Multidisciplinary Benign Urology Virtual Research Symposium

Thursday, April 29 and Friday April 30, 2021

Duke Multidisciplinary K12 Urologic Research Career Development Program



Thursday, April 29 and Friday, April 30, 2021

1:00 PM to 5:00 PM

Presented Virtually from Duke University Medical Center

Durham, North Carolina



Duke University School of Medicine

KURe Research Symposium 2021 Agenda THURSDAY, APRIL 29

CHECK IN: Test your audio, video, chat box, and raising hands for asking questions. 12:50 pm 1:00 pm WELCOME: Cindy L. Amundsen, MD, Uke KURe PI and PD 1:10 pm **ORAL PLATFORM PRESENTATIONS:** Moderator: Maryrose Sullivan, PhD, Harvard, KURe Advisory Committee Basic Science Award Loss of Osteopontin Leads to the Resolution of E. Coli-Induced Prostatic Inflammation and Fibrosis Petra Popovics, PhD, Univ. of Wisconsin, School of Medicine and Public Health Translational Science Award Potential Diagnostic Value of Urine MicroRNAs for Female Patients with Overactive Bladder Stephanie Sirmakesyan, BS, McGill University, Montreal, Quebec KURe Scholar How Relative is Bladder 'Continence' for Those with Spina Bifida: Data From the National Spina Bifida Patient Registry Maryellen Kelly, DNP, CPNP, MHSc, Duke Univ. School of Nursing 1:55 pm **ORAL ABSTRACT PRESENTATIONS** – Concurrent Sessions Session A: Quality Improvement/ Prediction/ Economics/ Outcomes Moderators: Maryellen Kelly, DNP, CPNP, MHSc, Duke, KURe Scholar Rohit Tejwani, MD, Duke, Previous KURe Symposium Awardee Session B: Voiding Dysfunction & Urinary Tract Infection Moderators: Karl Kreder, MD, MBA, Univ. of Iowa, KURe Advisory Committee Tatyana Sysoeva, PhD, Univ. of Alabama, KURe Alumni Scholar Session C: Nephrolithiasis & Overactive Bladder Moderators: Charles Scales, Jr., MD, MSHS, Duke, KURe Mentor Nazema Siddigui, MD, Duke, KURe Alumni Scholar 3:10 pm BREAK 3:20 pm **NEUROUROLOGY KEYNOTE SPEAKER:** Janet R. Keast, PhD, Prof. and Chair Anatomy & Neuroscience, Univ. of Melbourne Constructing a Sacral Visceral Connectome to Advance Bioelectronic Medicine Moderator: Eric Gonzalez, PhD, Duke, KURe Alumni Scholar PANEL DISCUSSION: BEYOND UROLOGY: HOW COLLABORATIONS ARE 4:00 pm ADVANCING NEUROUROLOGY Moderators: Jim Hokanson, PhD, Med. College Wisconsin, KURe Alumni Scholar Armand Allkanjari, MD, Duke, Urology Resident Panelists: Tim Bruns, PhD, Associate Professor, Biomedical Engineering, Univ. of Michigan Janet R. Keast, PhD, Professor, Anatomy & Neuroscience, Univ. of Melbourne Rose Khavari, MD, Associate Professor, Urology, Weill Cornell Medicine Michael R. Ruggieri, Sr, PhD, Professor, Anatomy & Cell Biology, Temple Univ **CLOSING & PREVIEW OF FRIDAY EVENTS:** 4:50 pm Cindy L. Amundsen, MD, KURe PI and Program Director 5:00 pm THURSDAY ADJOURNMENT

KURe Research Symposium 2021

Agenda FRIDAY, APRIL 30

11:45 am	SMALL GROUP DISCUSSIONS WITH EXPERTS (signup required)		
12:50 pm	CHECK IN: Test your audio, video, chat box, and raising hands for asking questions.		
1:00 pm	WELCOME: Cindy L. Amundsen, MD, Duke KURe PI and PD		
1:10 pm	SEXUAL MEDICINE KEYNOTE SPEAKER: Arthur L. Burnett, II, MD, Patrick C. Walsh Professor of Urology, Johns Hopkins Nitric Oxide Revolutionized Lower Genitourinary Tract Therapies: From Bench to Bedside Moderator: Michael Odom, PhD, Duke, KURe Scholar		
1:50 pm	ORAL ABSTRACT PRESENTATIONS – Concurrent Sessions		
	<u>Session D</u> : Benign Prostatic Hyperplasia Moderators: Philip Walther, MD, PhD, Duke, KURe Advisory Committee Leonid Aksenov, MD, Duke, Previous KURe Symposium Awardee		
	<u>Session E</u> : Reconstructive Surgery & Pelvic Medicine Moderators: Matthew Barber, MD, MHS, Duke, KURe Advisory Committee Brent Nosé, MD, Duke, Previous KURe Symposium Awardee		
	<u>Session F</u> : Neurourology Moderators: Jennifer Anger, MD, MHS Cedars Sinai, KURe Advisory Committee Zachary Dionise, MD, Duke, Previous KURe Symposium Awardee		
3:05 pm	BREAK		
3:15 pm	ORAL PLATFORM PRESENTATIONS: Moderator: Mary Barbe, PhD, FAA, Temple Univ., KURe Advisory Committee		
	<u>Clinical Science Award</u> Sustained Reduction in Catheter-Associated Urinary Tract Infections using Multi-Faceted Strategies led by Champions: A Quality Improvement Initiative Sonali Advani, MBBS, MPH, Infectious Diseases, Duke Univ., KURe Scholar		
	<u>KURe Scholar</u> NLRP3-Dependent Mechanisms Responsible for Urothelial Barrier Dysfunction in Diabetic Mice		
	Michael Odom, PhD, Urology, Duke University		
	<u>KURe Scholar</u> Effect of Epidural Kilohertz Frequency Spinal Cord Stimulation on Lower Urinary Tract Function in a Rat Spinal Cord Transection Model Casey Steadman, PhD, Biomedical Engineering, Duke University		
4:00 pm	PANEL DISCUSSION: A MULTIDISCIPLINARY APPROACH TO SEXUAL MEDICINE Moderators: Casey Steadman, PhD, Duke, KURe Scholar Christopher Kim, MD, Duke Urology Resident		
	Panelists: Arthur Burnett, MD, Professor, Urology, Johns Hopkins Anita Clayton, MD, Chair, Psychiatry & Neurobehavioral Sci., Univ. of Virginia Lesley Marson, PhD, VP, Preclinical Research, Dignify Therapeutics, NC Clinton Webb, PhD, Dir. Cardiovascular Translational Research Ctr, Univ. of SC		
4:50 pm	PRESENTATION OF TRAINEE AWARDS AND CLOSING REMARKS Friederike L. Jayes, DVM, PhD, KURe Program Coordinator		

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We Thank our Sponsors

Grant K12DK100024 from the NIDDK: Duke Multidisciplinary **K**12 **U**rologic **Re**search Career Development Program (KURe)

Department of Obstetrics and Gynecology, Duke University School of Medicine Department of Surgery, Division of Urology, Duke University School of Medicine Department of Biomedical Engineering, Duke University

KURe Advisory Board

Jennifer Anger, MD, MPH Mary Barbe, PhD, FAA Matthew Barber, MD, MHS Karl Kreder, MD, MBA Maragatha Kuchibhatla, PhD Glenn Preminger, MD Maryrose Sullivan, PhD Philip Walther, MD, PhD, MBA, FACS

Distinguished Judges

Trainee Platform Presentation Awards KURe Advisory Board

Oral Abstract Presentation Awards

Wade Bushman, MD, PhD Tim Bruns, PhD Arthur L. Burnett, MD, MBA, FACS Anita Clayton, MD, DLFAPA, IF Rose Khavari, MD Lesley Marson, PhD Michael Ruggieri, Sr. PhD R. Clinton Webb, PhD

Research Day Organizing Committee

Cindy L. Amundsen, MD, Duke KURe PI and Program Director, Duke Ob-Gyn Friederike L. Jayes, DVM, PhD, Duke KURe Program Coordinator, Duke Ob-Gyn Rebecca Kameny, PhD, Research Program Leader, Duke Ob-Gyn Robin Phillips, CME Program Coordinator, Duke Urologic Surgery

Platform Presentations Thursday (1:10 pm)		
Abstract	Presenter	Title
OP-01	Popovics	Loss of osteopontin leads to the resolution of E. coli-induced prostatic inflammation and fibrosis
OP-02	Sirmakesyan	Potential diagnostic value of urine microRNAs for female patients with overactive bladder
OP-03	Kelly	How relative is bladder 'continence' for those with spina bifida: data from the National Spina Bifida Patient Registry

Platform Presentations		riday (3:15 pm)
Abstract	Presenter	Title
OP-04	Advani	Sustained Reduction in Catheter-Associated Urinary Tract Infections using Multi-Faceted Strategies led by Champions: A Quality Improvement Initiative
OP-05	Steadman	Effect of epidural kilohertz frequency spinal cord stimulation on lower urinary tract function in a rat spinal cord transection model
OP06	Odom	NLRP3-Dependent Mechanisms Responsible for Urothelial Barrier Dysfunction in Diabetic Mice

Concurrent Session A (Thursday 1:55 pm) Quality Improvement/Prediction/Economics/Outcomes		
Abstract	Presenter	Title
A01	Rezaei Ghalechi	Does procalcitonin play a role in mortality and severity of Covid 19?
A02	Hendrickson	Development of Prediction Models for Outcomes after Intradetrusor OnabotulintumToxinA for Non-Neurogenic Urgency Incontinence in Women
A03	Hobbs	Machine learning for urodynamic detection of detrusor overactivity
A04	Luchristt	Cost-effectiveness analysis of universal cystoscopy at the time of benign laparoscopic hysterectomy.
A05	Luchristt	Timing of diagnosis of complex lower urinary tract injury in the 30- day postoperative period following benign hysterectomy

Concurrent Session A (Thursday 1:55 pm) Quality Improvement/Prediction/Economics/Outcomes			
Abstract	Presenter	Title	
A06	Richter	Vaginal Complications after Bladder Cystectomy: Results from a Medicare Sample	
A07	Lembrikova	Automated machine learning segmentation and measurement of urinary stones on CT scan	
A08	Krischak	Outcomes of an Algorithmic, Multidisciplinary Approach to Rectourethral Fistula Repair: A Pre- and Post-Intervention Quasi- Experimental Study	
A09	Kim	Pinching Pennies or Thousands of Dollars: Micro-cost and Benchtop Analysis of Reusable vs Single-Use Cystoscope	

Concurrent Session B (Thursday 1:55 pm) Voiding Dysfunction & Urinary Tract Infection		
Abstract	Presenter	Title
B01	Allkanjari	NLRP3 mediates underactive bladder development in Akita diabetic male mice at 15 week of age
B02	Gonzalez	Voiding and muscle contractility dysfunction in a rat model of detrusor underactivity
B03	Scharpf	The role of connective tissue growth factor in the development of lower urinary tract dysfunction
B04	Hayes	Hyperinnervation and chronic mast cell activity in bladder pain syndrome following recurrent urinary tract infection
B05	Montalbetti	Bladder infection with uropathogenic E. Coli increases the excitability of afferent neurons
B06	Raphael	Spatial distribution of extended-spectrum beta-lactamase- producing Escherichia coli isolated from patients with community- onset bacteriuria: results from 2014 to 2020 in an urban safety-net healthcare system
B07	Dubinskaya	Prevalence of Urinary Tract Infections in Women With Interstitial Cystitis.
B08	Whelan	Targets to Improve Prevalence of Outpatient Urology Clinic Urine Culture Mixed Flora

Concurrent Session C (Thursday 1:55 pm) Nephrolithiasis & Overactive Bladder		
Abstract	Presenter	Title
C01	Но	The significant contribution of cavitation to dusting stone damage in laser lithotripsy
C02	Baker	Calcium oxalate stones, blood ionized calcium, and hypercalciuria are associated with genes affecting arachidonic acid metabolism in a dog model
C03	Tabib	Dusting Efficiency and Scanning Speed Analysis of the MosesÔ Pulse 120H 2.0 Laser System: An In vitro Assessment
C04	Antonelli	Impact of COVID-19 on the Emotional Health of Individuals Undergoing Ureteroscopy for Stone Removal: Insight from STENTS
C05	Scales	The Patient Voice: Living with a Ureteral Stent after Ureteroscopy - A Urinary Stone Disease Research Network (USDRN) Study
C06	Hokanson	Sacral Neuromodulation in Rats: Parameters and Pathways
C07	Hamouda	THX-B compound decreases the activity of matrix metalloproteinase-9 and increases secretion of nerve growth factor by mouse urothelial cells in culture
C08	Lu	UUI-IR: distinguishing a subtype of urgency urinary incontinence based on molecular profiling

Concurrent Session D (Friday 1:50 pm) Benign Prostatic Hyperplasia		
Abstract	Presenter	Title
D01	Jang	White matter contribution in men with lower urinary tract symptoms attributable to chronic benign prostatic obstruction
D02	Chen	Stimulation of prostatic epithelial cell proliferation by androgen- regulated paracrine signaling from primary BPH stromal cells
D03	Dai	Differential impact of paired patient-derived primary BPH and normal adjacent prostatic stromal cells on macrophage migration and benign prostatic epithelial cell monolayer permeability
D04	Sandhu	Identification of Collagen Producing Cell Lineages in the Inflamed Prostate
D05	Binoy Joseph	Spatial transcriptomics approach to pinpoint cellular heterogeneity in 5-alpha reductase treatment resistance

Concurrent Session E (Friday 1:50 pm) Reconstructive Surgery & Pelvic Medicine		
Abstract	Presenter	Title
E01	Amato	Our differences make us complete: The identification of novel cell populations in penis development and their involvement in hypospadias
E02	Inouye	Resection of the Pubic Symphysis with Cystectomy Significantly Improves Short-Term Patient Reported Physical Health Measures among Patients with Urosymphyseal Fistula and Pubic Bone Osteomyelitis: The Duke Experience
E03	Nose	Redo buccal harvest for urethroplasty after graft site closure is safe and does not affect long-term oral health
E04	Dubinskaya	Emergency Department Visits for Genital Foreign Bodies: Not Unique to Men
E05	Campbell	Infection Risk Following Implant Revision, Does Component Exchange Matter?
E06	Caldwell	Women's Experience of Their First Sexual Encounter After Urinary Incontinence and/or Pelvic Organ Prolapse Surgery: A Qualitative Study
E07	O'Shea	Illustrations to assess prolapse and urinary incontinence in Kisumu, Kenya
E08	Kisby	Exosome-Induced Vaginal Tissue Regeneration in a Porcine Mesh Exposure Model

Concurrent Session F (Friday 1:50 pm)		
		Neurourology
Abstract	Presenter	Title
F01	Chen	Mapping urethral responses during pudendal neurostimulator implant surgery with a multi-sensor catheter
F02	Bottorff	Investigating the effect of tibial and pudendal nerve stimulation on external vaginal blood flow in anesthetized rodents
F03	Ortiz-Lopez	Behavioral close-loop neuromodulation of bladder function in a feline model
F04	Lagunas	Quantifying anal sphincter recruitment with clinical pudendal nerve stimulation
F05	Tran	Preliminary results of novel, noninvasive, individualized cortical modulation using Transcranial Rotating Permanent Magnet Stimulator in improving voiding dysfunction in multiple sclerosis women
F06	Jang	Predictors for clinical outcomes of noninvasive, individualized neuromodulation with transcranial rotating permanent magnet stimulator in female multiple sclerosis patients with neurogenic voiding dysfunction
F07	Choksi	Correlation between white matter integrity and lower urinary tract symptoms in female multiple sclerosis patients: 7-Tesla fMRI evaluation

Trainee/Scholar Basic Science Award (OP--1)

Loss of osteopontin leads to the resolution of *E. coli*-induced prostatic inflammation and fibrosis

Popovics, Petra^{1,2,3}; Jain, Asha^{1,2}; Skalitzky, Kegan O^{1,2}; Schroeder, Elise^{1,2}; Ruetten, Hannah^{1,2,4}; Cadena, Mark^{1,2,4}; Vezina, Chad M^{1,2,4}, Ricke, William R^{1,2}

¹Department of Urology, School of Medicine and Public Health, University of Wisconsin-Madison, Madison, WI

²George M. O'Brien Center of Research Excellence, University of Wisconsin, School of Medicine and Public Health, Madison, WI

³K12 Kure, School of Veterinary Medicine, University of Wisconsin-Madison, Madison, WI ⁴Department of Comparative Biosciences, School of Veterinary Medicine, University of Wisconsin-Madison, Madison, WI

Research Area: Benign Prostatic Hyperplasia

Trainee/Scholar Translational Science Award (OP--2)

Potential diagnostic value of urine microRNAs for female patients with overactive bladder

Sirmakesyan, Stephanie¹; Cammisotto, Philippe¹; Mossa, Abubakr H¹.; Shamout, Samer¹; Campeau, Lysanne^{1,2}

1. Lady Davis Institute for Medical Research, McGill University, Montreal, Quebec, Canada.

2. Urology Department, Jewish General Hospital, Montreal, Quebec, Canada.

Research area: Female Pelvic Medicine, Overactive Bladder (OAB), Voiding Dysfunction/Urinary Retention

KURe Scholar (OP--3)

How relative is urinary 'continence' for those with spina bifida: data from the National Spina Bifida Patient Registry

Kelly, Maryellen S^{1,2}; Routh, Jonathan C²; Castillo Heidi³; Tanaka Stacy T⁴; Wiener, John S² ¹ Division of Healthcare of Women and Children, Duke University School of Nursing, Durham NC; Division of Urology, Department of Surgery, Duke University School of Medicine, Durham NC; ³ Division of Developmental and Behavioral Pediatrics, Texas Children's Hospital/Baylor College of Medicine, Houston, TX; ⁴ Department of Urology, Vanderbilt University Medical Center, Nashville, TN

Research area: Neurourology

Trainee/Scholar Clinical Science Award (OP--4)

Sustained reduction in catheter-associated urinary tract infections using multi-faceted strategies led by champions: A quality improvement initiative

Advani, Sonali D^{1,2}; Reynolds, Staci S^{1,2}; Sova, Chris^{1,2}; Lewis, Sarah S^{1,2}; Turner, Nicholas A^{1,2}; Smith, Becky A^{1,2}

1- Duke University School of Medicine, Department of Medicine, Division of Infectious Diseases, Durham, NC; 2-Duke University Hospital Infection Prevention, Durham, NC

Research Area: Quality Improvement, Infections of the Urinary Tract

KURe Scholar (OP--5)

NLRP3-Dependent Mechanisms Responsible for Urothelial Barrier Dysfunction in Diabetic Mice

Michael R Odom¹; Francis M Hughes Jr¹; Huixia Jin¹; J. Todd Purves^{1,2}

¹Department of Surgery, Division of Urology, Duke University Medical Center, Durham, NC. ²Department of Pediatrics, Duke University Medical Center, Durham, NC.

Research Areas: diabetes, bladder inflammation, overactive bladder

KURe Scholar (OP--6)

Effect of epidural kilohertz frequency spinal cord stimulation on lower urinary tract function in a rat spinal cord transection model

Steadman, Casey J¹; Langdale, Chris L¹; Czeiszperger, Aaron S¹; Grill, Warren M^{1,2,3,4}.

Duke University, ¹Biomedical Engineering, ²Electrical and Computer Engineering, ³Neurobiology, ⁴Neurosurgery, Durham, NC.

RESEARCH AREA: Therapeutic Development, Voiding dysfunction/Urinary Retention, Spinal cord injury

ACKNOWLEDGMENTS: This work is supported by the Duke KURe NIH K12 and the CH Neilsen Foundation.

Whitney K. Hendrickson MD¹, Gongbo Xie MS², David D. Rahn MD³, Megan Bradley MD⁴, Vivian Sung MD⁵, Jim A. Hokanson, PhD⁶, Ariana L. Smith MD⁷, Anthony Visco MD¹, Cindy Amundsen MD¹, Shen Luo PhD², J. Eric Jelovsek MD MMEd MSDS¹

Development of prediction models for outcomes after intradetrusor OnabotulintumToxinA for non-

¹Duke Urogynecology Durham, NC; ²Duke Biostatistics & Bioinformatic; ³UT Southwestern Female Pelvic Medicine and Reconstructive Surgery, Dallas, TX; ⁴Univ. of Pittsburgh Urogynecology and Pelvic Reconstructive Surgery; ⁵Women and Infants Hospital, Brown University, Urogynecology and Pelvic Reconstructive Surgery, Providence, RI; ⁶ Duke Biomedical Engineering; ⁷Perelman School of Medicine, Univ. of Pennsylvania, Urology, Philadelphia, PA

Research Area: Data Science/Predictive Analytics

Machine learning for urodynamic detection of detrusor overactivity

Hobbs, Kevin T¹; Choe, Nathaniel²; Aksenov, Leonid¹; Aquino, Wilkins²; Routh, Jonathan C¹; Hokanson, James A³

¹ Division of Urologic Surgery, Duke University Medical Center, Durham, NC

² Pratt School of Engineering, Duke University, Durham, NC

³ Department of Biomedical Engineering, Medical College of Wisconsin, Milwaukee, WI

Research area: Pediatric Urology, Urodynamics

Trainee A-04

Trainee A-03

Cost-effectiveness analysis of universal cystoscopy at the time of benign laparoscopic hysterectomy.

Luchristt, Douglas¹; Geynisman-Tan, Julia²; Mueller, Margaret G.²; Kenton, Kimberly² ¹Division of Female Pelvic Medicine and Reconstructive Surgery, Department of Obstetrics and Gynecology, Duke University, Durham, NC

²Division of Female Pelvic Medicine and Reconstructive Surgery, Department of Obstetrics and Gynecology, Northwestern University, Chicago, IL

Research Area: Quality Improvement

Trainee A-05

Timing of diagnosis of complex lower urinary tract injury in the 30-day postoperative period following benign hysterectomy.

Luchristt, Douglas¹; Brown, Oluwateniola²; Geynisman-Tan, Julia²; Mueller Margaret G.²; Kenton, Kimberly²; Bretschneider, C Emi²

¹Division of Female Pelvic Medicine and Reconstructive Surgery, Department of Obstetrics and Gynecology, Duke University, Durham, NC

²Division of Female Pelvic Medicine and Reconstructive Surgery, Department of Obstetrics and Gynecology, Northwestern University, Chicago, IL

Research Area: Female Pelvic Medicine

Does procalcitonin play a role in mortality and severity of Covid 19?

Zakeri ,Anahita¹; Matin ,Somaieh¹; Rezaei Ghalechi Elnaz²

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¹Department of Internal Medicine, Division of Internal Medicine, Ardabil University Medical Center, Ardabil, Ardabil.

²Department of Surgery, Division of Public Surgery, Duke University Medical Center, Durham, NC. **Research Area:** Clinical Outcome Research

A-01

Trainee A-02

Trainee A-06

Vaginal complications after bladder cystectomy: results from a Medicare sample

Richter MD, Lee A¹; Osazuwa- Peters, PhD, Oyomoare²; Routh MD, MPH, Jonathan³; and Handa MD, MHS, Victoria ⁴

¹Departments of Urology and ObGyn, Division of Urogynecology, MedStar/Georgetown University Medical Center, Washington, DC. ²Department of Population Health Sciences, Duke University Medical Center, Durham, NC. ³Department of Surgery, Division of Urology, Duke University Medical Center, Durham, NC ⁴Department of ObGyn, Division of Urogynecology, Johns Hopkins School of Medicine, Baltimore, MD

Research Area: Clinical Outcomes Research, Female Pelvic Medicine, Health Sciences Research, Sexual Dysfunction

Trainee A-07

Automated machine learning segmentation and measurement of urinary stones on CT scan Lembrikova, Katerina^{*1}; Babajide, Rilwan^{*2}; Ziemba, Justin³; Fan, Yong³; Tasian, Gregory E⁴ ¹SUNY Downstate College of Medicine, Brooklyn, NY., ²University of Chicago Pritzker School of Medicine, Chicago, IL., ³Division of Urology, Department of Surgery, Hospital of the University of Pennsylvania, University of Pennsylvania, Philadelphia, PA. ⁴Department of Surgery, Division of Pediatric Urology, The Children's Hospital of Philadelphia, Philadelphia, PA. *Contributed equally

Research Area: Data Science/ Predictive Analytics, Nephrolithiasis

Trainee A-08

Outcomes of an Algorithmic, Multidisciplinary Approach to Rectourethral Fistula Repair: A Pre- and Post-Intervention Quasi-Experimental Study

Joshua P Hayden¹; Madison Krischak¹; William R Boysen²; Urszula Kowalik²; Brian M Inouye²; Stephanie J Sexton²; Brian Gilmore³; John Migaly³; Christopher R Mantyh³; Julie K M Thacker³; Detlev Erdmann⁴; Andrew C Peterson²

- 1. Duke University School of Medicine, Durham, NC
- 2. Division of Urologic Surgery, Duke University Medical Center, Durham, NC
- 3. Section of Colorectal Surgery, Duke University Medical Center, Durham, NC

4. Division of Plastic, Maxillofacial and Oral Surgery, Duke University Medical Center, Durham, NC

Research area: Urinary Reconstruction, Clinical Outcomes Research, Quality Improvement

Trainee A-09

Pinching Pennies or Thousands of Dollars: Micro-cost and Benchtop Analysis of Reusable vs Single-Use Cystoscope

Kim, Christopher J^{1*}, Whelan, Patrick, Tabib, Christian¹, Preminger, Glenn M¹, Lipkin, Michael E¹ ¹Duke University Medical Center, Division of Urology, Durham, NC **Research Area:** Health Sciences Research, Nephrolithiasis

Trainee B-01

NLRP3 mediates underactive bladder development in Akita diabetic male mice at 15 week of age

Armand Allkanjari MD¹, Francis M. Hughes PhD¹; J Todd Purves MD, PhD^{1,2} ¹Division of Urology, Department of Surgery, Duke University Medical Center, Durham, NC. ²Department of Pediatrics, Duke University Medical Center, Durham, NC. **Research area:** Bladder inflammation, Diabetes, Urodynamics

Trainee B-02

Voiding and muscle contractility dysfunction in a rat model of detrusor underactivity

Gonzalez, Eric J.,¹ Odom, Michael R.,² Hannan, Johanna L.,² Grill, Warren M.¹ ¹Duke University, Department of Biomedical Engineering, Durham, NC ²East Carolina University, Department of Physiology, Greenville, NC **Research Area:** Neurourology, Voiding Dysfunction/Urinary Retention **Funding:** K01 DK120632 (EJG) and the Pratt School of Engineering (WMG).

Trainee B-03

The role of connective tissue growth factor in the development of lower urinary tract dysfunction

Scharpf Brandon R¹, Ruetten Hannah M¹, Fox Olivia R¹, Strand Douglas W², Vezina Chad M¹ ¹University of Wisconsin-Madison, Molecular and Environmental Toxicology, Madison, Wisconsin, ²University of Texas Southwestern, Department of Urology, Dallas, Texas **Research Area:** Voiding Dysfunction/Urinary Retention

Trainee B-04

Hyperinnervation and chronic mast cell activity in bladder pain syndrome following recurrent urinary tract infection

Hayes, Byron W¹; Choi, Hae Woong¹; Wu, Jianxuan²; Rathore, Abhay PS¹; Bao, Chunjing¹; Purves, J Todd^{3,4}; Hughes Jr, Francis M^{3,4}; Hannan, Johanna L⁵, Ji, Ru-Rong⁶⁻⁸; Abraham, Soman N^{1,2,9,10} ¹Duke University Medical Center, Department of Pathology, Durham, NC ²Duke University Medical Center, Department of Immunology, Durham, NC ³Clemson University Department of Bioengineering, Clemson, SC ⁴Duke University Medical Center, Division of Urology, Durham, NC ⁵East Carolina University, Brody School of Medicine, Greenville, NC ⁶Center for Translational Pain Medicine, Department of Anesthesiology, Duke University Medical Center, Durham, NC ⁷Department of Cell Biology, Duke University Medical Center, Durham, NC ⁸Department of Neurobiology, Duke University Medical Center, Durham, NC ⁹Duke University Medical Center, Molecular Genetics and Microbiology, Durham, NC ¹⁰Duke-National University of Singapore, Program in Emerging Infectious Diseases, Singapore, Singapore

Research Area: Infections of the Urinary Tract, Interstitial Cystitis/Painful Bladder Syndrome (IC/PBS), Neurourology

Trainee B-05

Bladder infection with uropathogenic *E. Coli* increases the excitability of afferent neurons Nicolas Montalbetti¹, Marianela G. Dalghi¹, Sheldon I. Bastacky³, Dennis R. Clayton¹, Wily G. Ruiz¹, Gerard Apodaca^{1,2}, Marcelo D Carattino^{1,2}

¹ Renal-Electrolyte Division, Department of Medicine, ² Department of Cell Biology and ³ Department of Pathology, University of Pittsburgh, Pittsburgh, Pennsylvania.

Research area: Infections of the Urinary Tract, Neurourology

April 29 & April 30, 2021

Spatial distribution of extended-spectrum beta-lactamase-producing Escherichia coli isolated from patients with community-onset bacteriuria: results from 2014 to 2020 in an urban safety-net healthcare system

Raphael, Eva¹; Inamdar, Pushkar²; Butcher, Cheyenne³; Shariff-Marco, Salma²; Glymour, M. Maria²; Chambers, Henry F.⁴

¹Department of Family and Community Medicine, University of California, San Francisco, San Francisco, CA, USA

²Department of Epidemiology and Biostatistics, University of California, San Francisco, San Francisco, CA, USA

³Division of Infectious Diseases and Vaccinology, School of Public Health, University of California, Berkeley, Berkeley, CA, USA

⁴Department of Medicine, University of California, San Francisco, San Francisco, CA, USA **Research area:** Infections of the Urinary Tract, Health Science Research

Trainee B-07

Trainee B-06

Prevalence of urinary tract infections in women with interstitial cystitis.

Alexandra Dubinskaya MD¹, Kyle Smith-Honore BS², Catherine Bresee MS³, Kai Dallas MD¹, Kamil E. Barbour PhD⁴, Jayoung Kim MD⁵, Stephen Freedland MD¹, Jennifer Anger MD¹

¹Division of Urology, Cedars-Sinai Medical Center, Los Angeles, CA, ²Veterans Affairs Medical Centers, Urology Section, Durham, NC,³Department of Biostatistics and Bioinformatics Research Center, Cedars-Sinai Medical Center, Los Angeles, CA, ⁴National Center for Chronic Disease Prevention and Health Promotion, CDC, Atlanta, GA, ⁵Department of Surgery, Cedars-Sinai Medical Center, Los Angeles, CA

Research Area: Interstitial Cystitis/Painful Bladder Syndrrome

Trainee B-08

Targets to improve prevalence of outpatient urology clinic urine culture mixed flora

Patrick Whelan^{*1}, Alicia Nelson², Christopher J Kim¹, Christian Tabib¹, Glenn Preminger¹, Michael Lipkin¹, Sonali Advani²

1: Duke University Hospital, Division of Urology, 2: Duke University Hospital, Division of Infectious Disease

Research Area: Infection, Quality Improvement

Trainee C-01

The significant contribution of cavitation to dusting stone damage in laser lithotripsy Ho, Derek,¹Chen, Junqin,¹Xiang, Gaoming,¹Whelan, Patrick,² Preminger, Glenn,² Lipkin, Michael,² Zhong, Pei,^{1,2}

¹Department of Mechanical Engineering and Materials Science, Duke University ²Division of Urology, Duke University Medical Center

Research Area: Nephrolithiasis

Trainee C-02 Calcium oxalate stones, blood ionized calcium, and hypercalciuria are associated with genes affecting arachidonic acid metabolism in a dog model

Baker, Lauren A^{1*}, Penniston, Kristina², Furrow, Eva³

¹School of Veterinary Medicine, University of Wisconsin-Madison, Madison, WI, USA,

²University of Wisconsin School of Medicine and Public Health, Madison, WI, USA,

³College of Veterinary Medicine, University of Minnesota, St. Paul, MN, USA

Research Area: Nephrolithiasis

Trainee C-03

Dusting Efficiency and Scanning Speed Analysis of the Moses™ Pulse 120H 2.0 Laser System: An In vitro Assessment

Tabib, Christian¹, Whelan, Patrick^{*1}, Kim, Christopher J¹, Ho, Derek², Chen, Junguin², Zhong, Pei², Preminger, Glenn¹, Lipkin, Michael¹ ¹Duke University Medical Center, Division of Urology;²Department of Mechanical Engineering and Materials Science, Duke University Research Area: Nephrolithiasis

C-04

Impact of COVID-19 on the Emotional Health of Individuals Undergoing Ureteroscopy for Stone **Removal: Insight from STENTS**

Antonelli, Jodi¹; Desai, Alana²; Lai, Henry²; Harper, Jonathan D³; Al-Khalidi Hussein⁴; Scales, Charles D⁴; McCune, Rebecca⁵; Piskator, Brooke¹; Kirkali, Ziya⁶; Maalouf, Naim¹ for the USDRN Investigators ¹UT Southwestern Medical Center, Dallas, TX; ²Washington University in St. Louis, St. Louis, MO; ³University of Washington, Seattle, WA; ⁴Duke University, Durham, NC; ⁵Children's Hospital of Philadelphia, Philadelphia, PA; ⁶NIDDK, Bethesda, MD

Research Area: Nephrolithiasis; Health Services Research

C-05

The Patient Voice: Living with a Ureteral Stent after Ureteroscopy – A Urinary Stone Disease **Research Network (USDRN) Study**

Corneli, Amy¹; Dombeck, Carrie¹; McKenna, Kevin¹; Harper, Jonathan²; Antonelli, Jodi³; Desai, Alana⁴; Lai, Henry⁴; Tasian, Gregory⁵; Ziemba, Justin⁶; McCune, Rebecca⁵; Piskator, Brooke³; Al-Khalidi, Hussein¹; Maalouf, Naim³; Reese, Peter⁶; Wessells, Hunter²; Kirkali, Ziya⁷; Scales, Charles^{1*} ¹Duke University, Durham, NC; ²Univ. of Washington, Seattle, WA; ³UT Southwestern Medical Center, Dallas. TX: ⁴Washington Univ. in St. Louis. St. Louis. MO: ⁵Children's Hospital of Philadelphia. Philadelphia, PA; ⁶Univ. of Pennsylvania, Philadelphia, PA ⁷NIDDK, Bethesda, MD Research Area: Clinical Outcomes Research, Health Sciences Research, Nephrolithiasis, Patient Reported Outcomes

Trainee C-06

Sacral neuromodulation in rats: parameters and pathways

James A. Hokanson¹, Christopher L. Langdale², Warren M. Grill^{2,3,4,5} ¹Department of Biomedical Engineering, Medical College of Wisconsin, Milwaukee, WI. Departments of ²Biomedical Engineering, ³Electrical and Computer Engineering, ⁴Neurobiology, and ⁵Surgery, Duke University, Durham, NC

Research Area: Neurourology, Overactive Bladder (OAB)

Trainee C-07

THX-B compound decreases the activity of matrix metalloproteinase-9 and increases secretion of nerve growth factor by mouse urothelial cells in culture

Hamouda, Aalya¹; Sirmakesyan, Stephanie¹; Cammisotto, Philippe¹; Saragovi, Uri¹; Campeau, Lvsanne^{1,2}

^{1,} Lady Davis Institute for Medical Research, McGill University, Montreal, Quebec, Canada.

^{2,} Urology Department, Jewish General Hospital, Montreal, Quebec, Canada

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

Trainee C-08

Trainee D-01

UUI-IR: distinguishing a subtype of urgency urinary incontinence based on molecular profiling Nazema, Siddiqui Y¹; Kathy, Lu Z²; Cindy, Amundsen L¹; Joseph, Prinz A³; Susan, Murphy K¹ ¹Department of Obstetrics and Gynecology, Duke University Medical Center, Durham, NC. ²Duke University, Durham, NC. ³Duke Center for Genomic and Computational Biology, Durham, NC. **Research Area:** Diabetes, Overactive Bladder (OAB)

White matter contribution in men with lower urinary tract symptoms attributable to chronic benign prostatic obstruction

Jang, Yongchang¹, Tran, Khue¹, Hubbard, Logan¹, Gonzalez, Ricardo R¹, Karmonik, Christof², Khavari, Rose¹

¹Department of Urology, Houston Methodist Hospital, Houston, Texas. ²Translational Imaging Center, Houston Methodist Research Institute, Houston, Texas.

Research Area: Benign Prostatic Hyperplasia, Bladder Outlet Obstruction, Neurourology

Trainee D-02 Stimulation of prostatic epithelial cell proliferation by androgen-regulated paracrine signaling from primary BPH stromal cells

Wei Chen¹, Laura E. Pascal^{1,2}, Rajiv Dhir³, Bruce Jacobs¹, Donald B. DeFranco⁴, Naoki Yoshimura¹ and Zhou Wang^{1,2,4*}

¹Department of Urology, University of Pittsburgh School of Medicine, Pittsburgh, PA, USA ²UPMC Hillman Cancer Center, University of Pittsburgh School of Medicine, Pittsburgh, PA, USA; ³Department of Pathology, University of Pittsburgh School of Medicine, Pittsburgh, PA, USA; ⁴Department of Pharmacology and Chemical Biology, and University of Pittsburgh School of Medicine, Pittsburgh, PA, USA

Research Area: Benign Prostatic Hyperplasia, Health Sciences Research

D-03

Differential impact of paired patient-derived primary BPH and normal adjacent prostatic stromal cells on macrophage migration and benign prostatic epithelial cell monolayer permeability

Guangcheng Dai1,2, Wei Chen1, Laura E. Pascal1,3 and Zhou Wang1,3,4*

1Department of Urology, University of Pittsburgh School of Medicine, Pittsburgh, PA, USA 2Department of Urology, The second affiliated hospital of Soochow University, Suzhou, China 3UPMC Hillman Cancer Center, University of Pittsburgh School of Medicine, Pittsburgh, PA, USA 4Department of Pharmacology and Chemical Biology, and University of Pittsburgh School of Medicine, Pittsburgh, PA, USA

Research Area: Benign Prostatic Hyperplasia, Health Sciences Research

Trainee D-04

Identification of Collagen Producing Cell Lineages in the Inflamed Prostate

Sandhu, Jaskiran K^{1,2}, Ruetten, Hannah^{1,2}, Scharpf, Brandon^{1,2,3}, Vezina, Chad M^{1,2,3} ¹Department of Comparative Biosciences, University of Wisconsin-Madison, Madison, WI; ²University of Wisconsin-Madison/UMASS Boston George M. O'Brien Center for Benign Urologic Research, Madison, WI and Boston, MA; ³Molecular and Environmental Toxicology Center, University of Wisconsin-Madison, Madison, WI

Research Area: Benign Prostatic Hyperplasia OR Voiding dysfunction/ Urinary retention

Trainee D-05

Spatial transcriptomics approach to pinpoint cellular heterogeneity in 5-alpha reductase treatment resistance

Binoy Joseph, Diya¹, Henry, Gervaise H¹, Malewska, Alicia¹, Reese, Jeffrey C², Mauck, Ryan J¹, Gahan, Jeffrey ¹, Hutchinson, Ryan C¹, Mohler, James L³, Roehrborn, Claus G¹, Strand, Douglas W¹ ¹UT Southwestern Medical Center, Department of Urology, Dallas, TX 75390, USA ²Southwest Transplant Alliance, Dallas, TX 75231, USA ³Roswell Park Comprehensive Cancer Center, Buffalo, NY 14263, USA

Research area: Benign Prostatic Hyperplasia

Trainee E-01

Our differences make us complete: The identification of novel cell populations in penis development and their involvement in hypospadias

Amato, Ciro M. and Yao, Humphrey H.-C. National Institute of Environmental Health Sciences, Reproductive and Developmental Biology Lab, Research Triangle Park, NC 27709

Research Area: Congenital Urogenital Anomalies/Embryology

Trainee E-02

Resection of the pubic symphysis with cystectomy significantly improves short-term patient reported physical health measures among patients with urosymphyseal fistula and pubic bone osteomyelitis: The Duke experience

Brian Inouye¹, William R Boysen², Arman A Kahokehr³, Brent D Nose¹, Andrew C Peterson¹ ¹Division of Urology, Duke University Medical Center, Durham NC USA;²Division of Urology, Brigham and Women's Hospital, Boston MA USA;³University of Adelaide, South Australia AUS. **Research Area:** Infectious of the Urinary Tract, Urinary Reconstruction

Trainee E-03

Redo buccal harvest for urethroplasty after graft site closure is safe and does not affect long-term oral health

Brian M Inouye¹, <u>Brent D Nosé¹</u>, William R Boysen¹, Andrew C Peterson¹ ¹ Duke University Division of Urology, Durham, NC **RESEARCH AREA:** Urinary reconstruction

Trainee E-04

Emergency department visits for genital foreign bodies: not unique to men

A Dubinskaya, MD; KBH Dallas, MD; VS Scott, MD; KS Eilber, MD, JT Anger, MD Cedar-Sinai Medical Center, Department of Surgery, Division of Urology, Female Pelvic Medicine and Reconstructive Surgery, Los Angeles, CA **Research area:** Sexual Dysfunction

Trainee E-05

Infection risk following implant revision, does component exchange matter?

Scott P Campbell^{*1}, Christopher J Kim¹, Armand Allkanjari¹, Aaron Lentz¹ ¹Duke University Medical Center, Division of Urology **RESEARCH AREA:** clinical outcomes, sexual dysfunction

Trainee E-06

Women's experience of their first sexual encounter after urinary incontinence and/or pelvic organ prolapse surgery: a qualitative study

Caldwell, Lauren¹; Halder, Gabriela E¹; Dunivan, Gena²; White, Amanda B¹; Ossai, Uchenna¹; Rogers, Rebecca G³

¹Department of Women's Health, University of Texas at Austin Dell Medical School, Austin, TX.

²Department of Obstetrics and Gynecology, University of New Mexico, Albuquerque, NM.

³Department of Obstetrics and Gynecology, Albany Medical Center, Albany, NY.

Research Area: Sexual Dysfunction, Female Pelvic Medicine

Trainee E-07

Illustrations to assess prolapse and urinary incontinence in Kisumu, Kenya

O'Shea, Michele S¹; Omoto, Jackton²; Gwer, Štephen²; Huchko, Megan J³ ¹Division of Female Pelvic Medicine and Reconstructive Surgery, Duke University, Durham, NC;²Department of Obstetrics and Gynecology, Maseno University School of Medicine, Kisumu, Kenya; ³Department of Obstetrics and Gynecology, Duke University, Durham, NC **Research Area:** Female Pelvic Medicine, Other (Global Health)

Trainee E-08

Exosome-Induced Vaginal Tissue Regeneration in a Porcine Mesh Exposure Model

Kisby, Cassandra K., MD, MS¹; Shadrin, Ilya Y., MD, PhD²; Rolland, Tyler J.³; Stalboerger, Paul G., MS, PMP³; Trabuco, Emanuel C., MD, MS¹; Behfar, Atta MD, PhD^{3,4}; Occhino, John A., MD¹ ¹Mayo Clinic Division of Urogynecology; Rochester, MN; ²Mayo Clinic Department of Internal Medicine; Rochester, MN; ³Mayo Clinic Center for Regenerative Medicine; Rochester, MN; ⁴Mayo Clinic Department of Cardiovascular Diseases; Rochester, MN **Research areas**: Regenerative Medicine, Female Pelvic Medicine

Trainee F-01

Mapping urethral responses during pudendal neurostimulator implant surgery with a multisensor catheter

Chen, Po-Ju^{1,2}, Lagunas, Amador C^{1,2}, Gupta, Priyanka³, Bruns, Tim M^{1,2}. ¹Department of Biomedical Engineering, University of Michigan, Ann Arbor, MI. ²Biointerfaces Institute, University of Michigan, Ann Arbor, MI. ³Department of Urology, University of Michigan, Ann Arbor, MI.

Research Area: Neurourology

Trainee F-02

Investigating the effect of tibial and pudendal nerve stimulation on external vaginal blood flow in anesthetized rodents

Bottorff, Elizabeth C^{1,2}; Bruns, Tim M^{1,2} ¹Department of Biomedical Engineering, University of Michigan, Ann Arbor, MI. ²Biointerfaces Institute, University of Michigan, Ann Arbor, MI. **Research Area:** Sexual Dysfunction, Female Pelvic Medicine

Trainee F-03

Behavioral close-loop neuromodulation of bladder function in a feline model

Ortiz-Lopez, Miguel A^{1,2}; Ouyang, Zhonghua^{1,2}; Willen, Maeve^{1,2}; Kennedy, Eric,^{1,2}; Bruns, Tim M^{1,2} ¹Biomedical Engineering Department, University of Michigan, Ann Arbor, MI, USA. ²Biointerfaces Institute, University of Michigan, Ann Arbor, MI, USA **Research area:** Neurourology, Overactive Bladder (OAB)

Trainee F-04

Quantifying anal sphincter recruitment with clinical pudendal nerve stimulation

Lagunas, Amador C^{1,2}; Chen, Po-Ju^{1,2}; Gupta, Priyanka³; Bruns, Tim M^{1,2} ¹Department of Biomedical Engineering, Ann Arbor, MI. ²Biointerfaces Institute, Ann Arbor, MI. ³Department of Urology, Michigan Medicine, Ann Arbor, MI. **Research Area**: Neurourology

Trainee F-05

Preliminary results of novel, noninvasive, individualized cortical modulation using Transcranial Rotating Permanent Magnet Stimulator in improving voiding dysfunction in multiple sclerosis women

Khue Tran¹, Zhaoyue Shi², Christof Karmonik², Timothy Boone¹, Santosh Helekar³, Rose Khavari¹

- 1. Department of Urology, Houston Methodist Hospital, Houston TX
- 2. Translational Imaging Center, Houston Methodist Research Institute, Houston TX

3. Department of Neurosurgery, Houston Methodist Hospital, Houston TX

Research Area: Neurourology, Voiding Dysfunction/Urinary Retention

Trainee F-06

Predictors for clinical outcomes of noninvasive, individualized neuromodulation with transcranial rotating permanent magnet stimulator in female multiple sclerosis patients with neurogenic voiding dysfunction

Jang, Yongchang¹, Tran, Khue¹, Khavari, Rose¹

¹Department of Urology, Houston Methodist Hospital, Houston, Texas

Research Area: Voiding dysfunction/Urinary Retention, Neurourology

Trainee F-07

Correlation between white matter integrity and lower urinary tract symptoms in female multiple sclerosis patients: 7-Tesla fMRI evaluation

Choksi, Darshil¹; Tran, Khue²; Schott, Bradley¹; Karmonik, Christof³; Khavari, Rose²

- 1. ENMED Program, Texas A&M College of Medicine, Houston, TX
- 2. Department of Urology, Houston Methodist Hospital, Houston TX
- 3. Translational Imaging Center, Houston Methodist Research Institute, Houston TX

Research area: Neurourology, Voiding Dysfunction/Urinary Retention



Jennifer Anger, MD, MPH

Associate Professor of Surgery-Urology Associate Director of Urological Research Urologic Reconstruction, Urodynamics, and Female Urology Cedars-Sinai Medical Center Adjunct Assistant Professor of Urology Surgery, Division of Urology, UCLA

Dr. Anger is a fellowship-trained reconstructive urologist with extensive experience treating pelvic floor disorders in men and women. She completed her Master's degree in Public Health at UCLA under the mentorship of Dr. Mark

Litwin, a pioneer in urological health services research. She has over ten years of research experience using administrative claims, including data from the VA. In 2007, she received a mentored career development award (K23) from the NIDDK. Dr. Anger's research has focused on the quality of care for women with urinary incontinence and pelvic prolapse, including the safety and efficiency of roboticassisted surgery. The research team at Cedars-Sinai is a site for the NIH-funded Multidisciplinary Approach to the Study of Chronic Pelvic Pain (MAPP) Network. Urologic chronic pelvic pain syndromes (UCPPS) are debilitating conditions and a lack of objective clinical diagnostic criteria has severely affected our ability to adequately identify and treat UCPPS. The goal of this MAPP discovery site is to use genomics and proteomics approaches to develop sensitive and non-invasive diagnostic biomarkers that will allow objective phenotyping of UCPPS patients. Dr. Anger's team employs state-of-the-art microbiome genomic sequencing and characterization resources in to define the microbiome/mycobiome of UCPPS patients. The resultant protein patterns in the urine and blood create a signature diagnostic of UCPPS. Dr. Anger serves on the KURe Advisory Board.



Mary Barbe, PhD, FAA

Professor of Anatomy and Cell Biology Director of MicroCT Core and Imaging Center Temple University School of Medicine

Dr. Barbe is a classically trained Anatomist with expertise in Neurobiology/Neuroscience and Musculoskeletal Biology with international recognition. One key focus of her lab since 2000 is studying the effects of repetition and force on tissues as a consequence of an upper extremity overuse injuries, using a uniqueoperant rat model developed in her laboratory. Using this model, she has examined the effects of varying levels of repetitive and

forceful work tasks on musculoskeletal and nervous system pathophysiology, focusing on injury and inflammation initially, and how these processes induced tissue degeneration and sensorimotor dysfunction. She is currently exploring inducers of tissue fibrosis and degeneration occurring with overuse. She has 35 years of experience examining various aspects of peripheral and central neuroplasticity, ranging from changes occurring in the bladder (i.e., peripheral), spinal cord and brain after injury or gene knockout. She utilized the latter experience to inform the rat overuse model, as well as involvement for nearly 14 years in examining methods of reinnervation of the bladder and related tissues after decentralization of the bladder after spinal root injury. Dr. Barbe has published 196 peerreviewed publications and has an H index of 46. She has has a long history of participating in as well as being the PI of a number of projects focused on examining serum and synovial fluid biomarkers that correlate with clinical signs and symptoms in human patients with overuse injury. Dr. Barbe serves on the KURe Advisory Board.



Matthew Barber, MD

Edwin Crowell Hamblen Distinguished Professor of Reproductive Biology and Family Planning Chair of Obstectrics and Gynecology Duke University

Dr. Matthew Barber is E.C. Hamblen Distinguished Professor and Chair of the Department of Obstetrics and Gynecology at Duke University Medical Center. Dr. Barber earned his medical degree from Jefferson Medical College of Thomas Jefferson University and a master's degree in Health Science in Clinical Research from Duke University School of Medicine. He completed

residency training in Obstetrics and Gynecology and a fellowship in urogynecology and pelvic reconstructive surgery at Duke University. His clinical practice focuses on the full spectrum of diagnosis, prevention and medical, behavioral, and surgical treatments for women with pelvic floor disorders (PFDs). Dr. Barber's research focus is the conduct of randomized clinical trials for the treatment of gynecologic conditions, particularly surgical trials for PFDs. He and his collaborators have conducted over 30 randomized clinical trials including landmark trials in the treatment of urinary incontinence and pelvic organ prolapse and use of robotic and laparoscopic surgery for treatment of gynecologic disease. From 2006-2016, he served as PI of the Cleveland Clinic Site of the National Institute of Child Health and Human Development (NICHD) Pelvic Floor Disorders Network. He is an internationally recognized expert in developing, validating, and assessing research outcomes in PFDs, particularly health-related quality of life and patient reported-outcomes. He has won multiple awards for his research including 2001, 2007, 2011, 2013, 2015 Prize Clinical Science Paper from American Urogynecologic Society (AUGS). Dr. Barber served on the Board of Directors of AUGS from 2008-2013 and as its President from 2011-2012. As President of the AUGS, he led the multi-stakeholder team that developed and implemented the Pelvic Floor Disorders Registry (PFDR), a national registry evaluating comparative effectiveness and safety of treatment of pelvic organ prolapse. In 2011, he received recognition as American College of Obstetricians and Gynecologists (ACOG) District V Mentor of the Year. He is currently a member of the Female Pelvic Medicine and Reconstructive Surgery Division of the American Board of Obstetrics and Gynecology and is the Associate Editor of the journal Female Pelvic Medicine and Reconstructive Surgery. Dr. Barber serves on the KURe Advisory Board.



Tim Bruns, PhD

Associate Professor of Biomedical Engineering University of Michigan

Dr. Tim M. Bruns is an Associate Professor and the Associate Chair for Graduate Education in the Biomedical Engineering Department at the University of Michigan. His research group, the Peripheral Neural Engineering and Urodynamics Lab, is part of the University of Michigan Biointerfaces Institute. His lab performs preclinical and clinical studies to examine systems-level neurophysiology and restore pelvic organ function, with a focus on neuromodulation for bladder control and female sexual function. His research

has been supported by funding from the NIH, including the NIH SPARC program, an NSF CAREER award, the Craig H. Neilsen foundation, and industry. He has trained four postdoctoral fellows, eight PhD and twelve MS graduate students, and more than thirty-five undergraduates in his lab.



Arthur L. Burnett, MD, MBA, FACS

Patrick C. Walsh Distinguished Professor of Urology Department of Urology, Johns Hopkins University School of Medicine The James Buchanan Brady Urological Institute

Dr. Arthur (Bud) Burnett received his A.B. degree in Biology from Princeton University and M.D. and M.B.A. degrees from Johns Hopkins University. He performed post-graduate training in general surgery, urology, and reconstructive urology and urodynamics at the Johns Hopkins Hospital. At present, he holds the position of Patrick C. Walsh Distinguished Professor of Urology. Dr. Burnett has served in multiple professional capacities with medical

organizations and advisory committees. He has made academic contributions consistent with his biomedical research and clinical activities in sexual medicine, major pelvic reconstruction, and genitourinary oncology. He has written more than 300 original peer-review articles, 70 editorial comments, 50 book chapters, and 2 books.



Wade Bushman MD, PhD

Professor of Urology University of Wisconsin

Dr. Bushman is a clinician-scientist with a long-standing interest in BPH. He has performed basic laboratory research focused on prostate growth regulation, prostatic inflammation and hyperplasia using the developing and adult mouse prostate as models. In more recent work, he has focused on inflammation-induced effects on voiding behavior and prostatic fibrosis in mice with correlative studies in humans and pioneered the identification of urinary biomarkers of inflammation and fibrosis in BPH/LUTS. Currently, the primary

focus of his own funded research is on pathogenetic mechanisms responsible for benign prostatic hyperplasia (BPH) and lower urinary tract symptoms (LUTS) in aging men with a specific focus on the role of impaired detrusor contractility. He is co-PI of the Wisconsin Multidisciplinary K12 Urologic Research Center Development Program. He is working on developing methods for MR imaging in studying anatomy, function and dysfunction in the lower urinary tract.



Anita H. Clayton, MD, DLFAPA, IF

David C. Wilson Professor and Chair of Psychiatry & Neurobehavioral Sciences Professor of Clinical Obstetrics & Gynecology University of Virginia.

Dr. Clayton is an international leader in Female Sexual Dysfunction (FSD). She has focused her clinical practice and research on: major depressive disorder, mood disorders associated with reproductive-life events in women, sexual dysfunction, and sexual disorders. Dr. Clayton has published over 200 peer-reviewed papers, and was named to the 2019-2020 Best Doctors in America list. She has served on the board of directors for the American Society for

Clinical Psychopharmacology, and as Program Committee Co-Chair, and as a member of numerous Advisory Boards for the pharmaceutical industry (treatment of depression and sexual dysfunctions). She occasionally writes a blog for the Huffington Post.



Judith C. Holder, PhD, MS, PCC, BCC Adjunct Associate Professor, Duke University School of Medicine KURe Leadership and Career-Related Coach Founder and Executive Director, Unique Pathways Coaching and Consulting Services, PLLC. Associate Director and Advisor, Duke Master of Biomedical Sciences Program

Dr. Judith Holder is a licensed psychologist, executive and leadership coach and behavioral health consultant who partners with physician leaders, emerging leaders, administrators and professionals in the healthcare sector,

and leaders in businesses and corporations who have a desire to move from 'good to great' in their sphere of influence. Dr. Holder brings a rich background over her 36-years career as a behavioral health strategist in her coaching and consultation engagements. She has expertise in personal-professional change management, leadership development, performance enhancement, personality styles, communicative knowhow, emotional intelligence competencies, team growth, and in the competing stressors confronting medical and corporate cultures and workforces. Dr. Holder uses her clinical and coaching skills to collaborate and consult with leaders and managers in the people skills needed to lead effectively and in the psychosocial factors impacting employee sub-optimal performance and well-being. Further, since 2013 Dr. Holder has provided coaching services for K-12 recipients (Duke junior faculty and postdoctoral fellows). Judith received her doctorate in Counseling Psychology with an emphasis in stress management from Southern Illinois University-Carbondale, and a Master of Science degree in Systems Dynamics (Marriage and Family Therapy and Community Development-Prevention) from the University of Maryland-College Park. As a former American Psychological Association (APA) and National Institute of Occupational Safety and Health (NIOSH) fellow, Dr. Holder is one of the few psychologists clinically trained as an Occupational Health Psychologist in the United States. She is a former director of several programs at Duke University Medical Center and full-time faculty for twentyfour years prior to becoming the founder and executive director of Unique Pathways Coaching and Consulting Services, PLLC in Durham NC. Along with being a coach-psychologist, Dr. Holder is a certified team coach, a Professional Certified Coach (PCC), a Board-Certified Coach (BCC) and a member of the International Coaching Federation (ICF).



Janet Keast, PhD

Professor and Chair of Anatomy & Neuroscience University of Melbourne, Australia

Dr Keast's scientific training began with award of a Bachelor of Science degree with first class Honours at the University of Adelaide, followed by research in the enteric nervous system and a PhD from Flinders University, mentored by Dr John Furness. After postdoctoral training with Dr William ("Chet") de Groat at the University of Pittsburgh, she held a tenured academic teaching and research position at the University of Queensland, followed by a National Health and Medical Research Council Senior Research Fellowship and recruitment to

Sydney, where she was appointed Director of Basic Research at the Pain Management Research Institute, led by Dr Michael Cousins at the Royal North Shore Hospital. In February 2012 Dr Keast was recruited to the Chair of Anatomy and Neuroscience at the University of Melbourne and during 2013-2017 held the additional role of Head of Department.

Dr Keast is recognised internationally in the area of autonomic neuroscience, especially the neural regulation of urogenital organs and the impact of injury on these nerves. Her intersecting interest in the neurobiology of pain has focused on pelvic visceral pain and spinal cord injury pain, specifically investigating the plasticity of sensory and spinal neurons. A long-standing interest in sexual dimorphism and actions of sex hormones in the nervous system has underpinned many of her studies on sensory and autonomic neurons.

In 2018 Dr Keast received the Nina Kondelos Award from the Australian Neuroscience Society; this is an annual award to a female neuroscientist for outstanding contribution to basic or clinical neuroscience report, made possible by a donation to the Society by Professor George Paxinos and named after his late sister. She currently leads a team supported by the NIH SPARC (Stimulating Peripheral Activity to Relieve Conditions) Program, to map the neural circuitry of the lower urinary tract in order to develop new neuromodulatory therapies. She has also previously been a member of the NIDDK GUDMAP consortium.



Rose Khavari, MD

Associate Professor of Urology, Institute for Academic Medicine Director of Research, Center for Restorative Pelvic Medicine Director of Neurourology and Transitional Urology Clinic Houston Methodist Hospital Weill Cornell Medical College

Dr. Khavari earned her medical doctorate degree with highest honors from the University of Texas Medical Branch in Galveston, Texas, while serving as the president for Alpha Omega Alpha medical honor society. She completed her residency in Urology at Baylor College of Medicine, followed by a fellowship in

male and female continence, pelvic floor reconstructive surgery, Urogynecology and neurourology. Dr. Khavari specializes in male and female incontinence, robotic and laparoscopic surgery, pelvic organ prolapse, and neurogenic urology. In October 2015, Dr. Khavari, a K23 scholar (NIDDK), was selected for funding for her proposed work in neurourology and as a clinician scientist by Houston Methodist Hospital. She has also been chosen for the 2016 American Urological Association/European Association of Urology Academic Exchange Program where she traveled to various urology institutions in Europe to present scientific lectures on her clinical work and her research. With her comprehensive and advanced clinical training, as well as interest in research and teaching, Dr. Khavari is a leader in neurourology and pelvic reconstructive surgery. She also serves as the program director for Urology Residency at Houston Methodist Hospital.



Karl J. Kreder, Jr., MD, MBA Professor Rubin H. Flocks Chair in Urology Department Executive Officer University of Iowa

Dr. Kreder's clinical research focuses on two main areas of interest: overactive bladder/female incontinence, and interstitial cystitis. Within these fields of study, Dr. Kreder acts as principal or co-principal investigator on a number of clinical trials, including conventional medications and surgical treatments, as well as complementary and alternative therapies. His work in the area of

overactive bladder and female urinary incontinence encompasses the entire spectrum of treatments, including behavior and diet modifications and pelvic floor exercises, medications, or one of numerous reconstructive surgical procedures. Dr. Kreder's emphasis of study in interstitial cystitis begins with collaborations in the basic science research labs to help determine the etiology of this disease. His clinical work addresses both the reduction of symptoms through conventional therapies and alternative options, as well as the psychosocial impact of this condition on the patient. Dr. Kreder serves on the KURe Advisory Board.



Maragatha (Maggie) Kuchibhatla, PhD

Professor Biostatistics and Bioinformatics, Psychiatry and Behavioral Sciences Duke University School of Medicine

Dr. Kuchibhatla received her PhD from Texas A&M University. She is a Senior Fellow in the Center for the Study of Aging and Human Development, and a Third Year Mentor in the Clinical Research Study Program (CRSP). She is an expert in statistical research methodology, analysis of repeated measurements, latent growth curve models, latent class growth models, classification/regression trees, propensity score analyses and designing of

clinical trials -- both treatment and non-treatment trials in various comorbid populations. Dr. Kuchibhatla serves on the KURe Advisory Board.



Lesley Marson, PhD VP of Preclinical Research Dignify Therapeutics Durham NC

Dr. Marson is currently Vice President of Preclinical Research at Dignify Therapeutics and Adjunct Professor in the Eshelman School of Pharmacy at UNC Chapel Hill. Dr Marson directed a successful NIH-funded a preclinical research program for over 30 years, served as Study Coordinator for several

clinical trials and Chaired the IACUC as Research Professor in the Urology Division in the School of Medicine at UNC Chapel Hill. Her research has focused on the neurological control of pelvic function, including sexual and bladder function in males and females, leading to 20 publications identifying the peripheral-spinal cord-brain circuits that control the genital organs, bladder, and skeletal muscles. Dr Marson conducts preclinical studies supporting drug discovery and development for ejaculatory function, sexual behavior, urination, defecation, pain, anxiety and depression, in male and female rodents. Before moving to Dignify Therapeutics, she was Director of Sexual Health Research at Urogenix Inc conducting drug discovery of potential targets modulating ejaculatory function and voiding. Dr Marson has mentored urology residents, medical students, post-docs and bachelor students, and has over 80 peer reviewed publications. She serves on various editorial boards including J. of Sexual Medicine, Current Sexual Health Reports and Spinal Cord Series and Cases and has served on multiple NIH and DOD study sections. Dr Marson's current focus area is drug formulation and development to restore voluntary control of excretory function to those with spinal cord injury, MS, diabetes and the elderly.



Glenn M. Preminger, MD

James F. Glenn, M.D. Distinguished Professor of Urology Chief, Division of Urology Director, Endourology, Metabolic Stone Disease, Laparoscopic and Robotic Surgery Fellowship Professor of Surgery, Duke University

Dr. Preminger is Director of the Endourology, Metabolic Stone Disease, Laparoscopic and Robotic Surgery Fellowship at Duke University School of Medicine. He is a nationally and internationally recognized leader in the minimally invasive management of urinary tract stones including shock wave

lithotripsy, percutaneous and ureteroscopic stone removal, as well as the comprehensive metabolic evaluation and preventative medical treatment of nephrolithiasis. He has had extensive experience in the development of endoscopic instrumentation for minimally invasive urologic procedures and holds **eight patents** in shock wave lithotripsy design. He along with his collaborator established The Lithotripsy Laboratory within the Comprehensive Kidney Stone Center to study shock wave physics and tissue effects within the realms of shock wave lithotripsy and intracorporeal lithotripsy devices. He has held numerous national and international committee chair positions, including American Urological Association Office of Education and holds an editorial position with Urology and Journal of Endourology. Dr. Preminger serves on the KURe Advisory Board.



Michael R. Ruggieri, Sr., PhD Professor, Anatomy and Cell Biology Lewis Katz School of Medicine Temple University

Dr. Ruggieri has been working on clinically translatable basic science investigations, primarily mechanisms of neural control of visceral smooth muscle. The general approach has been to use animal models of clinically relevant human disorders to identify potential etiologic and pathogenic

mechanisms and then verify these mechanisms in human tissue specimens to develop targets for therapeutic interventions. For example, his was one of the first groups to demonstrate that human urinary bladder muscle strips from patients with certain pathologic conditions show purinergic nerve mediated contractions. His laboratory is using neural recording and stimulation techniques to monitor the return of urinary bladder emptying function in a canine model. Dr. Ruggieri's approach is to reinnervate these organs with nerve transfer closer to the end organ with somatic nerve transfer. These studies are intended to provide the final proof of concept before detailed, well controlled clinical trials in human subjects can begin. His lab is investigating specific therapeutic targets for treatment of aging bladder dysfunction.



Maryrose Sullivan, PhD

Research Health Scientist, VA Boston Healthcare System Assistant Professor of Surgery, Brigham and Women's Hospital Harvard Medical School

Dr. Sullivan's scientific interests have focused primarily on benign disorders of the bladder, including those related to outlet obstruction, diabetes, spinal cord injury and Parkinson's disease. Her research is aimed at uncovering mechanisms responsible for bladder function/dysfunction and urinary incontinence, with the ultimate goal of identifying targetable pathways for intervention and alleviating lower urinary tract symptoms. As a research

scientist and biomedical engineer, her research projects exploit a number of multidisciplinary approaches to interrogate these pathways at the cellular, tissue and whole animal levels and include imaging, in vitro, ex vivo and in vivo techniques. With funding by the Department of Veterans Affairs and NIDDK, she has published numerous original articles, chapters and reviews on topics related to urinary incontinence, bladder contractility, bladder outlet obstruction, neurogenic and non-neurogenic detrusor overactivity, and diabetic bladder dysfunction. She has been fortunate to be involved in mentoring and supervising many urology residents, post-docs, medical students and junior faculty. She is also an active member of the AUA, SUFU, SPR and ICS, and serves on the editorial board of several urology focused journals. Dr. Sullivan serves on the KURe Advisory Board.



Philip J. Walther, MD, PhD, MBA, FACS

Professor of Surgery/Urology Associate Professor of Experimental Pathology Duke University

Dr. Walther received his MD-PhD as a Duke MSTP trainee; his urologic residency at UCLA; an American Cancer Society junior faculty fellowship at Duke; and subsequently an MBA from Duke's Fuqua School of Business (health care management). His lab research interests have been: 1) Developmental GU onco-therapeutics using human xenograft-supported GU tumors (primarily bladder) 2) the genomic elucidation of the role of oncogenic HPV genotypes

with lower GU cancers (bladder, penis, and urethra). He served as Chair, GU Surgery Subcommittee of the NIH-funded cooperative study group-CALGB. He was the Site PI at Duke for the first NIH-sponsored multi-institutional study of immune-therapeutics of renal cancer using high-dose interleukin-2, and served as PI of a R21-funded grant to initiate an institutional research program in Prostate Cancer (seeding startup seed research grants). He also was PI of a VA-based epidemiologic effort (with Community Medicine) in the study of relevant black vs. white genomic differences associated with Prostate Cancer occurrence. Finally, he served on the Study Committee of a 7 year, 35000+ man NIH-sponsored nutritional intervention Prostate Cancer prevention study (Vitamin E vs. Selenium -SELECT). Dr. Walther serves on the KURe Advisory Board.



R. Clinton Webb, PhD

Director, Cardiovascular Research Center Professor, Department of Cell Biology and Anatomy University of South Carolina

Dr. Webb graduated from the Southern Illinois University, in 1971, and received his Ph.D. in Anatomy from the University of Iowa in 1976. He was the Herbert S. Kupperman Chair in Cardiovascular Disease and Chair of the Department of Physiology at the Medical College of Georgia, Augusta University. In March 2020, he accepted a professorship in the Department of Cell Biology and Anatomy at the University of South Carolina School of Medicine. He also directs

the Cardiovascular Translational Research Center. His research interests focus on the physiology of smooth muscle with particular emphasis on hypertension, bladder physiology and sexual dysfunction. He has published over 360 peer-reviewed papers and 130 book chapters and reviews and is currently funded by a National Institutes of Health (NIH) Program Project Grant.

Mentoring is one of the strongest attributes of Dr. Webb. For nearly four decades, he has promoted the careers of many students and post-doctoral fellows. Forty-nine postdoctoral fellows have trained in his laboratory and he has served as the thesis supervisor for twenty-three graduate students. He has served on seventy-four dissertation committees and over 100 undergraduate students have trained in his laboratory. Nineteen faculty from universities around the world have spent their sabbatical leave in Dr. Webb's laboratory.