BWH / MGH Joint Nephrology Fellowship Program: List of BWH Research Mentors

Reza Abdi, MD (Associate Professor of Medicine, Renal Division, BWH/*Graduate of BWH Nephrology Training Program*)

Dr. Abdi has a long-standing interest in autoimmune and alloimmune responses leading to type 1 diabetes and allograft rejection, with a special emphasis on the role of dendritic cells and mesenchymal stem cells. Dr. Abdi has trained many individuals in his laboratory, some of whom have assumed academic positions in science and academic medicine. He has been principal investigator on NIH R01 and Juvenile Diabetes Foundation grants and recently received the American Society of Transplantation Basic Science Award, Assistant Professor level.
Publications in PubMed.gov: http://www.ncbi.nlm.nih.gov/pubmed/?term=Reza+Abdi

Sangeeta Bhatia, PhD (John J. & Dorothy Wilson Professor of HST (MIT) and Renal Division, BWH)

Dr. Bhatia, a winner of the MIT Technology Review Young Innovators Under 35 award in 2003, directs the Laboratory for Multiscale Regenerative Technologies, focused on the applications of micro- and nanotechnology to tissue repair and regeneration. She also has an appointment in the BWH Renal Division. Her long-term goals are to improve cellular therapies for disease, develop enabling tools to systematically study the fate of stem cells, and design multifunctional nanoparticles for cancer applications. By bridging the unique electromagnetic properties of nanomaterials with advances in bioconjugate chemistry, photonics, and phage display she aims to develop 'intelligent' systems for tumor therapy and biomolecular detection. Her interests are nanoparticles and nanoporous materials that can be designed to perform complex tasks such as: home to a tumor, sense changes in tissues, enhance imaging, and trigger the release of a therapeutic payload.
Publications in PubMed.gov: http://www.ncbi.nlm.nih.gov/pubmed/?term=Sangeeta+Bhatia

Joseph V. Bonventre, MD, PhD (Samuel A. Levine Professor of Medicine, Chief, Renal Division, BWH)

Dr. Bonventre's research focuses primarily on the study of kidney injury and repair and signal transduction, with a special emphasis on the role of inflammation, biomarkers, and stem cells in normal and abnormal repair. A major effort in the laboratory is understanding the role of kidney injury molecule-1 (KIM-1) which was found by Dr. Bonventre to be the molecule in the proximal tubule most up-regulated in expression during injury, and which converts these cells into phagocytes. Other projects include cell cycle signal transduction pathways responsible for facilitating a pro-fibrotic phenotype after acute kidney injury, using pluripotent stem cells to probe the cellular mechanisms of inherited diseases and lineage tracing to understand cell fate after injury. Targeted differentiation of stem cells to kidney cells is being pursued. Additionally, there are ongoing translational studies which are being conducted validating a number of potential biomarkers of kidney injury under various conditions of human disease. KIM-1 has been qualified by the FDA and EMA as a urinary biomarker for nephrotoxicity in preclinical studies and is currently being actively being evaluated by multiple groups for its clinical utility.
Publications in PubMed.gov: http://www.ncbi.nlm.nih.gov/pubmed/?term=Joseph+Bonventre

David M. Briscoe (Associate Professor of Pediatric Nephrology, CHB, *Graduate of BWH Nephrology Training Program*)

Dr. Briscoe's major interest is in transplantation immunology and more specifically in the understanding of chronic allograft rejection. His laboratory has significant expertise in the area of vascular immunobiology and focuses on: 1) the function of leukocyte–endothelial interactions in the development of chronic inflammation; 2) the role of immune-mediated angiogenesis as well as angiogenesis factors in chronic disease; 3) how leukocyte-endothelial cell interactions promote or sustain T cell activation; and 4) whether persistent endothelial activation is associated with, and/or is a predictor of chronic allograft rejection. His most significant contributions include the original descriptions of endothelial cell activation in human allografts undergoing rejection, and publications on the mechanistic (and diagnostic) roles of endothelial cell responses in humans during acute and chronic rejection. He defined a major proinflammatory function for vascular-endothelial cell growth factor (VEGF) in immunity, and mechanistic insight into how VEGF mediates the leukocyte trafficking within allografts.

Publications in PubMed.gov: http://www.ncbi.nlm.nih.gov/pubmed/?term=David+Briscoe

Anil Chandraker, MB,ChB (Associate Professor of Medicine, Medical Director of Renal Transplantation, Renal Division, BWH/ *Graduate of BWH Nephrology Training Program*)

The major focus of the research in Dr. Chandraker's laboratory is the role of the T cell in chronic allograft rejection. The mechanisms involved in the development of chronic rejection remain poorly defined. Animal models are used to test potential therapeutic strategies aimed at preventing/interrupting chronic rejection. Most of his work has centered on the functions of various T cell co-stimulation pathways in the immunological mechanisms of chronic allograft injury. Interest in this field has led to collaborations outside transplantation immunology into models of autoimmunity and infection. In terms of clinical research, he is the PI or Protocol Chair on several NIH-funded Clinical Trials in Organ Transplantation (CTOT) awards. Many of these studies are large prospective multicenter studies in cardiac or kidney transplant recipients. For example the CTOT02 study examines the effects of anti-CD20 treatment on the effects of development of *de novo* anti HLA antibodies post-transplantation in kidney transplant recipients. Translational research involves BK viremia, the effect of APOL1 genotypes on transplant survival, and novel assays for recipients.

Publications in PubMed.gov: http://www.ncbi.nlm.nih.gov/pubmed/?term=Anil+Chandraker

David Charytan, MD, MSc (Assistant Professor of Medicine, Renal Division, BWH; Associate Medical Director for Trial Design of the Harvard Clinical Reseach Institute, /*Graduate of BWH Nephrology Training Program* /*T32 fellow*)

Dr. Charytan studies factors that may account for the high risk of cardiovascular disease and death in patients with renal disease. He studies outcomes of standard therapies in patients with chronic kidney disease, underutilization of standard therapies in individuals with chronic kidney disease (CKD), and the role of micro-vascular disease in the association of CKD and cardiovascular disease. Dr. Charytan has a broad background in epidemiology and wet-lab based techniques, which he calls upon in support of this research. As PI on several foundation and NIH-funded grants, Dr. Charytan has laid the foundation for deeper exploration of these issues, and has excellent resources to support the career development of fellows/trainees.

Publications in PubMed.gov: http://www.ncbi.nlm.nih.gov/pubmed/?term=David+Charytan

Gary Curhan, MD, ScD (Professor of Medicine, Renal Division & Channing Laboratory, BWH)

Dr. Curhan's active research activities include the epidemiology of nephrolithiasis (R01 supported) focusing on dietary and urinary risk factors for stone formation; risk factors for renal function decline including use of analgesics, inflammatory biomarkers and genetic factors (R01 funded); novel risk factors for hypertension including serum uric acid and genetic factors (funded by foundations and industry); the role of statins in individuals with chronic kidney disease; chronic kidney disease and cardiovascular risk; risk factors for gout and gout as a risk factor for cardiovascular disease (industry funded). Trainees will have the opportunity to work on several of these projects. Dr. Churhan is the recipient of an NIH K24 grant, which will allow him to continue to devote a substantial proportion of effort to mentoring.

Publications in PubMed.gov: http://www.ncbi.nlm.nih.gov/pubmed/?term=Gary+Curhan

John Forman, MD, MSc (Assistant Professor of Medicine, Renal Division, BWH/*Graduate of BWH Nephrology Training Program*/*T32 Fellow*)

Dr. Forman's research focuses on the analysis of novel and remediable risk factors for the development of hypertension, including the study of novel environmental and circulating factors. He has published prospective studies of risk factors for hypertension in several cohorts, analyzed the association between certain novel factors and renin-angiotensin system activation as an intermediate phenotype in the development of hypertension, and currently is conducting two funded randomized trials. He is currently mentoring a number of research fellows and is the PI for three active R01 grants.

Publications in PubMed.gov: http://www.ncbi.nlm.nih.gov/pubmed/?term=John+Forman

Caroline S. Fox, MD, MPH (Clinical Assistant Professor of Medicine, Endocrine Division, BWH; Tenure Track Scientist at NHLBI, Framingham Heart Study)

As a tenure-track scientist at the National Heart, Lung, and Blood Institute, Dr. Fox's lab is dedicated to population studies of renal function and obesity. Her research group makes use of cutting-edge tools of population science, including traditional epidemiology, high-throughput biomarkers, and genetics and genomics. Dr. Fox has a strong track-record of mentoring, including Renal Division fellows.

Publications in PubMed.gov: http://www.ncbi.nlm.nih.gov/pubmed/?term=Caroline+S+Fox

Markus Frank, MD (Assistant Professor of Pediatrics, Dermatology, and Medicine, CHB/ *Graduate of BWH Nephrology Training Program*)

Dr. Frank is a clinically trained transplantation immunobiologist with extensive experience in experimental allotransplantation and tumor xenotransplantation models and in the assessment, modulation and therapeutic targeting of immune responses *in vitro* and *in vivo*. Additionally, Dr. Frank is an expert in the field of cancer stem cell (CSC) biology. His laboratory discovered and characterized the novel human ATP-binding cassette (ABC) family member and multidrug resistance (MDR) mediator, ABCB5, which identifies human malignant melanoma initiating cells (MMIC) that can be therapeutically targeted to inhibit tumor growth. In addition, his laboratory has recently identified novel T-cell modulatory functions of $ABCB5^{+}$ melanoma subpopulations that suggest specific roles for these MMIC in the evasion of antitumor immunity and in cancer immunotherapeutic resistance, providing the rationale for investigating further the immunology of malignant melanoma-initiating cells.

Publications in PubMed.gov: http://www.ncbi.nlm.nih.gov/pubmed/?term=Marcus+Frank

Nir Hacohen, PhD (Assistant Professor of Medicine, MGH and Broad Institute, MIT)

The goals of Dr. Hacohen's laboratory are to: (1) develop methods to reconstruct genetic circuits in mammalian cells; (2) determine how immune cells sense and eliminate bacteria, fungi, viruses and self; (3) characterize the cellular networks underlying healthy and abnormal immunity in humans. He is a founder of the RNAi Consortium at the Broad Institute and has contributed to the development of validated genome-wide lentiviral RNAi libraries targeting all mouse and human genes. As a Principal Investigator at the Broad Institute and MGH, he has worked with his group members and collaborators to perform systematic RNAi screens and identify key genes in a variety of immunological processes. A major focus of the lab is the reconstruction of regulatory pathways in mammalian cells, focusing on innate immune responses and host-pathogen interactions. These studies have led to a new paradigm for network reconstruction in mammalian cells and yields new information on host-pathogen interactions and innate immune pathways.

Publications in PubMed.gov: http://www.ncbi.nlm.nih.gov/pubmed/?term=Nir+Hacohen

Andreas Herrlich, MD, PhD (Instructor in Medicine, Renal Division, BWH/*Graduate of BWH Nephrology Training Program*)

Metalloprotease cleavage of the extracellular domain (ECD) of many transmembrane proteins such as EGF ligands has been linked to the regulation of many signaling pathways. When disregulated, this can cause disease. Epidermal growth factor (EGF) family members are well-studied examples of proteins that undergo ectodomain cleavage and are physiologically important in many cellular contexts across species and play roles in heart disease, kidney disease and cancer. ECD cleavage can be induced by activation of G-protein coupled receptors, by osmotic stress and by phorbolester. Therapeutic exploitation of this mechanism has been difficult since to date only broad-spectrum metalloprotease inhibitors that cause a number of side effects and have not proven therapeutically useful are available. In order to harness this mechanism, we first need a detailed understanding of how EGF ligand cleavage is regulated. The goal of Dr. Herrlich's current research is to clone novel genes that regulate EGF ligand cleavage using a high-throughput shRNA gene knock-down strategy.
Publications in PubMed.gov: http://www.ncbi.nlm.nih.gov/pubmed/?term=Andreas+Herrlich

Jeffrey Karp, PhD (Associate Professor of Medicine, Biomedical Engineering, BWH and MIT)

Dr. Karp's research focuses on stem cell engineering (toward elucidating basic mechanisms mediating the homing of mesenchymal stromal cells that drive innovative engineered solutions to control the fate of cells posttransplantation), biomaterials (studying degradable prodrug-based self-assembled hydrogels as controlled drug-delivery systems), and medical devices such as needles that sense travel through tissues, or gecko inspired medical adhesives that was recently selected as one of Popular Mechanic's "Top 20 New Biotech Breakthroughs that Will Change Medicine". In addition to his research goals, Dr. Karp is dedicated to the career development of the next generation of bioengineers to work at the forefront of regenerative medicine. Dr. Karp has been recognized as one of the world's leading innovators under the age of 35 by MIT Technology Review.
Publications in PubMed.gov: http://www.ncbi.nlm.nih.gov/pubmed/?term=Jeffrey+Karp

Vicki Rubin Kelley, PhD (Professor of Medicine, Renal Division, BWH)

Dr. Kelley's laboratory focuses on the molecular and cellular mechanisms of inflammation concentrating on autoimmune lupus and kidney diseases. Trainees can work on *in vivo* systems, in particular spontaneous models of renal disease and lupus (MRL-*Fas*^{lpr} strain) and induced models of renal inflammation. Genetic approaches are used to dissect the pathogenesis and identify therapeutic targets for renal inflammation. Trainees can explore the role of parenchymal cells as active participants that regulate immune responses in the kidney, the role of macrophages in the initiation of apoptosis, and the interaction between parenchymal cells and leukocytes (macrophages, T cells) to dictate whether the kidney is protected or destroyed. Particular attention is devoted to examination of the role of macrophages during inflammation.
Publications in PubMed.gov: http://www.ncbi.nlm.nih.gov/pubmed/?term=Vicki+Rubin+Kelley

Ali Khademhosseini, PhD (Professor of Medicine, Biomedical Engineering, BWH and MIT)

Dr. Khademhosseini uses micro and nanoengineering tools that have traditionally been used for microelectronics and telecommunication industries, to better understand and manipulate cell behavior (e.g. stem cells), and to fabricate devices for high-throughput screening and tissue engineering. He has developed new materials and methods to regulate and analyze the interaction of cells with their surroundings in culture. To control cell migration and to restrict cell or colony size, cells and proteins were patterned using numerous methods based on PEG and polysaccharide patterning. To control cell-cell contact, he has developed methods based on layer-by-layer deposition of ionic biopolymers to generate patterned co-cultures. In addition, he has developed microfluidic-based approaches to control the spatial properties of hydrogels and to interface cells inside microdevices. Using these tools as platform technologies his goal is to control cell fate in a variety of systems for regenerative therapies. Dr. Khademhosseini makes *in vitro* systems that can be used for testing drugs and drug delivery vehicles prior to costly animal or clinical experimentation in a high-throughput manner. He has been recognized as one of the world's leading innovators under the age of 35 by MIT Technology Review.

Publications in PubMed.gov: http://www.ncbi.nlm.nih.gov/pubmed/?term=Ali+Khademhosseini

Andrzej Krolewski, MD, PhD (Associate Professor of Medicine, Head of Genetics and Epidemiology, Joslin Diabetes Center)

The Krolewski laboratory combines a very large clinical database captured from medical records and special examinations of patients and their relatives, with banks of biologic samples of serum, urine and DNA from the same patients. The overarching goal of the research is to understand the pathogenesis of nephropathy in humans with Type 1 or Type 2 diabetes. To accomplish this goal, this inter-disciplinary laboratory includes expertise in DNA analysis, proteomic analysis and biostatistics for studies of patients and families selected from the Joslin population laboratory. Since 1990, the lab has has conducted longitudinal studies that focus on the determinants (including genetic factors) of early renal function decline and increased urinary albumin excretion, the two cardinal phenotypes of early diabetic nephropathy. Dr. Krolewski has trained many young investigators to apply epidemiologic and genetic methods to research on the etiology of diabetes and its complications.

Publications in PubMed.gov: http://www.ncbi.nlm.nih.gov/pubmed/?term=Andrzej+Krolewski

Vijay Kuchroo, DVM, PhD (Samuel L. Wasserstrom Professor of Neurology in Inflammatory Diseases, Neurology, BWH)

Research in Dr. Kuchroo's laboratory focuses on understanding the molecular pathways and mechanisms leading to the dysregulation of the immune system, such as autoimmunity. The laboratory has primarily focused on studying the autoimmune response to the proteins of CNS myelin, namely myelin proteolipid protein (PLP) and myelin oligodendrocyte glycoprotein (MOG). T cell receptor (TcR) transgenic mice that express TcRs that recognize two different myelin antigens, PLP and MOG have been generated. The transgenic mice develop spontaneous autoimmune disease of the central nervous system, called experimental autoimmune encephalomyelitis (EAE), a mouse model for human disease multiple sclerosis (MS). There are several ongoing projects that offer excellent learning opportunities for fellows in innate immunity. Since 1989, Dr. Kuchroo has mentored over 50 students and fellows from around the world; many have gone on to have stellar careers. He also has active collaborations with faculty in the Nephrology Division, including Drs. Bonventre and Humphreys.
Publications in PubMed.gov: http://www.ncbi.nlm.nih.gov/pubmed/?term=Vijay+Kuchroo

David B. Mount, MD (Assistant Professor of Medicine, Renal Division, BWH/*Graduate of BWH Nephrology Training Program*)

Dr. Mount is focused on the molecular physiology of ion and solute transport, and has identified novel members of four transporter gene families. His laboratory has cloned several new members of the cation-chloride cotransporter gene family, most notably the K-Cl cotransporters KCC3 and KCC4. He characterized five new members of the SLC26 gene family, including SLC26A6, a multifunctional transporter that is the dominant apical chloride-oxalate exchanger and chloride-base exchanger in the renal proximal tubule. Apical chloride-formate/base/oxalate exchange mediated by SLC26A6 and basolateral K-Cl cotransport mediated by KCC3 and KCC4 play crucial roles in trans-epithelial salt transport by the renal proximal tubule, with implications for both essential hypertension and edema syndromes. The Mount lab has identified the renal sodium-lactate/nicotinate cotransporters that works with SLC22A12 (URAT1) in renal urate absorption.
Publications in PubMed.gov: http://www.ncbi.nlm.nih.gov/pubmed/?term=David+Mount

Mark A. Pfeffer, MD, PhD (Dzau Professor of Medicine, Cardiovascular Division, BWH)

Dr. Pfeffer is a cardiologist and researcher with close working collaborations with leaders in the academic nephrology community. He has served on the Executive Committee for the Irbesartan Type II Nephropathy Trial (IDNT), which helped establish the importance of an angiotensin receptor blocker in reducing progression of diabetic nephropathy and was the Chairman of TREAT (Trial to Reduce Cardiovascular Events with Aranesp® Therapy), a trial assessing the risks and the benefits of an erythropoietin-stimulating agent in patients with diabetes, chronic kidney disease and anemia. He is currently Co-Principal Investigator of ALTITUDE, an ongoing major international study of cardiac and renal progression in patients testing whether a new renin inhibitor would reduce renal progression and cardiovascular events.
Publications in PubMed.gov: http://www.ncbi.nlm.nih.gov/pubmed/?term=Mark+A+Pfeffer

Martin Pollak, MD (Professor Medicine, Chief of Nephrology, BIDMC/*Graduate of BWH Nephrology Training Program*)

The broad focus of Dr. Pollak's research is to understand the genetic basis of kidney disease. Dr. Pollak's laboratory has a major focus on identifying and understanding genes involved in the development of focal segmental glomerulosclerosis (FSGS) and nephrotic syndrome. Dr. Pollak's laboratory identified the first autosomal dominant FSGS locus on chromosome 19q13 and subsequently refined this locus and demonstrated genetic heterogeneity of FSGS. His laboratory identified ACTN4, encoding α-actinin-4, as the cause of disease in FSGS-1 linked families. Efforts are also underway to understand the molecular pathogenesis of TRPC6 and NPHS2 mediated glomerular disease. Dr. Pollak is also working to identify additional human FSGS genes by both genetic linkage and candidate gene approaches. Trainees in Dr. Pollak's laboratory have participated in projects including human genetic studies, development of new mouse models of disease, and biochemical and cell biologic studies. Trainees are active participants in the laboratory's research efforts. Currently, Dr. Pollak's laboratory has nine trainees (including PhD and MD postdoctoral fellows and one graduate student). Dr. Pollak's laboratory actively collaborates with Renal Division faculty, including Drs. Shah, Mount, and Zhou.
Publications in PubMed.gov: http://www.ncbi.nlm.nih.gov/pubmed/?term=Martin+Pollak

Charles N. Serhan, PhD (Professor of Oral Medicine, Infection and Immunity, Anaesthesia, BWH)

Uncontrolled inflammation is now thought to play an essential role in many diseases. Dr. Serhan's lab is devoted to the structural elucidation of bioactive mediators in inflammation and to basic research in an academic setting and medical center that can impact clinical care. In recent years, his group gained considerable experience with the isolation and structural elucidation of novel mediators and identified a new genus of anti-inflammatory and pro-resolving mediators. His laboratory defined, for the first time, lipid mediators that stimulate and enhance resolution, i.e. pro-resolving mediators. These provide a new direction to approach treatment of uncontrolled inflammation with agonists rather than inhibitors of essential pathways in host defense. Dr. Serhan has mentored more than 40 fellows and post-docs, many who have academic careers in prominent academic medical centers around the world.
Publications in PubMed.gov: http://www.ncbi.nlm.nih.gov/pubmed/?term=Charles+Serhan

Shiladitya Sengupta, PhD (Assistant Professor of Medicine, Biomedical Engineering, BWH and MIT)

Dr. Sengupta's laboratory is interested in understanding the basic relationships at the cellular level that define a pathological state, and in using this knowledge to develop novel strategies or medicines for treating disease. How does the cellular microenvironment modulate cellular functions or vice versa? Can the complex sugars that constitute the microenvironment play a cohesive role in intracellular regulation at the protein signaling or genetic levels? These are some key questions that his group is currently probing using novel tools to dissect the complex sugars and connecting these with changes they observe in genetic and protein-signaling. They are engineering novel therapeutic approaches for new drug discovery, for hybrid nanotechnology applications for novel therapeutic strategies, and for regenerative medicine using directed stem cell differentiation. He has been recognized as one of the world's leading innovators under the age of 35 by *MIT Technology Review*.

Publications in PubMed.gov: http://www.ncbi.nlm.nih.gov/pubmed/?term=Shiladitya+Sengupta

Jagesh Shah, PhD (Associate Professor of Medicine, Systems Biology, Harvard & Renal Division, BWH)

Dr. Shah's laboratory has focused on the scientific investigation of cellular measurement. That is, how do cells quantitatively assess their external and internal environment and use this information to make decisions. One important goal of this research is to understand, from a systems level, how molecular architecture and interactions provide the basis for noise rejection and signal amplification – central elements to a measurement apparatus. The lab focuses on three key cell biological processes: 1) spindle assembly checkpoint, 2) cilium length regulation and 3) gradient sensing in leukocytes. He has an active interest in cystic kidney disease.

Publications in PubMed.gov: http://www.ncbi.nlm.nih.gov/pubmed/?term=Jagesh+Shah

Arlene Sharpe, MD, PhD (George Fabyan Professor of Comparative Pathology, Harvard Medical School)

Dr. Sharpe's laboratory investigates T cell costimulation and its immunoregulatory roles in controlling the balance between T cell activation and tolerance. Costimulation is of therapeutic interest because manipulation of T cell costimulatory pathways may provide a means either to enhance immune responses (to promote anti-microbial or tumor immunity) or terminate immune responses (to control autoimmune diseases or achieve tolerance for organ transplantation). The laboratory uses genetic approaches to determine the obligatory functions of T cell costimulatory pathways, focusing on the roles of T cell costimulatory pathways in regulating the balance between pathogenic and protective immune responses needed for effective antimicrobial immune responses and the induction and maintenance of T cell tolerance.

Publications in PubMed.gov: http://www.ncbi.nlm.nih.gov/pubmed/?term=Arlene+Sharpe

Vishal Vaidya, PhD (Associate Professor of Medicine, Renal Division, BWH/Graduate of BWH Nephrology Training Program)

Dr. Vaidya directs the laboratory of kidney toxicology and regeneration in the BWH Renal Division. He has published extensively on the role of biomarkers in assessing kidney injury in animals and humans. Dr. Vaidya has performed miRNA and mRNA expression analyses in rodent kidneys after injury and have identified candidate genes (fibrinogen) and candidate small RNAs that potentially regulate renal dedifferentiation and repair in animal and humans. His lab is investigating the critical role of fibrinogen (Aα, Bβ and γ) in epithelial and endothelial repair using pharmacological inhibitors and genetic manipulation strategies *in vitro* and *in vivo*.
Recent representative publications: http://www.ncbi.nlm.nih.gov/pubmed/?term=Vishal+Vaidya

Sushrut Waikar, MD, MPH (Associate Professor of Medicine, Renal Division, BWH/*Graduate of BWH Nephrology Training Program/T32 fellow*)

Dr. Waikar is involved in patient-oriented research in acute kidney injury, chronic kidney disease, and hyopnatremia. Active research projects include novel biomarkers of AKI following major vascular and cardiac surgery, critical illness, and nephrotoxin administration; novel biomarkers of chronic kidney disease; the epidemiology of hyponatremia in hemodialysis patients; small solute clearance during continuous renal replacement therapy; and mathematical modeling of creatinine kinetics in acute kidney injury. He is the Principal Investigator of a Career Development Award from NIDDK and a Principal Investigator of the Chronic Kidney Disease Biomarkers Consortium, a multicenter study examining biomarkers in cohorts including MDRD, AASK, CRIC, ARIC, and DCCT among others.
Publications in PubMed.gov: http://www.ncbi.nlm.nih.gov/pubmed/?term=Sushrut+Waikar

Jing Zhou, MD, PhD (Associate Professor of Medicine; Director, Harvard Center for PKD Research, Renal Division, BWH/*Graduate of BWH Nephrology Training Program*)

Dr. Zhou uses multidisciplinary approaches ranging from human molecular genetics, molecular and cellular biology, biochemistry to developmental biology and mouse genetics to understand the physiology and pathophysiology of polycystins and polycystic kidney disease (PKD). Her current focus is to understand the downstream signaling events of the two ADPKD proteins. She is also studying the genetic modifiers that modulate disease severity. Polycystins are an expanding family with diverse functions in multiple tissues. Polycystin-2 has recently shown to control the determination of left-right body axis and fertility. Dr. Zhou also uses multidisciplinary approaches to identify the functions of four new polycystins recently identified in her lab, and the function of autosomal recessive polycystic kidney disease (ARPKD) proteins.
Publications in PubMed.gov: http://www.ncbi.nlm.nih.gov/pubmed/?term=Jing+Zhou+%2B+Renal