

CENTER FOR KIDNEY RESEARCH AND THERAPEUTICS

FEINBERG CARDIOVASCULAR RESEARCH INSTITUTE



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The new Center for Kidney Research and Therapeutics at Northwestern University Feinberg School of Medicine is focused on curing kidney diseases. This breakthrough center is directed with distinction by Xunrong Luo, MD, PhD, and is one of three leading centers at Northwestern that comprise the prestigious Feinberg Cardiovascular Research Institute. The physicians and investigators who work at the institute are committed to developing innovative approaches to diagnose and treat diseases of the heart, kidney, eye, and vascular system. The blood and lymphatic vessels are crucial for healthy organs and tissues. As a consequence, disruption of cardiac or vascular function is central to a myriad of diseases including heart disease, blindness, and kidney failure.

The Plight of Kidney Disease

How does a diagnosis of kidney disease affect a person's health and well-being? With kidney disease, a person's kidneys are damaged and cannot filter blood the way they should. This damage can cause the build-up of wastes in the body and also can cause other serious problems, such as heart disease. Kidney disease also increases one's chances of having a stroke or heart attack. Some major risk factors for kidney disease include diabetes, high blood pressure, and a family history of kidney failure.

According to the National Institute of Diabetes and Digestive and Kidney Diseases, the growth and burden of kidney disease worldwide is staggering. Each year, kidney disease is killing more people than breast or prostate cancer. The overall prevalence of chronic kidney disease in the general population is approximately 14 percent, and almost half of individuals with chronic kidney disease also have diabetes and/or self-reported cardiovascular disease. More than 661,000 Americans have kidney failure. Of these, 468,000 individuals are on dialysis, and roughly 193,000 live with a functioning kidney transplant.

Our breakthrough Center for Kidney Research and Therapeutics is built on the strong foundation of our dedicated members and their high-impact and diverse research and clinical care efforts.

Our research teams are focusing their efforts on the following urgent areas of study:

- Kidney disease pathogenesis
- Vascular diseases
- Chronic kidney disease complications
- Acute kidney injury
- Renal replacement therapies
- Kidney transplantation
- Immune tolerance
- Diabetes and diabetic kidney disease
- Islet cell transplantation
- Kidney regeneration and replacement
- Stem cell biology

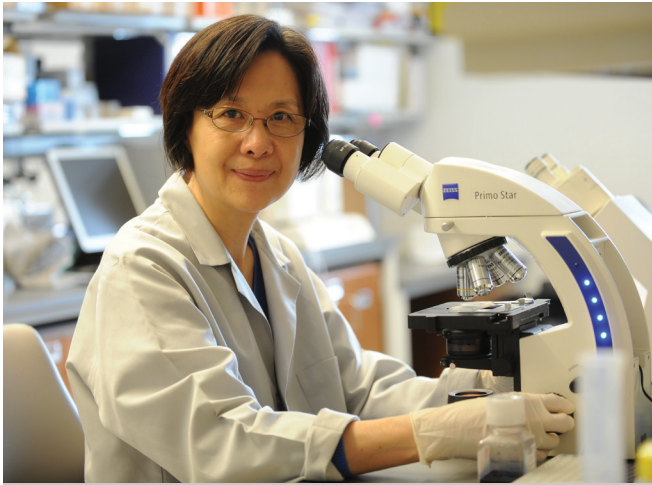
Through these investigations at our center, we are generating new knowledge and are at the vanguard of understanding:

- How vascular development and derangement (disturbance of normal functioning) may contribute to the initiation and deterioration of many kidney diseases;
- How dietary phosphate and its regulatory endocrine loop may contribute to enhanced renal and cardiovascular risks and health disparity;
- How genetic and environmental risks contribute to dialysis access failures;
- How one's immune system can be coaxed to accept a transplant organ without rejection; and
- How stem cell technology can be utilized for repairing organ damage.



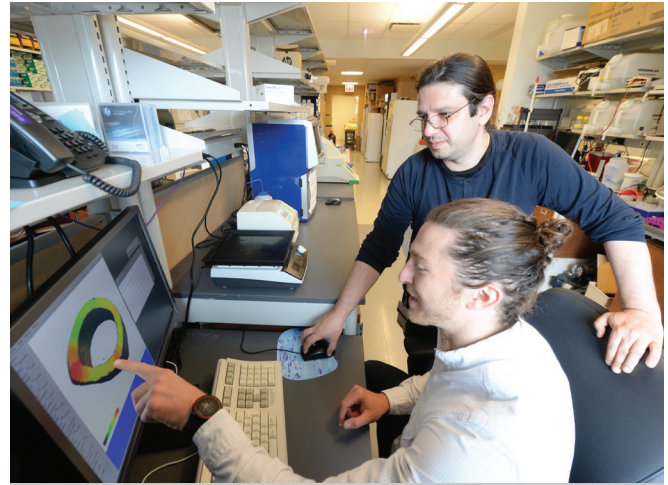
"At the Center for Kidney Research and Therapeutics, we have a bold vision to develop personalized kidney therapies for our patients. Our goal is to relieve patients and their families of the burdens and significant challenges of kidney disease in its many forms. Our center is a shared platform for our members to access the latest tools and concepts, to collaborate within our center, Northwestern University, and beyond, and to develop quicker paths for discoveries that ultimately benefit patients with kidney diseases."

Xunrong Luo, MD, PhD, director of the Center for Kidney Research and Therapeutics, Feinberg Cardiovascular Research Institute



Cutting-edge cellular therapies for diabetes

At Northwestern, we view the Center for Kidney Research and Therapeutics as a dynamic hub where our members can access the latest tools and concepts and can jumpstart and nurture their research collaborations within the center, Northwestern, and beyond. Our center also is a catalyst for our members to interact and partner with the Northwestern University Innovation and



State-of-the-art laboratory research facility

New Ventures Office, biotechnology/pharmaceutical entities, and regulatory agencies to develop an accelerated path that helps us to translate discoveries into treatments that ultimately benefit our patients with kidney disease at Northwestern Medicine and across the globe.

About Dr. Xunrong Luo

Xunrong Luo, MD, PhD, is the Margaret Gray Morton Professor of Medicine, director of the Center for Kidney Research and Therapeutics of the Feinberg Cardiovascular Research Institute, director of the Human Islet Cell Transplant Program of the Comprehensive Transplant Center, associate director of the Medical Scientist Training Program and chair of Admissions at Northwestern University Feinberg School of Medicine.

Dr. Luo was born in Shanghai, China, and earned her bachelor's degree from Tsinghua University in Beijing, China in 1991. She then entered the Graduate School of Duke University on full scholarship where she earned her PhD in Biochemistry in 1995. Afterwards, Dr. Luo entered Duke University School of Medicine where she earned her MD degree in 1998. She later completed an internship and residency in Internal Medicine at the New York-Presbyterian Weill Cornell Medical Center. After residency, Dr. Luo completed a clinical fellowship in nephrology and a research fellowship in transplant nephrology also at the New York-Presbyterian Weill Cornell Medical Center. There, under the mentorship of Dr. Manikkam Suthanthiran, she began her research in studying tolerance strategies for autoimmunity and transplantation. She also became an integral member of his research team in an effort to establish a clinical human islet cell transplantation program at New York-Presbyterian Hospital. The concerted effort led to the first successful human islet transplantation in 2004 in the New York metropolitan area.

Dr. Luo joined Northwestern in 2005 as a transplant nephrologist in the Division of Nephrology and Hypertension. Building on original research work initiated at Cornell, she

worked closely with Dr. Stephen Miller of the Department of Microbiology-Immunology at Northwestern in establishing a highly novel and robust tolerance strategy for transplantation. The novelty and significance of this work was underscored by her receiving the National Institute of Health's Director's New Innovator Type 1 Diabetes Pathfinder Award in 2008. She was one of the only 10 recipients nationwide to receive this award. In addition, Dr. Luo has been directing Northwestern Hospital's Human Islet Cell Transplant Program since 2011. Under her leadership, Northwestern continues to stay at the forefront of employing beta cell replacement as a therapy for diabetes. Dr. Luo is a superlative physician-scientist who works tirelessly to translate her innovations into strategies to improve the wellbeing of her patients.

Since joining Northwestern in 2005, Dr. Luo has been continuously funded as a principal investigator by the National Institutes of Health and the Juvenile Diabetes Research Foundation. In accordance with her many accomplishments, Dr. Luo has received numerous awards, including the Kidney and Urology Foundation of American Research Fellowship Award, the American Society of Transplantation Council's Fellowship Award, the American Federation for Medical Research Centocor Scholar Award, and the Basic Science Investigator Award of the American Society of Transplantation. In 2013, Dr. Luo was elected to the American Society of Clinical Investigation. In recognition of her leadership skills, in 2016 Dr. Luo was appointed as the inaugural director for the Center of Kidney Research and Therapeutics of the Feinberg Cardiovascular Research Institute. In 2017, she was named as associate director of the Medical Scientist Training Program and chair of Admissions at Northwestern University Feinberg School of Medicine.

A longer-term goal of Dr. Luo and our center is to incorporate a comprehensive infrastructure for clinical research into the Center for Kidney Research and Therapeutics. This structure would enable Dr. Luo and colleagues to conduct randomized clinical trials to evaluate the efficacy of the therapies they develop. Last but not least, educating and training the next generation of basic scientists, physician-scientists, and clinicians is a guiding mission and top priority of the center. We are endeavoring to attract top candidates from our broad research and clinical communities to join forces with us in our quest for a cure for kidney diseases.

A Call for Partnership

With Dr. Luo's vision and the contributions of its talented members, the impact of the Center for Kidney Research and Therapeutics will be extraordinary and far-reaching. We invite your interest and partnership in supporting our cutting-edge research, world-class patient care, the training of future leaders in the field, and our blossoming international partnerships. Our dedicated members and programs are deeply committed to discovering a cure for kidney diseases. Together, we can make this noble aspiration possible for patients and their families across the globe.

In the Words of Dr. Luo's Grateful Patients:

"I have had diabetes since the age of six and was very nervous about getting a transplant. I had so many questions and concerns. Dr. Luo was very patient with me and courageous. I waited 10 months for the very best possible match. The islet cells were inserted directly into my liver. Through this islet cell transplant and their wonderful care, Dr. Luo and her team cured my lifelong diabetes in two weeks. I am moving on with my life and enjoying all of the amazing things that I can do now. Diabetes no longer defines me. I can be the person I want to be and focus less on myself and more on my kids."

— GM, a patient in her late 30s

"I had kidney failure in 1994 and came to Northwestern after a bad experience someplace else. I had a great transplant experience at Northwestern with Dr. Murray Levin, who has since retired. Years later, I began having debilitating urinary tract infections that would put me back in the hospital year after year. Dr. Luo walked in one day and has been a blessing to me ever since. She listens to me as a patient and takes the time to explain things at my level of understanding. In carefully assessing my problem, Dr. Luo changed my medication, put me on an antibiotic, and reconnected my ureter. I love Northwestern Medicine and continue to receive my care here. Dr. Luo is a wonderful person."

— KO, a patient in his mid 50s

For information about supporting the Center for Kidney Research and Therapeutics, please contact:

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