

BETH ISRAEL DEACONESS MEDICAL CENTER
DIVISION OF NEPHROLOGY



Beth Israel Deaconess
Medical Center



HARVARD MEDICAL SCHOOL
TEACHING HOSPITAL

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ABOUT OUR DIVISION

The Division of Nephrology is dedicated to providing the highest-quality care to patients, advancing nephrology research, and training future physicians and investigators to become leaders in the field.

Decades before Boston’s Beth Israel and New England Deaconess hospitals came together as Beth Israel Deaconess Medical Center (BIDMC), each was a leader in health care with a long history of personalized patient care and community service. In 1996, the two hospitals merged to form BIDMC. Today, with nearly three quarters of a million patient visits each year in and around Boston, BIDMC is rated among the top hospitals in the country in patient care and National Institutes of Health funding.

Like BIDMC, the Division of Nephrology has a rich and remarkable history, boasting an impressive lineage of members and leaders. This includes Franklin Epstein, MD, one of the fathers of nephrology, who served as Chief of Nephrology at Beth Israel Hospital in the 1980s. Widely admired for his innovative research, incisive teaching, and compassionate approach to patient care, Dr. Epstein set a high bar for excellence—a standard the Division maintains today.

◀◀ Franklin Epstein, MD, with a patient, c. 1980.

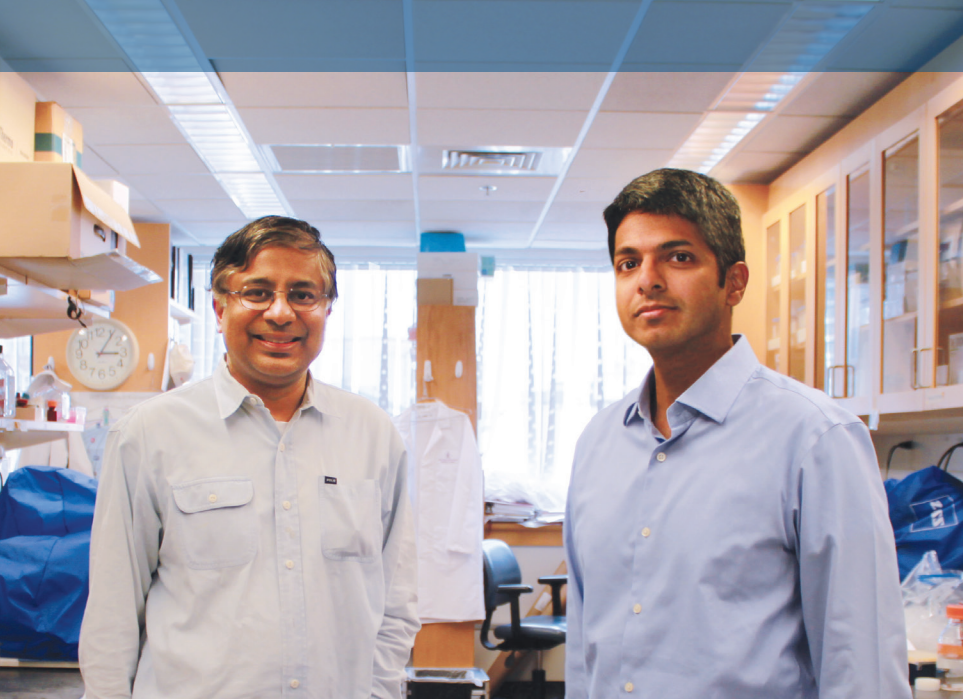
RESEARCH



The Division performs leading-edge research that is advancing our biomedical understanding of the kidney and uncovering new ways to prevent and treat kidney disease. We are proud to host one of the top nephrology research teams in the world, including members of the American Society for Clinical Investigation, the Association of American Physicians, and the National Academy of Sciences. Our trailblazing research has global impact, not just on the field of nephrology but on the lives of those affected by kidney disease.

Our faculty and trainees are engaged in research—from bench to bedside. Our groundbreaking work includes investigation into the APOL1 gene, helping to explain the marked racial/ethnic disparities in kidney disease. Our team also leads ongoing research into preeclampsia, significantly decreasing life-threatening risks faced by pregnant women in resource-limited settings around the world. Our research often spans disciplines, institutions, and continents. Among the top recipients of National Institutes of Health funding, our investigators study the kidney from many perspectives, including anatomy, molecular physiology, and genetics. Using every scientific tool at their disposal, our team is leading the way, making vital contributions to our understanding of kidney disease and functionality.

◀ Left: Martin Pollak, MD, Ananth Karumanchi, MD, and Seth Alper, MD, PhD, left to right.
Right: Johannes Schlondorff, MD, PhD, with Brianna Talbot, research technician.



KIDNEY PATHOPHYSIOLOGY

Our research teams have advanced our industry expertise of several vascular conditions, including preeclampsia, sepsis, and acute kidney injury. Their ongoing projects continue to improve scientific and clinical understanding of these diagnoses and others.

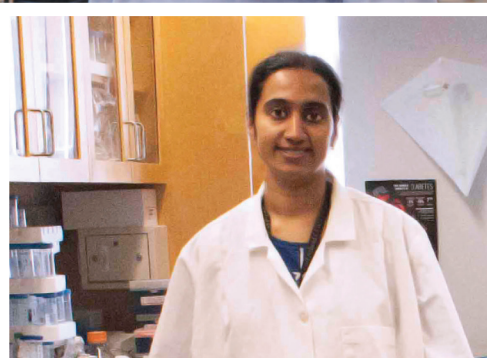
Preeclampsia is a late pregnancy complication affecting 1 out of every 20 pregnancies, and is the single biggest cause of poor fetal outcomes and maternal deaths. Ananth Karumanchi, MD, and laboratory colleagues first identified preeclampsia as a systemic disorder affecting the endothelium, a single cell layer that lines the inner surface of blood vessels. The group has since discovered molecular methods to diagnose preeclampsia and has investigated ways to treat the disease, extend pregnancy, and thereby improve maternal and fetal outcomes.

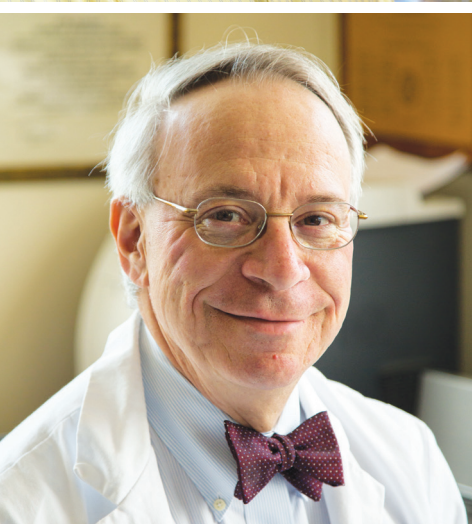
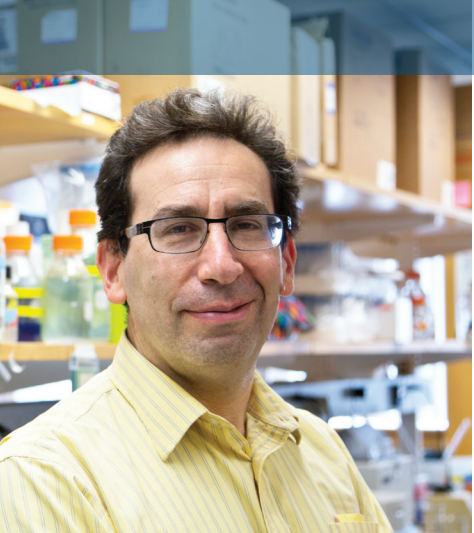
The laboratory of Samir Parikh, MD, researches molecular mechanisms of disease in the intensive care unit, including sepsis and acute kidney injury. The team investigates the abnormal host vascular response to severe infections that leads to deadly complications of sepsis. They also explore the role of acute metabolic derangements in the multi-organ dysfunction syndrome. Among other recent breakthroughs, Dr. Parikh's laboratory has shown that the mitochondrial protein PGC1 α plays a key role in the kidney's recovery from injury by regulating the synthesis of nicotinamide adenine dinucleotide.

Research in the lab of Savithri Kota, PhD, is focused on understanding the molecular signaling pathways that underlie acute kidney injury and repair. Her team uses mouse models to create therapies harnessing the intrinsic tissue protective mechanisms. Dr. Kota is interested in understanding the pathophysiological changes in aging kidneys, and identifying pathways that influence the outcome in response to kidney injury.

◀◀ Ananth Karumanchi, MD, and Samir Parikh, MD.

Inset: Savithri Kota, PhD.





GENETICS & BIOLOGY

The Division is nationally and internationally recognized for its seminal work related to the etiology of various forms of kidney disease. Our investigators have also made significant strides in defining aspects of kidney cell biology and function in health and disease.

Martin Pollak, MD, and his team have helped unravel the genetics of several forms of inherited focal segmental glomerulosclerosis and continue to use genetics to understand glomerular function and disease. In widely-cited work, Dr. Pollak, David Friedman, MD, and colleagues reported that variants of the apolipoprotein-1 gene (APOL1) are the major cause of kidney disease in people of recent African ancestry. They continue to study APOL1-associated disease, and Dr. Friedman investigates the genetics of kidney disease in other populations.

Johannes Schlondorff, MD, PhD, works closely with Dr. Pollak in the investigation of glomerular disease genes. His laboratory studies signaling pathways important in glomerular and podocyte function. Seth Alper, MD, PhD, and Theodore Steinman, MD, have both contributed to the understanding of polycystic kidney disease (PKD), the most common Mendelian form of kidney disease. Dr. Alper's laboratory focuses on the role of polycystins-1 and -2 in normal flow sensing by ciliated epithelial cells, and the defective flow sensing of PKD cyst epithelial cells. Dr. Steinman has been a leader in clinical and translational investigation of PKD for many years. His work includes observational studies to define the PKD phenotype and many interventional trials.

Dr. Alper also studies a range of physiological processes, including acid-base regulation by kidney tubules, transporters involved in kidney stone development, and the biology of sickle cell disease. Mark Zeidel, MD, maintains an active laboratory while serving as Chair of Medicine, and is widely recognized for his studies on water and molecule flow across biological membranes and mechanisms of epithelial injury. Most recently, Dr. Zeidel and his colleagues have been working to understand disorders of bladder function and their neurological regulation.

◀◀ Top, left to right: Martin Pollak, MD, and Theodore Steinman, MD.
Bottom, left to right: Mark Zeidel, MD, and David Friedman, MD.



CLINICAL & TRANSPLANTATION RESEARCH

While much of our scientific exploration is performed with a goal of understanding human disease, our Division's clinical and transplant research efforts have led to particularly significant improvements in direct patient treatment and outcomes.

There are many clinical research projects underway in the Division. Robert Brown, MD, is applying new imaging methods to study various aspects of kidney disease progression. In addition to his basic research in polycystic kidney disease, Theodore Steinman, MD, conducts clinical research and trials in multiple areas of nephrology, including kidney stones, diet control in kidney disease, and cyst management.

Our Division's clinical research benefits from a close affiliation with the Joslin Diabetes Center. Robert Stanton, MD, of Joslin and BIDMC, investigates the role of the enzyme G6PD in diabetic kidney disease and acute kidney injury. Sylvia Rosas, MD, who also has a dual Joslin/BIDMC appointment, is carrying out multiple clinical trials related to diabetic kidney disease.

The Division's research efforts in transplantation are bolstered by our role in BIDMC's multidisciplinary Transplant Institute. Terry Strom, MD, the Director of the Institute's Transplant Research Center, is a member of our Division's faculty and international leader in the field of transplant immunology. He has done groundbreaking work in understanding the basic mechanisms underlying immunosuppressive agents. Along with his colleagues in Nephrology and the Transplant Institute, Dr. Strom has helped lead the development of immune-tolerance therapies for patients and continues to improve outcomes in organ transplantation.

◀ Terry Strom, MD, and Sylvia Rosas, MD.



The Division of Nephrology prides itself on delivering patient-centered, compassionate care. We serve over 5,500 patients each year at our primary location in Boston's Longwood Medical Area. Our providers are experts in treating and managing all aspects of kidney health and disease.

Our clinical team manages chronic kidney disease, developmental and genetic abnormalities, hemodialysis, hypertension, peritoneal dialysis, and kidney transplantation. In addition to our Boston location, our physicians provide care at five community practices and nine dialysis centers across the Greater Boston Area. In addition, our faculty serve as medical directors at two of these dialysis centers. We also serve as a tertiary referral center and provide nephrology consultative services to BIDMC's growing network of member hospitals and affiliates.

Dialysis Centers:

- Davita Brookline Dialysis
BIDMC Medical Directors
- Davita Wellesley Dialysis
- Davita Wellington Circle Dialysis
- Dialysis Clinic, Inc. (Faulkner Hospital)
- Dialysis Clinic, Inc. (Somerville)

- The Kidney Center
- NxStage Kidney Care (Norwood)
BIDMC Medical Director
- Waltham Dialysis
- Westwood Dialysis Center

Member Hospitals and Affiliates:

- Beth Israel Deaconess HealthCare-Chelsea
- Beth Israel Deaconess HealthCare-Lexington
- Beth Israel Deaconess Hospital-Milton
- Beth Israel Deaconess Hospital-Needham
- Bowdoin Street Health Center

◀ Genevieve Moreault Moin, RN, with a patient.



CLINICAL PARTNERS & PROGRAMS

In addition to partnering with BIDMC's affiliates, member hospitals, and community health centers, the Division of Nephrology has close ties to the prestigious Joslin Diabetes Center and is an integral part of BIDMC's renowned Transplant Institute.

BIDMC is a leader in kidney transplantation. Our program is one of the oldest and most respected in the region, with particular expertise in kidney transplantation among patients with diabetes or HIV infection. This is largely thanks to BIDMC's Transplant Institute, a multidisciplinary group of experts committed to compassionate care and patient involvement throughout the entire transplant process. The Institute's transplant nephrologists are dedicated to caring for kidney and pancreas transplant patients.

The Joslin Diabetes Center in Boston is the largest hub for diabetes research, care, and education in the world. BIDMC is proud to have maintained a close partnership for many years, providing excellent specialty care to Joslin patients. Our nephrologists offer expert treatment to patients with kidney-related diabetes complications.



◀ Top, left to right: Transplant nephrologists Eliyahu Khankin, MD, Martha Pavlakis, MD, Clinical Director of the Transplant Institute, and Francesca Cardarelli, MD.

Bottom: Members of the Transplant Institute.

EDUCATION



As a Harvard teaching hospital, we are committed to training the next generation of physicians and scientists. We offer excellent and innovative programs that attract top faculty and trainees from across the globe. With graduates in leadership positions internationally, our faculty and alumni comprise a supportive and far-reaching professional network.

Our physicians—who also serve as members of the Harvard Medical School (HMS) faculty—are actively engaged in the education of nephrology fellows, interns, residents, and medical students. Our faculty serve as core educators for our fellowship program, the Department of Medicine’s Internal Medicine Residency Program, and the Academy at HMS. They also serve important roles at HMS as course directors and core faculty in the preclerkship curriculum, and as developers of Harvard’s medical curriculum redesign.

Our faculty is recognized locally, nationally, and internationally for their excellence in medical education. In addition to numerous education-related awards and appointments, faculty members regularly present at events held by organizations such as at the American Transplant Congress, the American Society of Nephrology, and the International Society of Nephrology. They also share their expertise and love of learning as visiting professors at institutions worldwide.

◀ Melanie Hoenig, MD, BIDMC nephrologist and Course Director for Renal Pathophysiology at Harvard Medical School.



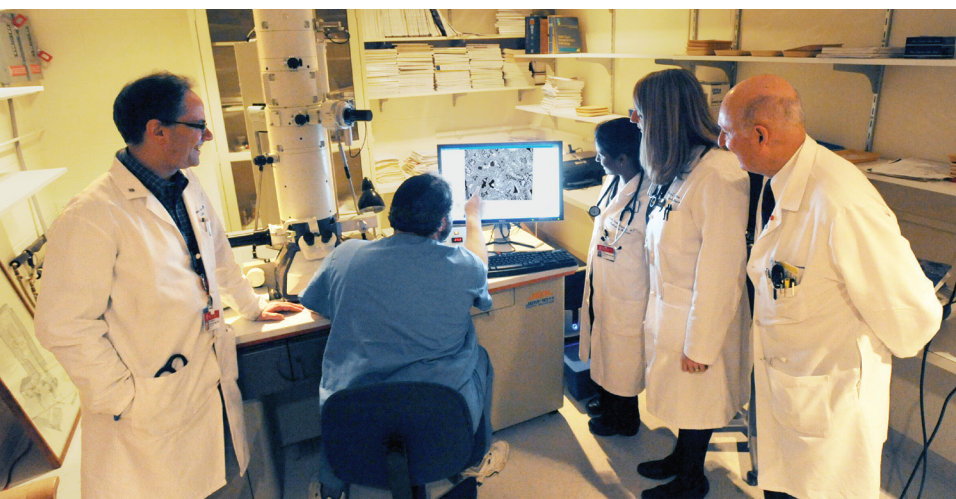
FELLOWSHIP PROGRAM

Training future leaders in nephrology is central to our educational mission. Whether our trainees provide patient care, perform clinical or laboratory research, or take on educational roles, our fellowship provides the tools needed to champion the growth of our specialty.

Our fellowship program's clinical track is a two-year, Accreditation Council for Graduate Medical Education (ACGME)-accredited program. Fellows are assigned to clinical services, including inpatient, dialysis, and transplant. In addition, fellows work in the outpatient general nephrology continuity clinic and transplant clinic. Fellows interested in research are offered a third year of full-time bench or clinically-oriented research funded by a National Institutes of Health T32 Training Grant.

We also offer a one-year transplantation track accredited by the American Society of Nephrology and the American Society of Transplantation for those who have completed an ACGME-accredited nephrology fellowship. This track provides in-depth experience in transplant patient care, education, and patient-centered research. Fellows graduate with the qualifications to be a United Network for Organ Sharing-approved medical director of a kidney transplant program.

◀◀ Robert Cohen, MD, and fellow Kenneth Ralto, MD.



OTHER EDUCATION PROGRAMS

In addition to our fellowship program, the Division offers educational opportunities for faculty, internal medicine residents, and medical students who choose a nephrology elective. The exceptional educators among our faculty lead rounds, lectures, journal clubs, and courses that enhance our collective learning experience. We are committed to the education of nephrologists and nephrology trainees at BIDMC and beyond.

Each year, Mark Zeidel, MD, Chair of the Department of Medicine at BIDMC, directs two highly successful interactive workshops at the Mount Desert Island Biological Laboratory on Mount Desert Island in Maine. These courses train medical students and nephrology fellows from BIDMC and other institutions in the basics of kidney physiology.

Longtime faculty member Burton Rose, MD, founder of medical database UpToDate, co-directs Nephrology Boston, a popular post-graduate course held each spring in downtown Boston. The week-long course is sponsored by BIDMC's Department of Medicine and Harvard Medical School.

The Division also holds regular training sessions, including Nephrology Grand Rounds, Journal Club, Renal Biology Rounds, Clinical Case, and Transplant Conferences. Our trainees all attend these events in addition to their inpatient consultation rounds and didactic lectures, which are well-attended by faculty, residents, and medical students as well.

◀ Top: Mount Desert Island Biological Laboratory campus entrance in Mount Desert Island, Maine.
Bottom: Stewart Lecker, MD, Director of the Nephrology Fellowship Program, and Robert Brown, MD, with fellows.

OUR FACULTY



The clinicians, educators, and researchers in our Division have been widely recognized for their outstanding work. Present and past faculty members and trainees have included recipients of the American Society of Nephrology's highest awards for teaching and investigation. Our faculty includes members of the American Society of Clinical Investigation, the American Association of Physicians, and the National Academy of Sciences, as well as past chairs of the Medical Advisory Board for the National Kidney Foundation.

Seth Alper, MD, PhD
Robert Brown, MD
Francesca Cardarelli, MD
Christina Chen, MD
Robert Cohen, MD
John Danziger, MD
John D'Elia, MD
Bradley Denker, MD
Lisa Dumouchel, NP
David Friedman, MD

Warren Hill, PhD
Melanie Hoenig, MD
Antoine Kaldany, MD
S. Ananth Karumanchi, MD
Eliyahu Khankin, MD
Savithri Kota, PhD
Joseph Kupferman, MD
Stewart Lecker, MD, PhD
Katherine Lynch, MD
Bryce MacIver, PhD

John Mathai, PhD
Samer Nasser, MD
Samir Parikh, MD
Martha Pavlakis, MD
Martin Pollak, MD
Ali Poyan Mehr, MD
Sylvia Rosas, MD
Burton Rose, MD
Johannes Schlondorff,
MD, PhD

Robert Stanton, MD
Theodore Steinman, MD
Isaac Stillman, MD
Terry Strom, MD
Vikas Sukhatme, MD, PhD
Jeffrey William, MD
Mark Williams, MD
Weiqun Yu, MD, PhD
Kambiz Zandi-Nejad, MD
Mark Zeidel, MD

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Beth Israel Deaconess Medical Center is a patient care, teaching, and research affiliate of Harvard Medical School and consistently ranks as a national leader among independent hospitals in National Institutes of Health funding.

BIDMC is in the community with Beth Israel Deaconess Hospital-Milton, Beth Israel Deaconess Hospital-Needham, Beth Israel Deaconess Hospital-Plymouth, Anna Jaques Hospital, Cambridge Health Alliance, Lawrence General Hospital, MetroWest Medical Center, Signature Healthcare, Beth Israel Deaconess HealthCare, Community Care Alliance, and Atrius Health. BIDMC is also clinically affiliated with the Joslin Diabetes Center and Hebrew SeniorLife and is a research partner of Dana-Farber/Harvard Cancer Center and The Jackson Laboratory. BIDMC is the official hospital of the Boston Red Sox. For more information, visit www.bidmc.org.



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