

Multidisciplinary Benign Urology Research Day

Friday, April 26, 2019

Albert Eye Research Institute Auditorium, Duke University

Duke Multidisciplinary K12 Urologic Research Career Development Program



Friday, April 26, 2019

8:00 AM to 3:30 PM

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

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- 8:30 AM **Welcome and Introductions:** Cindy L Amundsen, MD, KURe PI and PD
- 8:40 AM **Moderator:** Monique Vaughan, MD, Urogynecology, Duke University
Keynote Speaker: John R Kirby, PhD, Medical College Wisconsin
“Xenobiotic Disruption of the Microbiome Alters Host Physiology”
- 9:20 AM **Moderators:** Nazema Siddiqui, MD, MHS, Urogynecology, Duke University
Alexis Dieter, MD, Urogynecology, University of North Carolina
Panel Discussion: “Microbiome Sciences Impact on Urology”
Panelists: A Lenore Ackerman, MD, PhD, Urology, Cedar Sinai Hospital
Lisa Karstens, PhD, Informatics & Epidemiology,
Oregon Health & Science University
John R Kirby, PhD, Microbiology & Immunology, Med. College Wisconsin
Julia A Messina, MD, Medicine, Duke University
Neeraj “Neil” Surana, MD, PhD, Pediatrics, Duke University
- 10:10 AM **Poster Session-1 (odd numbered posters) and Refreshments**
- 11:10 AM **Moderator:** Jennifer Anger, MD, MPH, Cedars Sinai Medical Center
Oral Trainee Presentations:
- 11:10 AM **Best Clinical Science Abstract:** Hsin-Hsiao Scott Wang, MD, Boston Children’s Hosp.
“Selecting Children with VUR who are most likely to Benefit from Antibiotic Prophylaxis: Application of Machine Learning to RIVUR Data”
- 11:25 AM **Best Basic Science Abstract:** Nathan Hirshman, BS, Duke University
“Cyclophosphamide-Induced Cystitis Triggers NLRP3-Dependent Neuroinflammation in the Hippocampus and Depression in Rats”
- 11:40 AM **Best Translational Science Abstract:** Zachary Cullingsworth, BS,
Virginia Commonwealth University
“Acute Dynamic Elasticity Revealed in Individuals with Healthy Bladders but not in Those with Detrusor Overactivity during Urodynamics”
- 12:00 PM **Lunch with the Experts**
- 1:00 PM **Poster Session-2 (even numbered posters) and Refreshments**
- 2:00 PM **Moderator:** Leonid Aksenov, BS, Duke University School of Medicine
Keynote Speaker: Joseph Rigdon, PhD, Stanford University
“Heterogeneous Treatment Effects in Randomized Trials”
- 2:40 PM **Moderators:** Jim Hokanson, PhD, Biomedical Engineering, Duke University
Whitney Hendrickson, MD, Urogynecology, Duke University
Panel Discussion: “Individualizing Urologic Care with Data Science and Predictive Analytics”
Panelists: Benjamin Goldstein, PhD, Biostatistics and Bioinformatics, Duke Univ.
Eric Jelovsek, MD, MMed, Urogynecology, OB-GYN, Duke University
Ann Marie Navar, MD, PhD, Medicine, Duke University
Joseph Rigdon, PhD, Quantitative Sciences Unit, Stanford University
Lisa Wruck, PhD, Duke Clinical Research Institute, Duke University
- 3:30 PM **Presentation of Trainee Awards and Closing Remarks**

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We Thank our Sponsors

Grant K12DK100024 from the NIDDK:
Duke Multidisciplinary **K12 Urologic Research Career Development Program (KURe)**
Pelvic Medicine Research Consortium (PMRC)
Duke Microbiome Center
Department of Biomedical Engineering, Duke University
Department of Obstetrics and Gynecology, Duke University School of Medicine
Department of Surgery, Division of Urology, Duke University School of Medicine

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Patrick C. Seed, MD, PhD
Kevin Weinfurt, PhD
R. Ann Word, MD

Distinguished Judges

Oral Presentation Awards:

KURe Advisory Board

Poster Presentation Awards:

A Lenore Ackerman, MD, PhD
Ben Goldstein, PhD
Joseph Rigdon, PhD
Eric Jelovsek, MD, MMed
Lisa Karstens, PhD
John K. Kirby, PhD
Julia A Messina, MD, MSc
Patrick Seed, MD, PhD
Neeraj "Neil" Surana, MD, PhD
R. Ann Word, MD
Lisa Wruck, PhD

Research Day Organizing Committee

Cindy L. Amundsen, MD (KURe PI and Program Director)
Friederike L. Jayes, DVM, PhD (KURe Program Coordinator)
Cescille Gesher (KURe Administrative Assistant)

Reutericyclin, a specialized metabolite of *Lactobacillus reuteri*, shifts the gut microbiome to abrogate xenobiotic-induced weight gain

John R. Kirby, PhD

Immunology & Microbiology, Medical College of Wisconsin

Heterogeneous Treatment Effects in Randomized Trials

Joseph Rigdon, PhD

Quantitative Sciences Unit, Stanford University

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

Selecting children with VUR who are most likely to benefit from Antibiotic Prophylaxis: Application of Machine Learning to RIVUR Data

Hsin-Hsiao Scott Wang, MD, MPH, MBAn¹, Michael Li, BA², Dimitri Bertsimas, PhD², Carlos Estrada, MD, MBA¹, Caleb Nelson, MD, MPH¹

¹Department of Urology, Boston Children's Hospital, Boston, MA

²Operation Research Center, MIT, Cambridge, MA

Research Area: Pediatric Urology, Predictive Analytics

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

Cyclophosphamide-induced cystitis triggers NLRP3-dependent neuroinflammation in the hippocampus and depression in rats.

Nathan A Hirshman¹, Francis M Hughes Jr¹, Huixia Jin¹, William Harrison², Isabelle Doan¹, Simon W White¹, Shelby Harper¹, and J Todd Purves¹.

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

²Department of Pathology, Duke University Medical Center, Durham, NC

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

Trainee Oral Presentation: Best Translational Science Abstract (O-3)

Acute Dynamic Elasticity Revealed in Individuals with Healthy Bladders but not in Those with Detrusor Overactivity During Urodynamics

Cullingsworth¹, Zachary E; Klausner², Adam P; Nagle¹, Anna S; Speich¹, John E.

1. Virginia Commonwealth University, Department of Mechanical and Nuclear Engineering, Richmond, Virginia; 2. Virginia Commonwealth University, Department of Surgery/Division of Urology, Richmond, Virginia.

Research Area: Therapeutic Development

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

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Trainee (P-1)

Pelvic Radiation Reduces Nerve Mediated Bladder Contractions but Increases External Urethral Sphincter Contractions in Female Rats

Odom, Michael R¹; Burleson, Lindsey K¹; Powers, Shelby A¹; Koontz, Bridget F²; Hannan, Johanna L¹

¹Department of Physiology, Brody School of Medicine, East Carolina University, Greenville, NC.

²Department of Radiation Oncology, Duke University School of Medicine, Durham, NC.

Research Area: Female Pelvic Medicine, Neurourology, Urinary Incontinence, Voiding/Dysfunction/Urinary Retention

Trainee (P-2)

Chronic Monitoring of Voiding Function in a Novel Model of Detrusor Underactivity

Gonzalez, Eric J¹; Odom, Michael R²; Hannan, Johanna L²; Grill, Warren M¹

¹Duke University, Department of Biomedical Engineering, Durham NC

²East Carolina University, Brody School of Medicine, Department of Physiology, Greenville NC

Research Area: Neurourology, Voiding Dysfunction/Urinary Retention

(P-3)

Chronic high fat diet impairs detrusor mitochondrial fatty acid oxidation in male but not female mice

Kosnik, Hanna L.; Fisher-Wellman, Kelsey; Odom, Michael R; Pak, Elena S.; Hannan Johanna L.

Department of Physiology, Brody School of Medicine, East Carolina University, Greenville, NC

Trainee (P-4)

Diabetic bladder dysfunction is associated with bladder inflammation triggered through hyperglycemia not polyuria

Brian M. Inouye¹, Francis M. Hughes, Jr.¹, Huixia Jin¹, Robin Lütolf², Kunal C. Potnis¹, Jonathan C. Routh¹, Douglas Rouse³, Wen-Chi Foo⁴ and J. Todd Purves¹

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

²Department of Health Science and Technology, ETH Zurich, Switzerland

³Division of Laboratory Animal Medicine, Duke University Medical Center, Durham, NC, USA

⁴Department of Pathology, Duke University Medical Center, Durham, NC, USA

Research Area: Bladder Inflammation, Diabetes, Urodynamics

Trainee (P-5)

Phases of Decompensation during Acute Ischemia in an Ex-Vivo Porcine Bladder Model

Swavely¹, Natalie R; Cullingsworth², Zachary E; Nandan¹, Naveen; Speich², John E; Klausner¹, Adam P

1. Department of Surgery/Division of Urology, Virginia Commonwealth University School of Medicine, Richmond, VA; 2. Department of Mechanical Nuclear Engineering, Virginia Commonwealth University School of Engineering, Richmond, VA

Research Area: Overactive Bladder (OAB), Voiding Dysfunction/Urinary Retention, Pelvic Ischemia

Trainee (P-6)

Randomized Controlled Trial to Assess the Impact of High Concentration Intraurethral Lidocaine on Urodynamic Voiding ParametersDana C. McKee¹, Eric J. Gonzalez², Cindy L. Amundsen³¹Department of Obstetrics and Gynecology, Duke University Hospital, Durham NC 27705²Department of Biomedical Engineering, Duke University, Durham NC 27705³Department of Obstetrics and Gynecology, Division of Female Pelvic Medicine and Reconstructive Surgery, Duke University Hospital, Durham, NC 27705**Research Area:** Female Pelvic Medicine, Health Sciences Research, Neurourology, Urodynamics, Voiding Dysfunction/Urinary Retention

Trainee (P-7)

Striking Differences in the Effects of β 3-Adrenoceptor Agonists and Antimuscarinics on Bladder Filling/Voiding Function in Chronic Spinal Cord Injured Rats

Bradley A. Potts, Danielle J. Degoski, Jillene M. Brooks, Matthew O. Fraser

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

Durham Veteran's Affairs Medical Center, Durham, NC

Research Area: Neurourology, Overactive Bladder (OAB), Urodynamics

Trainee (P-8)

Barrington's Reflexes Revisited: Proximal Urethral Electrostimulation Causes Remarkable Excitatory Bladder Response in Spinal Cord Intact Rats

Bradley A. Potts, Matthew O. Fraser

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

Durham Veteran's Affairs Medical Center, Durham, NC

Research Area: Neurourology, Urodynamics, Voiding Dysfunction/Urinary Retention

Trainee (P-9)

Duration of Diabetes: a Predictor of Severe Lower Urinary Tract Symptoms in American Adults

Bali, Aman S; Davis, Leah G; Routh, Jonathan C; Purves, JT; Scales, Charles D

Duke University School of Medicine, Department of Surgery, Division of Urology

Duke Clinical Research Institute

Research Area: Diabetes, Overactive Bladder (OAB), Urinary Incontinence

(P-10)

Stimulation of the Pudendal Sensory Nerve Alters Voiding Behavior in Conscious Unrestrained Wistar RatsCL Langdale¹, JA Hokanson¹, D Degoski¹, 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:** Neurourology, Overactive Bladder (OAB), Urodynamics, Voiding Dysfunction/Urinary Retention

Trainee (P-11)

Determinates of Muscle Precursor Cell Therapy Efficacy in a Nonhuman Primate Model of Intrinsic Urinary Sphincter Deficiency

Bennington, Julie R; Williams, J Koudy; Dean, Ashley; Lankford, Shannon; Criswell, Tracy; Badlani, Gopal; Andersson, Karl-Erik

Wake Forest University School of Medicine, Wake Forest Institute for Regenerative Medicine, Winston-Salem, NC 27101

Research Area: Cell Therapy, Urinary Incontinence

Trainee (P-12)

Lower urinary tract symptoms referrals to a pediatric urology clinic

Maryellen S Kelly, DNP

Duke University, Department of Surgery, Division of Urology, Durham, NC, USA

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

Trainee (P-13)

Intraurethral Stimulation: A Possible Way To Increase Urethral Pressures And Prevent Urgency Incontinence EpisodesHokanson, James A¹; Grill, Warren M¹; Amundsen, Cindy L²Duke University, Biomedical Engineering¹ and Obstetrics and Gynecology², Durham, NC**Research Area:** Female Pelvic Medicine, Overactive Bladder (OAB), Urinary Incontinence

Trainee (P-14)

Acute Ozone Exposure Increases Bladder Pro-Inflammatory Cytokines and Mitochondrial Respiration in Female MiceLaura White¹, Elena Pak¹, Myles Hodge², Sky Reece², Elizabeth Browder², Kymberly Gowdy², and Johanna Hannan¹Department of Physiology, Brody School of Medicine, East Carolina University¹Department of Pharmacology & Toxicology, Brody School of Medicine, East Carolina University²**Research Area:** Bladder Inflammation

Trainee (P-15)

Calcium Pyrophosphate and Monosodium Urate Activate the NLRP3 Inflammasome within Bladder Urothelium via Reactive Oxygen Species and TXNIP

Harper, Shelby N; Hughes Jr, Francis M; Leidig, Patrick D; Jin, H, Purves, J Todd

Div. Urology, Dept. Surgery, Duke University Medical Center, Durham, NC

Research Area: Bladder Inflammation

Trainee (P-16)
(O-1)

Cyclophosphamide-induced cystitis triggers NLRP3–dependent neuroinflammation in the hippocampus and depression in rats.

Nathan A Hirshman¹, Francis M Hughes Jr¹, Huixia Jin¹, William Harrison², Isabelle Doan¹, Simon W White¹, Shelby Harper¹, and J Todd Purves¹.

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

²Department of Pathology, Duke University Medical Center, Durham, NC

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

(P-17)

NLRP3/II-1 β Mediates Changes in Urothelial Muscarinic Receptors M2 and M3 during Bladder Outlet Obstruction in RatsHughes, Francis M; White, Simon W; Jett, David A; Pines, Sophia I; Tolbert, Sierra N; Jin, Huixia, Purves, J. ToddDiv. Urology, Dept. Surgery, Duke University Medical Center, Durham, NCR**Research Area:** Bladder Inflammation, Bladder Outlet Obstruction

Trainee (P-18)

Alpha-hemolysin mediated UPEC persistence in the epithelium of bladder. Choi, Hae Woong¹; Parekh, Viraj P²; and Abraham, Soman N^{1, 3, 4, 5}.

¹Department of Pathology, ²Department of Biochemistry, ³Department of Immunology, ⁴Department of Molecular Genetics and Microbiology, Duke University Medical Center, Durham, North Carolina, 27710, USA, ⁵Program in Emerging Infectious Diseases, Duke-National University of Singapore, Singapore 169857, Singapore.

Research Area: Infections of the Urinary Tract

Trainee (P-19)

Cellular Adaptive Immune Response in Bladder is Directed at Epithelium Repair rather than Bacteria Clearance

Wu, Jianxuan¹; Macias, Gustavo S.²; Phoenix, Cassandra³; Abraham, Soman N^{1,4,5}

1. Department of Immunology, Duke University, Durham, North Carolina.

2. Undergraduate School, Duke University, Durham, North Carolina.

3. North Carolina School of Science and Mathematics, Durham, North Carolina.

4. Department of Molecular Genetics & Microbiology, Duke University, Durham, North Carolina.

5. Department of Pathology, Duke University, Durham, North Carolina.

Research Area: Infections of the Urinary Tract

Trainee (P-20)

Urine from the Patients with Vesicoureteral Reflux Reveals Changes in Host and Bacterial Metabolism after Urinary Tract Infection

Vitko, Dijana,¹ Hasegawa, Kohei,^{1,2} McQuaid, Joseph W. ⁴ Davis, Kylie H. ¹ Leary, Maggie R. ¹ DiMartino, Shannon E. ¹ Mansbach, Jonathan M. ⁴ Lee, Richard S. ¹

¹ Boston Children's Hospital, Department of Urology, Boston, MA

² Massachusetts General Hospital, Department of Emergency Medicine, Boston, MA

³ Boston Children's Hospital Department of Medicine, Boston, MA

⁴ University of Massachusetts Medical School, Department of Urology, Worcester, MA

Research Area: Bladder Inflammation, Infections of the Urinary Tract

Trainee (P-21)

Cost Effectiveness of Selective Compared to Universal Urine Screening Protocol Prior to Urogynecologic SurgeryHendrickson-Cahill, Whitney K¹; Havrilesky, Laura²; Siddiqui, Nazema¹¹ Duke University Health System, Department of OBGYN, Division of Urogynecology, Durham, NC² Duke University Health System Department of OBGYN, Division of Gynecologic Oncology Durham, NC**Research Area:** Clinical Outcomes Research, Female Pelvic Medicine, Infections of the Urinary Tract, Quality Improvement

Trainee (P-22)

Hyperinnervation and Loss of Bladder Control during Recurrent Urinary Tract InfectionHayes, Byron W¹; Choi, Hae Woong¹; Purves, J Todd^{2,3}; Hughes Jr, Francis M^{2,3}; Abraham, Soman N^{1,4,5,6}¹Duke University Medical Center, Department of Pathology, Durham, NC²Clemson University Department of Bioengineering, Clemson, SC³Duke University Medical Center, Division of Urology, Durham, NC⁴Duke University Medical Center, Department of Immunology, Durham, NC⁵Duke University Medical Center, Molecular Genetics and Microbiology, Durham, NC⁶Duke-National University of Singapore, Program in Emerging Infectious Diseases, Singapore, Singapore**Research Area:** Infections of the Urinary Tract, Urodynamics

(P-23)

Composition of the Urinary Microbiome in ChildrenKelly, Maryellen S., DNP^a, Sysoeva, Tatyana A., PhD^b^a Division of Urology, Department of Surgery, Duke University Medical Center, Durham, NC, USA^b Department of Biological Sciences, University of Alabama in Huntsville, Huntsville, AL, USA**Research Area:** Congenital Urogenital Anomalies, Infections of the Urinary Tract, Microbiome, Pediatric Urology

(P-24)

Comparison of DNA extraction kits in compositional analyses of urinary microbiomeSysoeva, Tatyana A¹, Siddiqui, Nazema Y², Amundsen, Cindy L², Karstens, Lisa³¹Department of Biological Sciences, University of Alabama in Huntsville, Huntsville, AL²Department of Obstetrics & Gynecology, Division of Urogynecology and Reconstructive Pelvic Surgery, Duke University Medical Center, Durham, NC³Division of Urogynecology, Oregon Health & Science University, Portland, OR**Research Area:** Microbiome

Trainee (P-25)

ACCEPT (Assessing Colonization vs. Clearance aftEr Probiotic instillation) – Bio-K Plus Probiotic Validation Study

Romanoff Emily L., Huang Zhiqing, Feng Liping, and Siddiqui Nazema.

Duke University School of Medicine, Department of Urogynecology, Durham, NC.

Research Area: Infections of the Urinary Tract, Microbiome, Therapeutic Development

Trainee (P-26)**Evaluation of the Urinary Microbiome in Women with Recurrent Urinary Tract Infections**Vaughan, Monique H.¹; Amundsen, Cindy L.¹; Hazen, Kevin ²; Siddiqui, Nazema Y.¹¹ Duke University Health System, Department of Obstetrics and Gynecology, Durham, NC² Duke University Health System, Department of Pathology, Durham, NC**Research Area:** Female Pelvic Medicine, Infections of the Urinary Tract, Microbiome**Trainee (P-27)****Neurogenic Bowel Treatments & Continence Outcomes in Children and Adults with Myelomeningocele**Maryellen S. Kelly DNP, CPNP¹, John S. Wiener MD¹, Tiebin Liu PhD², Priya Patel MPH³, Heidi Castillo MD⁴, Jonathan Castillo MD, MPH⁴, Brad E. Dicianno MD⁵, Joan Jasien MD⁶, Paula Peterson CPNP⁷, Jonathan C. Routh MD, MPH¹, Kathleen Sawin PhD, CPNP⁸, Eileen Sherburne PhD, ACNS⁸, Kathryn Smith PhD, RN⁹, Asma Taha PhD, CPNP¹⁰, Gordon Worley MD⁶, and the National Spina Bifida Patient Registry¹Division of Urology, Department of Surgery, Duke University, Durham, NC USA²National Center on Birth Defects and Developmental Disabilities, Centers for Disease Control and Prevention, Atlanta, GA USA³Oak Ridge Institute for Science and Education (ORISE), Oak Ridge, TN, USA⁴Department of Pediatrics, Baylor College of Medicine, Houston, TX USA⁵Department of Physical Medicine & Rehabilitation, University of Pittsburgh School of Medicine, Pittsburgh, PA USA⁶Division of Pediatric Neurology, Department of Pediatrics, Duke University, Durham, NC USA⁷Department of Pediatrics, University of Utah, Salt Lake City, UT USA⁸Department of Nursing Research, Children's Hospital of Wisconsin, USA and Self-management Science Center, College of Nursing, University of Wisconsin-Milwaukee, Milwaukee, WI USA⁹Department of Pediatrics, Keck School of Medicine, Los Angeles, CA USA¹⁰Doernbecher Children's Hospital & School of Nursing, Oregon Health Sciences University, Portland, OR USA**Research Area:** Clinical Outcomes Research, Pediatric Urology**Trainee (P-28)****Machine Learning Algorithm Predicting High-grade VUR Using Features From UTD Classification in Children with Prenatal Hydronephrosis**Hsin-Hsiao Scott Wang, MD, MPH, MBAn¹, Michael Li, BA², Tanya Logvinenko, PhD¹, Jeanne Chow, MD¹, Caleb Nelson, MD, MPH¹¹Department of Urology, Boston Children's Hospital, Boston, MA²Operation Research Center, MIT, Cambridge, MA**Research Area:** Pediatric Urology, Predictive Analytics

Trainee (P-29)

Diabetic Uropathy as a Predictor of Medical Visits for Lower Urinary Tract Symptoms: a Population-Based Analysis

Maryellen Kelly, DNP¹, Leah Gerber, MS¹, J. Todd Purves, MD, PhD¹, Matthew L. Maciejewski, PhD^{2,3}, Charles D. Scales, Jr, MD, MSHS^{1,2}, Jonathan C. Routh, MD, MPH¹

¹ Division of Urology, Duke University School of Medicine, Durham, NC

² Department of Population Health, Duke University School of Medicine, Durham, NC

³ VA HSR&D Center of Innovation, Durham, NC

Research Area: Clinical Outcomes Research, Diabetes, Health Sciences Research, Overactive Bladder (OAB), Urinary Incontinence, Voiding Dysfunction/Urinary Retention

Trainee (P-30)

The Impact Of Alternative Alkalinizing Agents On 24-Hour Urine Collection Parameters

Boydston, Kohldon; Winship, Brenton; Terry, Russell; Davis, Leah; Yttri, Sarah; Scales, Charles; Lipkin, Michael; Preminger, Glenn

Division of Urology, Duke University, Durham, NC

Research Area: Nephrolithiasis

Trainee (P-31)

Dietary Risk Factors for Pediatric Kidney Stones

Hsin-Hsiao Scott Wang, MD, MPH, MBAn, Clement Bottino, MD, MPH, Erinn Rhodes, MD, MPH, Eric Fleegler, MD, MPH, Barley G. Cilento, Jr, MD, MPH, Michael P. Kurtz, MD, MPH, Michelle Baum, MD, Caleb Nelson, MD, MPH

Department of Urology, Boston Children's Hospital, Boston, MA

Research Area: Nephrolithiasis, Pediatric Urology

Trainee (P-32)

Expression of the RNA-Binding Protein Dead End 1 (DND1) is Negatively Correlated with Female and Male Germ Cell Meiotic Entry Victor A. Ruthig¹, Matthew B. Friedersdorf², Jack D. Keene² and Blanche Capel¹ ¹Department of Cell Biology, ²Department of Molecular Genetics and Microbiology, Duke University Medical Center

Research Area: Embryology, Infertility, "Omics" Related Research

Trainee (P-33)

The Impact of Variable Pulse Parameters on the Efficiency of Stone Ablation in a "Popcorn" Laser Lithotripsy Model

Terry, Russell S; Winship, Brenton B; Boydston, Kohldon; Carlos, Evan C; Preminger, Glenn M; Lipkin, Michael E

Division of Urology, Duke University Medical Center

Research Area: Nephrolithiasis

Trainee (P-34)

Evaluating Body Image and Sexual Function Following Simple versus Radical Cystectomy in Women

Kshipra Hemal, Julia Rushing, Marcia Voigt, Alexandra I Goodwin, Joao P Zambon, Gopal Badlani, Catherine Matthews

Urogynecology, Wake Forest School of Medicine

Research Area: Clinical Outcomes Research, Female Pelvic Medicine, Interstitial Cystitis/Painful Bladder Syndrome (IC/PBS), Quality Improvement, Sexual Dysfunction

Trainee (P-35)

Infection Rates of Patients on Oral Antibiotics Following Penile Prosthesis Salvage: A Single Surgeon Experience

Jason Chandrapal MD, Shelby Harper, Leah Davis MS, Aaron Lentz, MD

Division of Urology, Duke University, Durham NC

Research Area: Sexual Dysfunction

Trainee (P-36)

Biodistribution and Toxicity of Gold Nanoparticle-Based Photo and Immunotherapy

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**A Lenore Ackerman, MD, PhD**

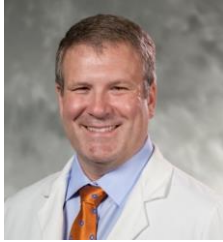
Surgery-Urology, Cedars-Sinai

Dr. A. Lenore Ackerman was born in Los Angeles, CA, but grew up in cities throughout the U.S. She settled in New Haven, CT, where she earned a degree in Molecular Biophysics and Biochemistry at Yale University. She continued at Yale to complete a Ph.D. in Immunology, focusing on the mechanisms of antigen presentation in dendritic cells and on the mechanisms by which the immune system generates immunity to tissue-specific viruses and transplants. After realizing a desire to pursue translational medicine, she joined the Medical Scientist Training Program at Yale, receiving an M.D. degree. She then continued on to a residency in Urology at the University of California, Los Angeles. During residency, she discovered an interest in female pelvic medicine and a desire to help advance the treatment of these impactful, yet poorly understood conditions. During residency, she focused her research efforts on exploring the central nervous system changes in an animal model of interstitial cystitis induced by psychological stress under the guidance of Dr. Larissa Rodriguez. After completing of residency, she proceeded to a fellowship in Pelvic Medicine and Reconstructive Surgery at UCLA under the tutelage of Dr. Shlomo Raz, where she began research into the roles of infection and inflammation in lower urinary tract dysfunction. She recently joined the faculty at Cedars-Sinai Medical Center, where she combines clinical practice with a busy research lab. Her research projects continue to explore benign urologic conditions, such as overactive bladder and interstitial cystitis, examining the role of changes in the urinary tract microbiota and genitourinary inflammation in the pathophysiology of these benign lower urinary tract diseases.

**Ben Goldstein, PhD, MPH**

Biostatistics and Bioinformatics, Duke University

Benjamin Goldstein is Associate Professor of Biostatistics and Bioinformatics at Duke University. He is a member of the Duke Clinical Research Institute and serves as the Data Science Lead for the Children's Health Discovery Initiative. Dr. Goldstein's research focuses on the meaningful use of Electronic Health Records Data. His work sits at the intersection of Biostatistics, Biomedical Informatics, Machine Learning and Epidemiology. He works closely with the Duke University Health System developing, implementing and evaluating risk prediction and clinical decision support tools. He also studies how patients' informative visit process can impact inference in EHR based studies – something he has termed *Informed Presence*. Dr. Goldstein received his PhD in Biostatistics and MPH in Biostatistics and Epidemiology from UC Berkeley.

**Eric Jelovsek, MD, MMed**

Obstetrics and Gynecology, Duke University

J. Eric Jelovsek, MD MMed is an Associate Professor at Duke Univ. School of Medicine in the Dept. of Obstetrics and Gynecology, Durham, NC where he currently serves as Vice Chair for Education and Director of the Women's Health Data Science Program. Dr. Jelovsek received his MD degree from East Tennessee State Univ., completed his residency in Obstetrics and Gynecology at Duke University and fellowship in Female Pelvic Medicine and Reconstructive Surgery at Cleveland Clinic. He holds a Master's degree in Medical Education with Distinction (MMEd) from the University of Dundee. Dr. Jelovsek's expertise lies in the development and validation of "individualized," patient-centered prediction tools to improve patient and clinician decision-making around a variety of women's health conditions including: the risk of pelvic floor disorders after childbirth, predicting prolapse recurrence and utility change after undergoing pelvic organ prolapse surgery, complications and health status after pelvic organ prolapse surgery, risk of recurrent urinary incontinence and adverse events after mid-urethral sling placement, risk of de novo stress urinary incontinence after surgery for pelvic organ prolapse, and transfusion during gynecologic surgery. Dr. Jelovsek currently leads the clinical deployment of these tools into the electronic medical record in the Department of ObGyn at Duke. Dr. Jelovsek has significant clinical research experience as an investigator in the NICHD Pelvic Floor Disorders Network where he is the principle investigator on CAPABLE (Clinical trials.gov Identifier NCT02008565), one of the largest multi-center trials for fecal incontinence in the United States and was the principle investigator of E-OPTIMAL trial, describing the long-term follow up sacrospinous ligament fixation compared to uterosacral ligament suspension for apical vaginal prolapse. Dr. Jelovsek also currently serves as an investigator in the NIDDK Lower Urinary Tract Dysfunction Research Network and is involved in projects using computational clustering to gain a better understanding of lower urinary tract phenotypes and is principal investigator of the ongoing research collaboration between Duke Clinical Research Institute's Center for Predictive Medicine and the University of Gothenberg, Sweden using the Swedish Medical Birth Register.

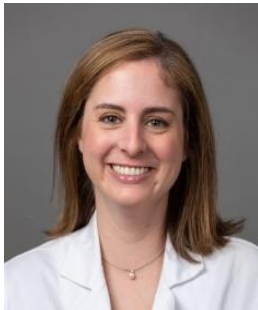
**Lisa Karstens, PhD**Medical Informatics and Clinical Epidemiology
Oregon Health and Science University

Dr. Karstens is an Assistant Professor at Oregon Health & Science University in the Departments of Medical Informatics and Clinical Epidemiology and Obstetrics and Gynecology. Her research interests broadly span using bioinformatics to understand complex human disease. Her current research focuses on using bioinformatics approaches to understand bladder disorders, with a specific focus on understanding how the human microbiome contributes to bladder health and disease. While Dr. Karstens' research is interdisciplinary, her expertise is in bioinformatics- specifically microbiome, metabolomics, and neuroimaging analysis. She collaborates with clinicians and molecular biologists on a regular basis on a variety of projects. Dr. Karstens teaches Introduction to Programming for the Department of Medical Informatics and Clinical Epidemiology at OHSU, which focuses on understanding programming logic and is taught in Python. She mentors many types of students ranging from high school students to graduate students and medical fellows.

**John R. Kirby, PhD**

Microbiology and Immunology, Medical College Wisconsin

John Kirby is the Walter Schroeder Professor & Chair of Microbiology & Immunology, Associate Director in the Center for Microbiome Research, and Associate Director of the Genomic Sciences & Precision Medicine Center. Major areas of research focus for Dr. Kirby have been on signal transduction in diverse bacteria ranging from soil dwelling spore formers (*Bacillus subtilis* and *Myxococcus xanthus*) to biofilm forming pathogens, to microbial communities in the gut. Dr. Kirby actively investigates interactions between *M. xanthus* and *B. subtilis* as a model for predator-prey interactions in vivo, primarily to assess the role of production of specialized metabolites on both sides of the predator-prey equation. Additionally, he examines the role of xenobiotics for their capacity to disrupt the gut microbiota with deleterious consequences on metabolism. He has been significantly involved in undergraduate, medical student, graduate and postdoctoral education, including serving as a thesis advisor and on thesis committees in anatomy and cell biology, biochemistry, bioinformatics, biology, epidemiology, genetics and microbiology. He also served as a mentor to junior faculty members at the University of Iowa and several other institutions around the country. Dr. Kirby has participated in approximately 115 invited lectures, workshops and presentations, both nationally and internationally. His bibliography includes almost 50 articles and book chapters.

**Julia A. Messina, MD**

Medicine, Infectious Diseases, Duke University

Dr. Julia Messina received her MD from Virginia Commonwealth University School of Medicine in 2010 and will receive her MHS in clinical research at Duke University School of Medicine in the Summer of 2019. She completed her fellowship in the NIH T32 Transplant Infectious Diseases Training Program, Duke Clinical Research Institute and Antibacterial Resistance Leadership Group and is Board certified in Infectious Diseases. Dr. Messina specialized in the care of immunocompromised patients including solid organ and bone marrow transplant recipients and patients with HIV. Her research focused on the role of the gut microbiome in the propagation of invasive bacterial infections in patients with hematologic malignancies. Dr. Messina received the Department of Medicine 2019 Chair's Research Award for junior investigators to advance her research platform.

**Ann Marie Navar, MD, PhD**

Medicine, Duke University

Ann Marie Navar, MD PhD is a cardiologist and epidemiologist at the Duke Clinical Research Institute focusing on cardiovascular disease prevention. Dr. Navar's research focuses on improving cardiovascular disease prevention through better identification of at-risk populations and targeted interventions to improve quality of care for blood pressure and lipid management. Her areas of expertise include risk prediction, patient risk communication, and large EHR- and claims-based datasets. Dr. Navar is a member of the American Heart Association's Health Tech Advisory Group. She has co-authored over 70 publications in peer reviewed journals, including JAMA, NEJM, JACC, and Circulation, and currently serves as associate editor of JAMA-Cardiology.

**Joseph Rigdon, PhD**

Quantitative Sciences Unit, Stanford University

Joe joined the QSU in 2015 after completing his PhD in Biostatistics at the University of North Carolina at Chapel Hill. While at UNC, he wrote a dissertation titled "Causal inference for binary data with interference" under the direction of Michael Hudgens. He wrote the R packages RI2by2 and interferenceCI to accompany papers from this dissertation. He also had the opportunity to do infectious disease research with the UNC Center for AIDS Research and environmental biostatistics research under the guidance of Amy Herring. In general, he is interested in using statistical methods to understand and improve human health. Joe is interested in methods for causal inference in randomized trials and observational studies. He is also interested in statistical methods that do not require strong assumptions, such as nonparametric methods and exact methods. Joe is interested in all aspects of human health, particularly prevention of disease through individual lifestyle choices such as high-quality nutrition and movement practices and population level factors such as food systems, transportation networks, and social programs.

**Neeraj "Neil" Surana, MD, PhD**

Pediatrics, Duke University

Neil Surana is a physician-scientist with extensive training in microbiology, immunology, pediatrics, and infectious diseases, with a strong interest in host-microbiome interactions. During his doctoral work with Dr. Joseph St. Geme at Washington University, he elucidated mechanisms underlying the interactions between the human commensal bacterium *Haemophilus influenzae* and epithelial cells. During his time as a research fellow and junior faculty member at Boston Children's Hospital and Harvard Medical School in the lab of Dr. Dennis Kasper, he continued to explore the relationships between hosts and their commensal bacteria, focusing more directly on the impact the microbiome has on the immune system. His current research innovatively integrates gnotobiotic murine models, immunology, microbiology, and characterization of the microbiota with the ultimate aim of identifying specific commensal bacteria with immunomodulatory potential and subsequent characterization of their biologic effects. As part of this research aim, he recently developed an innovative approach for identifying with high specificity organisms within the microbiome that are causally related to phenotypes of interest such as inflammatory bowel disease.

**Lisa Wruck, PhD**

DCRI, Duke University

Lisa Wruck is Director of the Center for Predictive Medicine at Duke Clinical Research Institute. Since coming to Duke in 2016, she has built a group of biostatisticians with a focus on applying cutting edge methodology to analysis of observational data sources, including secondary analysis of clinical trials and real world data. Lisa is active in data science workforce development at Duke, with specific interest in expanding the skill set of biostatisticians to meet the challenges and opportunities of the big data era. She directs the Duke Health Data Science Internship program, co-sponsored by DCRI and Duke Forge. Before coming to Duke, Lisa was Clinical Associate Professor of Biostatistics with an appointment in the Collaborative Studies Coordinating Center at UNC-Chapel Hill. With ten years of experience as a coordinating center biostatistician and PI she has substantial expertise in study design, statistical analysis and oversight of coordinating center operations. Her coordinating center experience spans multiple therapeutic areas and includes a stint with the Urinary Incontinence Treatment Network. Lisa holds a PhD in Biostatistics from Harvard University.