, Patrick D., Hughes, Francis M., Purves, JT
Duke University, Department of Surgery, Division of Urology, Durham, NC

Research Area: Bladder Inflammation, Nephrolithiasis

Trainee (P-3)

Nationwide Readmission Rates Following Percutaneous Nephrolithotomy: Does Age Matter?

Ashley C. Wietsma¹, Ruiyang Jiang¹, Muhammad H. Alkazemi², Steven Wolf³, Gina-Maria Pomann³, Michael E. Lipkin¹, Charles D. Scales, Jr¹, and Jonathan C. Routh¹

¹Duke University Medical Center, Division of Urology, Durham, NC

²Duke University, School of Medicine, Durham, NC

³Duke University Medical Center, Department of Biostatistics and Bioinformatics, Durham, NC

Research Area: Nephrolithiasis

Trainee (P-4)

Development of A Predictive Model to Estimate Success Rates of Conservative Dietary Management on 24-hour Urinary pH in Stone Formers

Daniel A Wollin¹, Leah G Davis¹, Brenton Winship¹, Evan Carlos¹, Westin R Tom², John Asplin³, Charles D Scales Jr¹, Michael N Ferrandino¹, Michael E Lipkin¹, Glenn M Preminger¹

1: Duke University, Division of Urology, Durham, NC. 2: Duke University School of Medicine, Durham, NC. 3: University of Chicago, Section of Nephrology, Chicago, IL

Research Area: Nephrolithiasis

Trainee (P-5)

Artificial Neural Network System to Predict the Postoperative Outcome of Percutaneous Nephrolithotomy

Aminsharifi A,^{1,2,3} Irani D¹, Pooyesh S³, Parvin H³

¹ Duke cancer institute, Division of Urology, Durham, NC. ²Department of Urology, Shiraz University of Medical Sciences, Shiraz Iran

³Department of Computer Engineering, Shiraz University, Shiraz, Iran

Research Area: Nephrolithiasis

Trainee (P-6)

Moses and the Stone: *In vitro* Comparison of a Novel Laser Technology to Existing Pulse Settings in a “Stone Dusting” Model.

Carlos, Evan C; Winship, Brenton B; Wollin, Daniel A; Li, Jingqiu; Peters, Chloe E; Simmons, W Neal; Ferrandino, Michael N; Scales, Charles D; Preminger, Glenn M; Lipkin, Michael E
Duke University, Urology, Durham, NC

Research Area: Nephrolithiasis

Trainee (P-7)

The Outpatient Burden of Kidney Stones in the United States, 2008–2015

Aksenov, Leonid I^{1,2}; Wietsma, Ashley C^{1,2}; Winship, Brenton B¹; Wollin, Daniel A¹; Lipkin, Michael E¹; Routh, Jonathan C¹; Preminger, Glenn M¹; Scales Jr., Charles D^{1,2}.

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Research Area: Health Sciences Research, Nephrolithiasis

Trainee (P-8)

(O-2)

Analgesic Prescribing Patterns in Emergency Departments for Acute Symptomatic Urinary Stone Disease, 2006-2014

Aksenov, Leonid I^{1,2}; Wietsma, Ashley C^{1,2}; Lipkin, Michael E¹; Routh, Jonathan C¹; Preminger, Glenn M¹; Scales Jr., Charles D^{1,2}.

¹Duke University School of Medicine, Division of Urologic Surgery, Durham, NC

²Duke Clinical Research Institute, Durham, NC

Research Area: Health Sciences Research, Nephrolithiasis

Trainee (P-9)

Psychiatric Diagnoses and Other Factors Associated with Emergency Department Return Within 30 Days of Ureteroscopy

Carlos, Evan C. & Peters, Chloe E.; Winship, Brenton B.; Wollin, Daniel A.; Davis, Leah G.; Li Jingqiu; Scales, Charles D.; Preminger, Glenn M.; Lipkin, Michael E.

Duke University, Urology, Durham, NC

Research Area: Clinical Outcomes Research, Nephrolithiasis

Trainee (P-10)

Neuromodulation Evokes Distinct Sympathetic Mechanisms Following Cyclophosphamide-Induced Cystitis

Gonzalez, Eric J and Grill, Warren M.

Duke University, Department of Biomedical Engineering, Durham, NC

Research Area: Bladder Inflammation, Interstitial Cystitis/Painful Bladder Syndrome (IC/PBS), Neurourology

(P-11)

Pharmacological Inhibition of the NLRP3 Inflammasome Prevents Bladder Decompensation in a Rat Model of Chronic Bladder Outlet Obstruction

Francis M. Hughes, Jr., Stephanie J. Sexton, Patrick D. Leidig, Huixia Jin, J. Todd Purves
Division of Urology, Department of Surgery, Duke University Medical Center, Durham, NC

Research Area: Bladder Inflammation, Bladder Outlet Obstruction, Urodynamics

(P-12)

NLRP3 inflammasome mediated inflammation and denervation are critical processes in the development of diabetic bladder dysfunction

Hughes, Jr., Francis M.; Inouye, Brian M.; Stanton, Eloise W.; Yun, Chloe E.; Jin, Huixia; Purves, J Todd

Duke University Medical Center, Durham, NC

Research Area: Bladder Inflammation, Diabetes

Trainee (P-13)

Cyclophosphamide induced cystitis results in inflammation and disruption of the blood brain barrier in the hippocampus.

Hirshman, Nathan; Hughes, Francis M.; Jin, Huixia; Purves, J. Todd

Duke University Medical Center, Urology, Durham, NC

Research Area: Bladder Inflammation, Neurourology

Trainee (P-14)

(O-1)

Symptoms of diabetic bladder dysfunction may be explained by specific NLRP3-induced changes in bladder afferent nerves.

Authors: *Nathan, Hirshman, Francis M. Hughes, Jr, Huixia Jin, J. Todd Purves*

Affiliations: *Duke University Medical Center, Urology, Durham, NC*

Research Area: Bladder Inflammation, Diabetes, Neurourology

(P-15)

Voiding Behavior in Awake Unrestrained Untethered Spontaneously Hypertensive and Control Rats

CL Langdale¹, JA Hokanson¹, A. Sridhar⁵, P. Milliken⁵, WM Grill^{1,2,3,4}

Departments of Biomedical Engineering¹, Electrical and Computer Engineering², Neurobiology³, and Neurosurgery⁴ Duke University, Durham, NC;

Bioelectronics R&D⁵ Galvani Bioelectronics, Stevenage, UK

Research Area: Overactive Bladder (OAB)

Trainee (P-16)

Role of Beta-3 Adrenergic Receptor Polymorphism in Severity of Overactive Bladder

Meekins, A Rebecca; Bradley, Megan; Wu, Jennifer*; Amundsen, Cindy L; Murphy, Susan K; Siddiqui, Nazema Y

Duke University Medical Center, Durham, NC; *UNC Medical Center, Chapel Hill, NC

Research Area: Overactive Bladder (OAB)

Trainee (P-17)

State-Dependent Pudendal Nerve Stimulation to Increase Bladder Capacity and Voiding Efficiency in Cats

Hokanson, James A; Langdale, Christopher L.; Milliken, Phil; Sridhar, Arun; Grill, Warren M.

Duke University, Department of Biomedical Engineering, Durham, NC

Research Area: Overactive Bladder (OAB)

Trainee (P-18)

Lower urinary tract symptoms in pediatric patients with and without diabetes

Kelly, Maryellen S^a, Routh, Jonathan C^a, Gerber, Leah^{a,b}, Purves, J Todd^a, Wiener, John S^a, Maciejewski, Matthew L^{c,d}

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^b Duke University Medical Center, Duke Cancer Center Biostatistics, Durham, NC, USA

^c HSR&D Center of Excellence, Durham VA Medical Center, Durham, NC, USA

^d Department of Population Health Sciences, Duke University Medical Center, Durham, NC, USA

Research Area: Diabetes, Pediatric Urology, Voiding Dysfunction/Urinary Retention

Trainee (P-19)

Evaluation of Host Immune Cellular and Extracellular Matrix Responses to Sacrocolpopexy Mesh With and Without Tension

Bickhaus, Jennifer A¹, Fraser, Matthew O², Weidner, Alison C¹, Jayes, Friederike L¹, Amundsen, Cindy L¹, Gall, Ken³, Marini Frank C⁴, Robboy, Stanely J⁵, Siddiqui, Nazema Y¹

¹Duke University, Obstetrics and Gynecology, Durham, NC; ²Duke University, Surgery, Durham, NC;

³Duke University, Mechanical Engineering and Materials Science, Durham, NC; ⁴Wake Forest University, Wake Forest Institute for Regenerative Medicine, Winston-Salem, NC, ⁵Duke University, Pathology, Durham, NC

Research Area: Female Pelvic Medicine

Trainee (P-20)

Polycarbonate Urethane Mesh: A New Material for Pelvic Reconstruction

Bickhaus, Jennifer A¹, Fraser, Matthew O², Weidner, Alison C¹, Jayes, Friederike L¹, Amundsen, Cindy L¹, Gall, Ken³, Miller, Andrew T³, Marini, Frank C⁴, Robboy, Stanely J⁵, Siddiqui, Nazema Y¹

¹Duke University, Obstetrics and Gynecology, Durham, NC; ²Duke University, Surgery, Durham, NC;

³Duke University, Mechanical Engineering and Materials Science, Durham, NC; ⁴Wake Forest University, Wake Forest Institute for Regenerative Medicine, Winston-Salem, NC, ⁵Duke University, Pathology, Durham, NC

Research Area: Female Pelvic Medicine

Trainee (P-21)

Moving on: How many women opt for surgery after pessary use for prolapse?

Patnam, R; Sripad, AA; Dengler, E; Geller, EJ and Wu, JM

University of North Carolina, Department of Obstetrics and Gynecology, Division of Urogynecology and Reconstructive Pelvic Surgery, Chapel Hill, NC.

Research Area: Female Pelvic Medicine

Trainee (P-22)

Pelvic Prolapse and Sexual Function Following Cystectomy in Females

Authors: Voigt, Marcia R.; Hemal, Kshipra; Goodwin, Alexandra I.; Zambon, Joao; Matthews, Catherine A.

Affiliations: Wake Forest Baptist Health, Department of Urology

Research Area: Female Pelvic Medicine, Interstitial Cystitis/Painful Bladder Syndrome (IC/PBS), Sexual Dysfunction, Urinary Reconstruction

Trainee (P-23)

Regulation of Conjugative Transfer of β -lactam Resistance from Uropathogenic Strains of *Escherichia coli*

Sysoeva, Tatyana A; Kim, You Lim; Rodriguez, Jonathan; You, Lingchong

Duke University, Department of Biomedical Engineering, Durham, NC

Research Area: Infections of the Urinary Tract

Trainee (P-24)

TESTICULAR GERM CELL TUMORS FORM IN MICE WITH *TER* MUTATION OF DND1 DUE TO DISRUPTION OF MALE FATE SPECIFICATION PATHWAYVictor A. Ruthig¹, Jason A. Garness¹, Corey Bunce¹, Tetsuhiro Yokonishi¹, Jordan S. Batchvarov¹, Matthew B. Friedersdorf², Jack D. Keene² and Blanche Capel¹¹Department of Cell Biology, ²Department of Molecular Genetics and Microbiology, Duke University Medical Center**RESEARCH AREA:** -Omics (Transcriptomics)

Trainee (P-25)

Prenatal Sulforaphane Supplementation Rescues Pollutant-Induced Hypospadias via Nrf-2 in Mice.Amato, Ciro M.; Marella, Sahiti; Fricke, Ariel; and McCoy Krista A.M.
East Carolina University, Department of Biology, Greenville, NC**Research Area:** Congenital Urogenital Anomalies, Embryology, Pediatric Urology, Toxicology

Trainee (P-26)

Effect of Intratesticular Hematoma on Testis Microstructure, Spermatogenesis and Testosterone production: Defining a Cut-off point for Significant Intratesticular HematomaAminsharifi A^{*1,2}, Monsef A¹, Noorafshan A³, Doust S³¹ Division of Urology, Duke Cancer Institute, Durham, NC, USA, ²Department of Urology and³Histomorphometry and Stereology Research Center Shiraz University of Medical Sciences, Shiraz, Iran**Research Area:** Nephrolithiasis

Trainee (P-27)

Phthalate Induced Urogenital Abnormalities: Is PPAR α Activation the Mechanism of Action, or not?

Conley, Justin M.*; Lambright, Christy S.*; Evans, Nicola*; Medlock-Kakaley, Elizabeth*; Cardon, Mary*; Wilson, Vickie S.*; Gray, L. Earl*

USEPA/ORD/NHEERL/Toxicity Assessment Division, Research Triangle Park, NC

Research Area: Congenital Urogenital Anomalies, Toxicology

Trainee (P-28)

Pediatric Health State Utilities: Whose Dyad is it Anyway?Alkazemi, M. Hassan¹, Tejawani, Rohit², Nicholl, Leigh³, Pomann, Gina-Maria³, Routh, Jonathan C.²
Duke University, School of Medicine, Durham, NC

Duke University Medical Center, Division of Urology, Department of Surgery, Durham, NC

Duke University Medical Center, Department of Biostatistics, Durham, NC

Research Area: Health Sciences Research

Trainee (P-29)

Quality of Life of a Difference of Sex Development and Timing of InterventionAlkazemi, M. Hassan¹, Nicholl, Leigh², Wietsma, Ashley³, Wolf, Steven², Pomann, Gina-Maria², Meglin, Diane⁴, Adkins, Deanna⁵, Routh, Jonathan C.³**Research Area:** Congenital Urogenital Anomalies

Trainee (P-30)**Crowd-sourcing Parental Preference Assessments for Vesicoureteral Reflux: Multiprofile Case Best-Worst Scaling**Dionise, Zachary R.¹, Garcia-Roig, Michael L.², Kirsch, Andrew J.², Routh, Jonathan C.¹¹ Duke University Medical Center, Division of Urology, Durham, NC² Emory University and Children's Healthcare of Atlanta, Department of Pediatric Urology, Atlanta**Research Area:** Health Sciences Research, Pediatric Urology**Trainee (P-31)****Testosterone Replacement Enhances Internal Pudendal Artery Relaxation to Reverse Erectile Dysfunction in a Rat Model of Androgen Deprivation Therapy****Authors:** Odom, Michael R; Powers, Shelby A; Pak, Elena S; Hannan Johanna L**Affiliation:** Dept. of Physiology, Brody School of Medicine, East Carolina University, Greenville, NC**Research Area:** Sexual Dysfunction**Trainee (P-32)****Pelvic Radiation Decreases Pelvic Ganglia Neuronal Survival Resulting in Genitourinary Smooth Muscle Dysfunction****Authors:** Powers, Shelby A.¹, Odom, Michael R.¹, Pak, Elena S.¹, Moomaw, Megan A.¹, Ashcroft, Kathleen², Koontz, Bridget F.², Hannan, Johanna L.¹**Affiliations:** ¹Brody School of Medicine, East Carolina University, Department of Physiology, Greenville, NC; ²Duke Cancer Institute, Department of Radiation Oncology, Durham, NC**Research Area:** Neurourology, Sexual Dysfunction, Uroradiology**Trainee (P-33)****Androgen Deprivation Therapy Followed by Radical Prostatectomy Markedly Impairs Neuronal Survival in the Major Pelvic Ganglia****McMains, Jennifer C.¹, Jefferson, Frank², Powers, Shelby A.², Odom, Michael R.², Pak, Elena S.², and Hannan, Johanna L.²**¹East Carolina University, College of Health and Human Performance, Greenville, NC; ²Brody School of Medicine, Department of Physiology, Greenville, NC.**Research Area:** Sexual Dysfunction**Trainee (P-34)****Repopulation of the Sertoli Cell Niche in the Adult Testis**

Yokonishi, Tetsuhiro; McKey, Jennifer; Capel, Blanche

Duke University Medical Center, Department of Cell Biology, Durham, NC

Research Area: Infertility**Trainee (P-35)****Genetic Susceptibility to Diethylstilbestrol (DES)-Associated Male Infertility and Testicular Degeneration**Yao, Pei-Li¹, Allard, Nicole E.¹, Cope, Harlie A.¹, Aylor, David L.^{1,2}¹Department of Biological Sciences and Center for Human Health and the Environment, North Carolina State University, Raleigh, NC; ² Bioinformatics Research Center, W.M. Keck Center for Behavioral Biology, and Comparative Medicine Institute, North Carolina State University, Raleigh, NC.**Research Area:** Health Sciences Research; Infertility

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**Emily S Barrett, PhD**

Epidemiology, Rutgers School of Public Health

Dr. Emily Barrett is an Associate Professor in the Rutgers University School of Public Health, Department of Epidemiology as well as an Adjunct Associate Professor of Obstetrics and Gynecology and Public Health Sciences. She received her Ph.D. in Biological Anthropology from Harvard University and was previously a fellow in the University of Rochester's BIRCWH (K12) program on Women's Health and the Environment over the Entire Lifespan (WHEEL). Much of Dr. Barrett's research focuses on prenatal exposure to endocrine disruptors, agents which interfere with the normal activity of hormones in the body. Dr. Barrett and colleagues are studying how prenatal exposure to phthalates, a group endocrine-disrupting plasticizers, impacts children's reproductive and neurodevelopment, and whether the effects may differ in boys and girls. Dr. Barrett also studies how prenatal stress may alter *in utero* androgen activity, thereby affecting sex-dependent development in the offspring. Her most recent work examines the role of the placenta in relation to prenatal exposures and infant health outcomes. Dr. Barrett leads several NIH-funded pregnancy cohort studies and is an editor at Human Reproduction, Fertility and Sterility, and Hormones and Behavior.

**David S. Goldfarb, MD**

Nephrology, New York University

David S. Goldfarb, MD, FACP, FASN, FNKF, is a Professor of Medicine and Physiology at NYU School of Medicine, Interim Chief of Nephrology at NYU, Chief of Nephrology at the NY VAMC and co-director of the Kidney Stone Prevention Program at NYU Langone Medical Center. He graduated from Yale College and Yale School of Medicine a long time ago. He completed his residency training in internal medicine and his nephrology training at NYU/New York VA and is board certified in internal medicine and nephrology. Dr. Goldfarb is the former President of the New York Society of Nephrology and of the ROCK Society (Research on Calculus Kinetics). Currently he is a member of the medical advisory boards of the National Kidney Foundation of Greater New York and of the Oxalosis and Hyperoxaluria Foundation. He teaches renal physiology and pathophysiology at NYU and was voted "The Distinguished Teacher in the Basic Sciences" by 3 classes. He is a former associate editor of the Clinical Journal of the American Society of Nephrology (CJASN), and an editorial board member of Kidney International, CJASN, and Urolithiasis. He serves as the principal investigator of the cystinuria component of the NIH-sponsored Rare Kidney Stone Consortium, and as a member of the board of directors of the International Cystinuria Foundation. He received the "Stone Crusher of the Year" award in 2014 from the Oxalosis and Hyperoxaluria Foundation and the "Nephrologist of the Year" award in 2016 from the American Kidney Fund. He has had three calcium oxalate stones.



Tanecia Mitchell, PhD
Urology, University of Alabama

Tanecia Mitchell, PhD is an Assistant Professor at the University of Alabama at Birmingham (UAB) in the Department of Urology, School of Medicine. Dr. Mitchell earned her PhD from the University of Arkansas for Medical Sciences in Little Rock, AR and continued her training as a T32 postdoctoral fellow at UAB. She subsequently was promoted to a tenure-track faculty position in the UAB Department of Urology. Her scientific career has been devoted to studying mitochondria and oxidative stress in kidney related disorders. Dr. Mitchell's current research is funded by a NIH NIDDK K01 award and focuses on understanding the role of monocytes/macrophages in calcium oxalate kidney stone disease. In particular, her laboratory is evaluating the importance of mitochondria, oxidative stress, and inflammation in stone disease using both experimental models and clinical samples. In addition, she has an ongoing study investigating the role of dietary oxalate on immune response and crystalluria in healthy subjects. Dr. Mitchell is a past recipient of the Society for Redox Biology and Medicine Young Investigator Award and the inaugural awardee of the Dale Benos Scholar Award for kidney related research at UAB. She has published several peer-reviewed articles in journals such as *Redox Biology*, *Free Radical Biology and Medicine*, and *American Journal of Physiology-Renal Physiology*. She continues to serve as a scientific Reviewer for a number of reputable journals including *PLOS One*, *Redox Biology*, and *American Journal of Physiology-Renal Physiology*. Dr. Mitchell is actively involved in a number of scientific societies and networks including the American Physiological Society, the American Society of Nephrology, and the Birmingham Physiology Network.



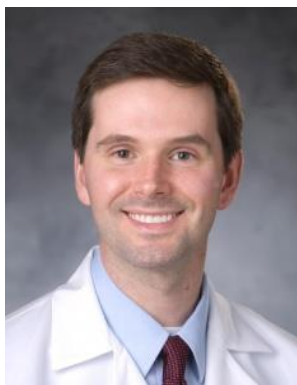
Susan K. Murphy, PhD
OBGYN, Reproductive Sciences, Duke University

Susan K. Murphy earned her Bachelor's degree in Biology from the University of North Carolina at Charlotte and her PhD in Microbiology and Immunology from Wake Forest University. She completed her postdoctoral training at Duke University in the laboratory of Dr. Randy L. Jirtle where she studied epigenetics and identified several novel imprinted genes in humans. In 2003, she joined the faculty in Obstetrics and Gynecology at Duke, in the Division of Gynecologic Oncology where she expanded the ovarian cancer research program and co-led an international study focused on cervical intraepithelial neoplasia. Dr. Murphy also co-founded the Duke Newborn Epigenetics Study (NEST), a longitudinal mother-infant dyad study focused on how the in utero and early life environment impacts the epigenome of the child and health outcomes. Dr. Murphy leads the NICHEs Children's Environmental Health and Disease Prevention Research Center at Duke and the CIPHERS study of the impact of pre-conceptional cannabis use on the sperm epigenome. She was recently appointed as chief of the new Division of Reproductive Sciences in the Department of Obstetrics and Gynecology which brings together the best researchers to innovate in finding the means to improve the lives of women and their families.

**Heather Patisaul, PhD**

Neuroscience, Endocrinology, and Toxicology, NC State University

Dr. Heather Patisaul is a Professor of Biological Sciences at NC State University. Dr. Patisaul received her Ph.D. from Emory University in 2001 and completed postdoctoral work at the Yerkes National Primate Center and the Hamner Institute. She explores the mechanisms by which endocrine disrupting compounds (EDCs) alter neuroendocrine pathways in the brain related to sex specific physiology and behavior. She is specifically interested in how estrogenic compounds, including phytoestrogens, bisphenol a (BPA), and flame retardants impact the sexual differentiation of the neuroendocrine pathways that coordinate reproductive physiology and behavior. Her lab uses a variety of traditional and transgenic rodent models (rats, mice and voles) and employs a suite of neuroanatomical, neurobehavioral, and molecular testing strategies such as RNAseq, qtPCR, in situ hybridization, autoradiography and immunohistochemistry. Dr. Patisaul is a 2007 NIEHS ONES Award recipient and a principle investigator in the CLARITY-BPA program which is a consortium based, multi-investigator approach to assessing the health effects of BPA (bisphenol A) led by NIEHS in collaboration with the NTP, NCTR and the FDA. She has participated on over a dozen national and international expert panels and workshops related to health effects associated with EDCs and other reproductive toxicants including the 2010 World Health Organization Expert Panel on the health risks of Bisphenol A, and the 2012 Workshop on Low Dose Effects of Endocrine Active Chemicals co-organized by the US National Institute for Environmental Health Sciences/NIH and the Joint Research Centre's Institute for Health and Consumer Protection. She was also a member of the National Research Counsel Committee on Incorporating 21st Century Science Into Risk-Based Evaluations, and the chair of the 2016 Gordon Conference on Environmental Endocrine Disruptors. She has published over 65 papers, and coauthored the 2017 book *Endocrine Disruptors, Brain and Behavior*.

**Jonathan Routh, MD**

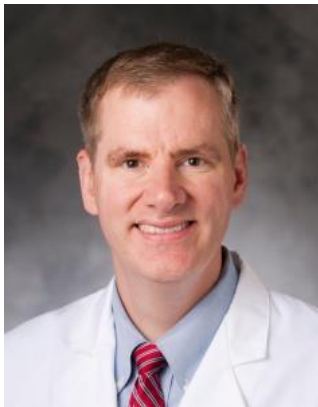
Pediatric Urology, Duke University

Dr. Jonathan Routh is a pediatric urologist and health services researcher at Duke University. A North Carolina native, he graduated from the University of North Carolina at Chapel Hill School of Medicine then completed his urology residency at the Mayo Clinic in Rochester, Minnesota. He completed dual fellowships in pediatric urology at Boston Children's Hospital and pediatric health services research at Harvard Medical School, where he also obtained his MPH from the Harvard School of Public Health. He joined the faculty at Duke in 2011, where he is currently the Paul H. Sherman Endowed Associate Professor of Surgery and Associate Professor in Pediatrics. He leads an active program in pediatric urology health services research, with the goal of making sure that every child with a urologic problem receives the best possible treatment, delivered the best possible way, at the best possible time. His research focuses on children with vesicoureteral reflux, spina bifida, kidney stones, and kidney/bladder cancers such as rhabdomyosarcoma or Wilms' tumor.

**Sheela Sathyanarayana, MD, MPH**

Pediatrics and Environmental Medicine, University of Washington

Dr. Sheela Sathyanarayana is an Associate Professor of Pediatrics and Adjunct Associate Professor of Environmental and Occupational Health Sciences at the University of Washington. She co-directs the US EPA and ATSDR funded University of Washington Pediatric Environmental Health Specialty Unit which provides environmental health based consultations to providers and local/state governmental officials. As a physician scientist, she practices general pediatrics and conducts research focused on endocrine disrupting chemicals, including phthalates and bisphenol A in pregnancy and childhood health outcomes. She has specifically focused on hormone mediated reproductive health outcomes in the perinatal period. She serves as a site PI for The Infant Development and Environment Study, a multi-center cohort study of phthalate exposures in pregnancy and health outcomes in children. In 2013, she was named Outstanding New Investigator within the University of Washington Center for Ecogenetics and Environmental Health. She recently finished serving a 6 year term as chair for the US Environmental Protection Agency's Children's Health Protection Advisory Committee and served on the National Academies of Sciences Committee on Endocrine Disrupting Chemicals and Low Dose Toxicity. She is co-PI of the ECHO PATHWAYS study at the University of Washington and Seattle Children's Research Institute. This study brings together three cohorts at different stages of recruitment/follow-up/analysis. In this manner, it serves as a microcosm for the national ECHO effort to harmonize and prospectively collect data.

**Charles D. Scales Jr., MD**

Urology, Duke University

Dr. Charles Scales is an Associate Professor of Surgery and Vice Chief for Quality Improvement and Patient Safety in the Division of Urologic Surgery at Duke University School of Medicine. He completed medical school and residency training in urology at Duke University Medical Center. After residency, Dr. Scales completed the Robert Wood Johnson Foundation Clinical Scholars Program at UCLA, where he received advanced training in health services research, health policy, and quality of care. Dr. Scales has a strong interest in education, having previously served on the ACGME Review Committee for Urology and as a member of the ACGME Board of Directors. He currently leads a course in quality improvement and data analytics in the Masters of Management in Clinical Informatics program at the Duke University School of Medicine. From the research perspective, Dr. Scales has a longstanding interest in the epidemiology of and patient care for urinary stone disease. Recent studies have redefined the burden of urinary stone disease in the United States, compared the effectiveness of dominant stone removal technologies, and identified new opportunities for improving patient-centered and policy-relevant outcomes, such as unplanned care after procedural interventions. His research and perspective on urinary stone disease has been highlighted in U.S. News & World Report, Reuters, NPR, and the Wall Street Journal, among other media outlets. As a result of these investigations, he has an appointment at the Duke Clinical Research Institute where he leads a diverse health services and clinical research program. He has received research support from the National Institute of Aging, the American Geriatrics Society, and philanthropic funding, among other sources. Currently, Dr. Scales is the Principal Investigator for the Scientific Data and Research Center for the NIDDK Urinary Stone Disease Research Network (U01).

**Greg Tasia, MD, MSc, MSCE**

Urology and Epidemiology, University of Pennsylvania

Gregory Tasia, MD, MSc, MSCE is an Assistant Professor of Urology and Epidemiology and a Senior Scholar in the Center for Clinical Epidemiology and Biostatistics at the University of Pennsylvania Perelman School of Medicine. His clinical practice and research program are based at the Children's Hospital of Philadelphia (CHOP), where he has faculty appointments in the Division of Urology and the Center for Pediatric Clinical Effectiveness. He is a practicing pediatric urologist with a clinical focus on kidney stone disease, and is Surgical Director of the Pediatric Kidney Stone Center at CHOP. His research is devoted to decreasing the lifetime burden of kidney stone disease, with a particular emphasis on clinical trials of interventions to improve health behaviors to decrease kidney stone recurrence, comparative effectiveness of surgical interventions for kidney stones, the environmental epidemiology of nephrolithiasis, and understanding the role of the gut microbiome in kidney stone disease. He also has an active research program in imaging classification and predictors of chronic kidney disease (CKD) progression for children with congenital abnormalities of the kidney and urinary tract.