

Soman Abraham, PhD (Basic/Translational Research) Professor of Pathology, Molecular Genetics & Microbiology, Immunology. The Abraham laboratory has a long-standing interest in the pathogenesis of E.coli induced urinary tract infections (UTIs) as well as in the innate and adaptive immune responses that these infections evoke. Based on the knowledge gained we are developing novel and effective approaches to prevent and treat recurrent UTIs.

Cindy L. Amundsen, MD (Clinical Trials, Clinical Mentor) is the Roy T. Parker Professor of Obstetrics and Gynecology, Division of Urogynecology and Reconstructive Surgery, Associate Professor of Surgery, Division of Urology and KURe PI/PD. She is an Urogynecologist and recognized expert in treating lower urinary tract and pelvic floor disorders. She is Program Director for the K12 Multidisciplinary Urologic Research Career Development Program and Director of the Female Pelvic Medicine and Reconstructive Surgery (FPMRS) fellowship since 2001. Her main clinical research is devoted to understanding the etiology and treatment of urgency urinary incontinence in both the neurogenic and non-neurogenic population as well as voiding dysfunction and nocturia. Along with Dr. Kevin Weinfurt (Psychiatry; also a mentor for this K12), she is the Duke Co-PI for the Lower Urinary Tract Dysfunction (LUTD) Research Network, funded through NIDDK. This network aims to produce high quality patient-reported measures of LUTD and to use these new measures in exploratory studies to advance our understanding of LUTD and its treatment

Deverick Anderson, MD, MPH, is Associate Professor of Medicine. His research interests are in prevention of harm related to infectious diseases among hospitalized patients, to prevent the spread of multidrug-resistant pathogens, and antimicrobial stewardship. Over the last six years, he has helped lead the Duke Prevention Epicenters Program through several important studies, including studies related to risk-adjustment and antimicrobial stewardship. His expertise is in randomized controlled trials evaluating various aspects of healthcare epidemiology such as the universal glove and gown use and acquisition of antibiotic-resistant bacteria in the ICU, evaluating clinical and financial outcomes of hospital infections, and multicenter trials to evaluate strategies to prevent hospital infections. He is an enthusiastic mentor of junior faculty, postdoctoral associates and has provided guidance for KURe scholar Tatyana Sysoeva during her KURe protocol development that involves studying resistant E.coli UTIs. With his abundant knowledge that will align with KURe scholar interested in the societal effects of hospital acquired UTIs.

Daniel Benjamin, MD, PhD, MPH (Clinical Trials, Epidemiology; Program Lead for Clinical Trials) Professor of Pediatrics, DCRI Faculty Associate Director, is an expert in clinical trial design, execution, and regulatory considerations and will provide mentorship in the use of epidemiology to inform clinical trials and public policy. He has published >150 articles. He has led multi-center studies for pediatric labeling including 3 multi-center PK trials of antifungal agents in premature infants. He is the PI of multiple federal-sponsored grants and contracts including two R01s, one K24 and one T32. He is the PI for the Pediatric Trials Network, a \$95 million initiative to describe the PK and Safety of off-label drugs in children. He was approached by the FDA to collaborate on a series of projects related to the Pediatric Exclusivity Program, through which he learned the specific intricacies related to pediatric drug trials regulations and ethical considerations. He has received 7 awards for teaching and mentorship. He is the Faculty Assoc. Dir. of the Duke Clinical Research Institute (DCRI) he has oversight and responsibilities for resource allocation for all trials of less than 5,000 patients at DCRI.

Ashley Chi, MD, PhD (Basic/Translational Research, -omics) is an Associate Professor in the Dept. of Molecular Genetics and Microbiology and Duke Center for Genomic and Computational Biology. His research interests are to use functional genomic approach to understand the nutrient addiction and stress adaptive pathways of human cancer cells.

Lesley Curtis, PhD (Epidemiology, HSR) is Chair and Professor in Population Health Sciences and directs the Center for Pragmatic Health Systems Research in the Duke Clinical Research Institute. Her research uses observational data to address questions about clinical and comparative effectiveness, pharmacoepidemiology, health care delivery, and epidemiological trends. Clinical areas of interest include heart failure, atrial fibrillation,

eye diseases of the elderly, and cancer. An expert in the use of Medicare claims data for health services and clinical outcomes research, she has led the linkage of Medicare claims with several large clinical registries and epidemiological cohort studies including the Framingham Heart Study and the Cardiovascular Health Study. Over the last 15 yrs. she has guided more than 20 research fellows and medical students. Under her guidance, fellows have published more than 40 first author, peer-reviewed manuscripts including papers in JAMA, Circulation, and the Journal of the American College of Cardiology. In addition, she has served as primary mentor to 3 post-doctoral fellows at DCRI.

Lawrence David, PhD, Assistant Professor, Molecular Genetics & Microbiology. Inter-disciplinary scientist, engineering, computation, biology scientific background, several young investigator awards; Science News' "10 Scientists to Watch" for extensive microbiome research (commensal microbes and human microbiota) related to LUTS and urinary tract infections, mentor for his recognition, productivity, innovative approaches; advising Scholar, Dr. Sysoeva, on microbiome compositional analyses; culture/repository methods.

Mark Dewhirst, DVM, PhD (Basic/Translational Research; Program Leader for Basic/Translational Research) is the Gustavo S. Montana Prof. of Radiation Oncology, Vice Dir. of Basic Science in the Duke Cancer Institute (DCI) and Assoc. Dean for Faculty Mentoring. His research interests include hyperthermia for treating cancer, tumor hypoxia, angiogenesis and drug transport. He pioneered new methods for improving tumor oxygenation and has worked with clinical faculty to test these concepts in patients. As Assoc. Dean for Faculty Mentoring, his primary aim is to train young scientists from fellow to Full Prof., to be better grant writers and to mentor young scientists in the skills to enable them to become successful scientists. He runs the Pathway to Independence and K-Club programs. He has extensive experience and success in mentoring junior faculty. His mentees have successfully obtained K08, K12 and K99 grants and numerous DOD fellowships.

Matthew O. Fraser, PhD (Basic/Translational Research) is Associate Professor of Surgery, Division of Urology; Director of Pelvic Medicine Research Consortium; Director of Clinical & Basic/Translational Research Course; Director of the Urology Surgeon Scientist Research Year, and a Research Physiologist at the Durham VA. He holds a dual-degree Ph.D. in Physiology and Neuroscience. His research interests include pelvic visceral sensory and motor function and dysfunction, with a primary focus on the lower urinary tract using animal and in vitro models. He is the Dir. of the Pelvic Medicine Research Consortium, an officially recognized entity supported by the Duke SOM, and is also the Founder and Pres. of The Society for Pelvic Research.

Ken Gall, PhD, Professor and Chair of Mechanical Engineering & Materials Science. His research ranges from the discovery of a new phase transformation in gold nanowires to the creation and understanding of several new functional biomaterials. His scientific expertise is very focused on mechanical behavior but this covers a broad range of technologies and length scales allowing him to work in many fields. Using an animal model, he is mentoring our urogynecology fellow on her thesis project entitled "In vivo Evaluation of the host response to polycarbonate urethane (PCU) mesh". He has developed expertise in navigating the difficult road of getting a medical device to market, by his role as an expert witness in multiple patent and product litigations involving materials across several industries, having several dozen patents himself and having founded two medical device start-up companies. This knowledge is valuable to our K12 scholars who are interested in investigating novel neuromodulating devices to improve voiding dysfunction as well as exploring other 3D polymers for the surgical treatment of urinary incontinence.

Warren Grill, PhD, Professor of Biomedical Engineering, Neurobiology, Electrical and Computer Engineering (Basic/Translational Research) has research interests in neural engineering and neural prostheses which includes design and testing of electrodes and stimulation techniques, the electrical properties of tissues and cells, and computational neuroscience with applications in restoration of bladder function, treatment of movement disorders with deep brain stimulation, and multi-joint limb movement.

Eric Jelovsek, MD, is Associate Professor in Obstetrics and Gynecology, Vice Chair of Education, Director, Data Science for Women's Health. Clinician decision-making around development and possible prevention of pelvic floor disorders. These tools, although established in other fields, are innovative in the field of pelvic floor disorders and benign urology. After joining the Department of Ob/Gyn in 2017, he has been a part of the Duke multidisciplinary

team in the LURN Network as much of the efforts in the network is working to “individualize” medicine to patients with pelvic floor disorders including LUTS. Dr. Jelovsek has extensive experience with mentoring and education, having been the Program Director for the OB/GYN Residency Program, Medical Director of the Multidisciplinary Simulation and Advanced Skills Center and Vice Chair of Education at Cleveland Clinic before coming to Duke. He has published widely in various areas of epidemiology of pelvic floor disorders including quality of life and statistical methods of using quality of life instruments. With a master’s in predictive analytics and medical education, he devotes a significant proportion of time to one on one mentoring of learners who are interested in learning how to build, code and test prediction models. He has significant experience building structured curricula specifically in the area of statistical modeling that is directed at the practicing clinician and trainee and works in multidisciplinary research teams dealing with data science topics including: computer scientists, statisticians, data scientists, software engineers and biomedical engineering. In addition, he has significant clinical research experience as an investigator in the NICHD Pelvic Floor Disorders Network (PFDN).

William Kraus, MD, Richard and Pat Johnson Distinguished University Professor of Cardiovascular Genomics, Professor, Medicine, SOM, Director of Translational Research, Duke Molecular Physiology Institute (Clinical Trials) focuses on understanding the cellular signaling mechanisms underlying the normal adaptive responses of skeletal muscle to physiologic stimuli, such as occur in exercise conditioning, and to understand the abnormal maladaptive responses that occur in response to pathophysiologic stimuli, such as occur in congestive heart failure, aging and prolonged exposure to microgravity. A second focus is physiologic examination of exercise effects in humans in trials of exercise training in normal individuals, in individuals at risk of disease (such as pre-diabetes), and in individuals with disease (CAD and CHF). A third focus is exploration of genetic determinates of disease risk in human subjects.

Matt Maciejewski, PhD (HSR) is Professor in the Division of General Internal Medicine at Duke and Research Career Scientist in the VA HSR&D Center, where he is the Dir. of the Health Economics and Policy Unit. He uses large administrative data to conduct research in 3 areas: 1) clinical and economic impacts of cost barriers to medication and health care use, 2) evaluation of programs and interventions for the management of obesity and chronic conditions, and 3) primary care decision-making by veterans and Medicare beneficiaries. He has several NIH and VA grants to support this work. He has been the primary mentor for 3 doctoral students, 7 Master’s students, and 2 post-doctoral fellows in the last 10 years.

Susan K. Murphy, PhD (Translational Research) Associate Professor, OBGYN; Chief, Division of Reproductive Sciences. The Murphy Lab is interested in the study of ovarian cancer etiology and biology, ovarian cancer stem cells and the establishment and maintenance of DNA methylation in humans. We are particularly interested in how epigenetic deregulation is associated with altered neurodevelopment and disease and the use of epigenetic profiles to help with detecting risk of later adverse outcomes as well as for developing tests for early diagnosis and for guiding therapeutic decisions.

Evan Myers, MD, MPH (Epidemiology, HSR) Walter L. Thomas Distinguished Professor of OBGYN, has long experience with simulation modeling and decision analysis for a wide range of conditions. He also has extensive experience as a teacher and mentor for a wide range of learners, including junior faculty and has trained multiple prior trainees on NIH training grants.

Chris Newgard, PhD (Basic/Translational Research/-omics)W. David and Sarah W. Stedman Distinguished Professor of Pharmacology & Cancer Biology, and Medicine; founding Director, Duke Molecular Physiology Institute, has devoted his professional career to metabolic research. After coming to Duke in 2002 to lead the Sarah W. Stedman Nutrition and Metabolism Center he developed a comprehensive metabolic profiling (“metabolomics”) platform to support the work of his own laboratory, and numerous collaborating laboratories at Duke and at outside institutions. He and his colleagues formed the Duke Molecular Physiology Institute in 2013, which focuses on use of multi-omics technologies for development of new disease detection and intervention strategies.

Drew Peterson, MD (Clinical Mentor) Professor, Surgery Division of Urology and Director of the Reconstructive

Urology and Genitourinary Cancer Survivorship Fellowship; and Director of Urology Residency Program. He is a fellowship-trained, busy urological surgeon with special expertise in voiding dysfunction and reconstructive urology. He is the former Urology Clinic Dir. at Duke and is the current Urology residency Program Dir. at Duke. His research interests include voiding dysfunction complications from cancer treatment.

Kathryn Pollak, PhD (Clinical Trials, HSR) Professor, Department of Population Health Sciences, is a social psychologist who has examined smoking cessation for the past 20 yrs. and patient-physician communication for the past 11. She has been PI of 6 R01 funded studies. Currently, she is conducting a trial to test an SMS texting intervention to encourage pregnant women to quit smoking. She also is conducting several pilot studies to improve the health of cancer survivors, including increasing physical activity and quitting smoking. The central theme that runs through her work is empathy: empathy for smokers and teaching physicians and patient's empathy. She has mentored several post-doctoral fellows and medicine fellows.

Glenn Preminger, MD (Clinical Mentor) is Prof. and Chief of the Division of Urology; Director of Duke Endourology Fellowship. He is a world leader in the field of endourology and kidney stones. He has a life-long commitment to education and is the former Dir. of Education for the AUA and former Program Dir. for the Urology residency. He is the current Fellowship Dir. for Endourology. His research focuses on metabolic aspects of stone disease and collaborates with Dr. Pei Zhong (also a proposed mentor) on modifications to improve the efficacy of shock wave lithotripsy.

J Todd Purves MD, PhD (Translational Research/Clinical Mentor) Associate Professor, Surgery, is a pediatric urologist in the Division of Urology at Duke where he spends half of his time as a clinician and the other half running an NIH funded laboratory. His lab focuses on projects that have direct relevance to the disorders that are regularly encountered by practicing urologists and urogynecologists in the clinic. We are particularly interested in common underlying pathways that may be affected in multiple diseases as well as translational approaches that may quickly enhance treatment protocols. The innate immune system within the bladder is invariably involved in benign conditions, regardless of the type and etiology of lower urinary tract symptoms in each particular patient. Currently, the model that they are studying, and for which we have obtained R01 funding from the NIH, is bladder outlet obstruction as seen in men with benign prostatic hyperplasia or in children with posterior urethral valves. We are also developing models that will help us understand the impact of diabetes on urinary function. A 2nd, smaller project aim is focused around the neuroanatomy of the lower urinary tract with the clinical objective of optimizing ablative therapies (e.g. Botox injection) for treating patients with overactive bladder and pain syndromes.

Shelby Reed, PhD (HSR) Professor, Department of Population Health Sciences; Director of Preference Evaluation Research (PrefER) Group, DCRI, is experienced in designing and conducting trial-based and model-based economic evaluations of medical interventions across a broad range of conditions. She has led numerous descriptive and comparative effectiveness studies using trial databases, health care claims and disease registries. Her interests include handling and representing uncertainty in economic evaluations, hierarchical modeling, and conjoint analysis. She is PI of an R01 to develop tools to assist healthcare providers and analysts in estimating costs and cost-effectiveness of patient-focused interventions in heart failure. For 4 yrs., she was Dir. of Post-Doctoral Fellowships in the Center for Clinical and Genetic Economics. She continues to mentor post-PhD fellows and worked with 2 fellows in Urology on secondary analyses of Medicare data.

Herman Staats, PhD is Professor of Pathology. His laboratory research focuses on the development and testing of novel adjuvants for use with vaccines for infectious diseases. He is currently the PI of NIH-funded projects (R01, contract) to evaluate mucosal immunization strategies for HIV vaccines and to develop new vaccine adjuvants. He served as a permanent member on the NIH study section Vaccines for Microbial Diseases and currently serves as an editor for Clinical and Vaccine Immunology. He has served on numerous Duke University and School of Medicine committees including the Academic Council, Research Policy Committee, Basic Sciences Faculty Steering Committee, Institutional Animal Care & Use Committee and the Standing Committee on Misconduct in Research. He currently serves as the Director of the Duke Center for AIDS Research (CFAR) Developmental Core that provides resources and services to CFAR members to enhance career development. In this new role, Dr. Staats

will be in charge of the day-to-day operation of the Experimental Pathology division and will work with me to expand the research portfolio of our department. He will be responsible for establishing policies for the Division, recruiting new research faculty, setting up a mentoring program for the junior research faculty, and organizing research-related activities of the department. These are all essential responsibilities as our Department embarks on a phase of rapid expansion.

Chuck Scales MD is Associate Professor of Surgery and has a joint appointment at the Duke Clinical Research Institute (DCRI). He has extensive clinical and health services research training and experience having completed training in clinical and health services research in the Duke Clinical Research Training Program and the UCLA Robert Wood Johnson Clinical Scholars Program. His research has been to use large administrative data to evaluate the quality of clinical research and statistical methods in the urological literature as well as urologic practice patterns, cost effectiveness of urologic treatment and the epidemiology of urologic disease. With his appointment at the DCRI, he is well positioned to mentor KURE scholars in HSR. In addition, he is the Principal Investigator for the scientific data research center of the NIDDK Urinary Stone Disease Research Network (U01). His research is in clinical and health services research in benign urological disease, with a focus on stone disease. The NIDDK Urinary Stone Disease Research network plans to identify methods to increase adherence to fluid intake for secondary prevention of stones, test interventions to mitigate patient symptoms from ureteral stents, and establish a biorepository and data warehouse for future research. **He has a** successful track record for competing for support and publishing manuscripts through an NIH Medical Student Research Training Grant, the CaPSURE Scholars program, the NIDDK-sponsored Urologic Diseases in America Project, the NIH/NIA GEMSSTAR R03 program and has mentored pre and post-doctoral trainees. His experience in grant submissions and knowledge in funding sources for urologic research will be valuable to KURE scholars.

P. Brian Smith, MD, MHS, MPH (Clinical Trials, Epidemiology, HSR) is Professor with Tenure in Neonatal-Perinatal Medicine, has expertise in clinical trial design, HSR and epidemiology. His research program is focused on using clinical trials and databases to evaluate dosing, safety, and efficacy of therapeutics in children. He has published >180 publications. He has experience leading multi-center studies, including trials for pediatric drug labeling. He is Chief of the Division of Quantitative Sciences in the Dept. of Pediatrics. He directly mentors medical students, residents, fellows, and junior faculty. He has served as the Assoc. Dir. of DCRI's research fellowship since '10. He has mentored/co-mentored 11 faculty, 25 pediatric subspecialty fellows, 3 pediatric residents, 10 medical students, and 4 undergrads. In the last 3 years, they have produced 41 first author publications.

George Webster, MD (Clinical Mentor) is Professor of Surgery, Division of Urology, is world-renowned in urodynamics, neurourology, prosthesis for urinary incontinence, reconstructive urology and voiding dysfunction. He received lifetime achievement awards from the AUA and the British Association of Urologic Surgeons. He has collaborated with the Urogynecology Division for the past 11 yrs. and for the last 5 yrs. has recruited participants for Pelvic Floor Disorders Network

Protocols and an investigator in the Lower Urinary Tract Network (LURN) an NIDDK sponsored network. Dr. Webster has extensive experience mentoring fellows and residents; 6 of his last 8 graduating fellows have academic appointments as reconstructive urologists at institutions across the country.

Kevin Weinfurt, PhD (Clinical Trials) is Professor of Population Health Sciences and Vice Chair for Research in the Department of Population Health Sciences as well as Co-Director of the Center for Health Measurement. He is co-Dir. of the Duke Clinical Research Training Program and teaches a course on patient-reported outcomes in clinical research. His main research interests are at the intersection of medical decision making and bioethics and assessing patient reported outcomes in clinical research. He has been PI on multiple R01 and U01s studying patients' quality of life and decision making in various settings. He led the development of the NIH PROMIS Sexual Function and Satisfaction measure. He has taught undergraduate, graduate, and post-doctoral students and served on many thesis committees in psychology, the Fuqua School of Business, and the Clinical Research Training Program.

Kent J. Weinhold, PhD (Basic/Translational research) is a Joseph W. and Dorothy W. Beard Prof. of Surgery (with tenure), Chief of the Division of Surgical Sciences, Prof. of Immunology, and Dir. of Duke Center for AIDS

Research. He has served as PI for the AIDS Vaccine Evaluation Group and HIV Vaccine Trials Network Central Immunology Laboratory charged with monitoring humoral and cellular immune responses elicited by candidate HIV-1 vaccines in Phase I/II trials. His present focus is on the comprehensive profiling of human immune reactivities associated with preventive and therapeutic vaccine strategies, as well as the search for cellular and soluble immunologic biomarkers to predict disease outcomes. He has published over 185 original articles, and has chaired numerous NIH Review Groups and Special Emphasis Panels.

John Wiener, MD (Clinical Mentor) is Professor of Surgery, Division of Urology and Chief of Pediatric Urology. He is a master clinician and senior pediatric urologist specializing in all areas of pediatric urology. He has successfully overseen the growth of the section of Pediatric Urology from 0 faculty prior to his arrival 7 years ago to 3 full-time faculty today. He is very committed to education and serves as the Assoc. Program Director for the Urology residency. His research interest include genetic causes of congenital defects of the kidneys and genitourinary tract and the urologic management of spina bifida. He is currently funded by NIH for the genetic work and CDC as a Principle Investigator in National Spina Bifida Patient Registry.

William Yancy, MD, MHS, FTOS (Clinical Trials, HSR) is the Director, Duke Diet and Fitness Center; Research Associate in the Center for Health Services Research in Primary Care, Staff Physician in Ambulatory Care, and Co-Dir. of the MOVE! Weight Management program at the Durham VA. He is an Assoc. Prof. in the Dept. of Medicine at Duke and is co-director for the Clinical Research Seminar course in the Duke Clinical Research Training Program. His research involves clinical trials investigating the safety, effectiveness, tolerability, and feasibility of diets and medications for weight loss; the relationship of obesity with health outcomes and with utilization of health care services; and innovative approaches to improving adherence to lifestyle recommendations and prescription medications.

Lingchong You, PhD is the Paul Ruffin Scarborough Associate Professor of Engineering in the Edmund T. Pratt, Jr. School of Engineering. His research examines different mechanisms underlying collective antibiotic tolerance, the impact of antibiotic treatment on conjugation dynamics, as well as design of antibiotic treatment protocols. He research aims to elucidate design principles of biological networks inside and between cells. He has applied quantitative methods to the analysis of bacterial dynamics in a broader context, including cell size control, stochastic uptake of bacteria by mammalian cells, and deduction of phenotypic signatures from unbalanced bacterial growth. He has pioneered the use of cell-cell communication to program bacterial dynamics in time and space as well as the use of quorum sensing to program bacterial dynamics. Quorum sensing (QS) is a mechanism by which many bacteria synthesize and respond to small signaling molecules to communicate between cells. In part thanks to analysis of synthetic gene circuits, his lab has come to recognize ubiquitous presence of collective antibiotic tolerance, or inoculum effect, which is underappreciated in studies of bacterial responses to antibiotics.

Pei Zhong, PhD (Basic/Translational Research) is Anderson-Rupp Professor of Mechanical Engineering and Materials Science. He has been researching therapeutic ultrasound for >17replaced by 20 yrs. His current research focuses on shock wave lithotripsy (SWL), ultrasound-mediated drug and gene delivery/gene activation, high-intensity focused ultrasound, and bioeffects of acoustic cavitation. He takes an integrative and translational approach combining fundamental research with engineering and applied technology development to devise novel and enabling ultrasonic techniques for a variety of clinical applications. He was a member of the AUA Task Force on SWL from 2007 to 2009.