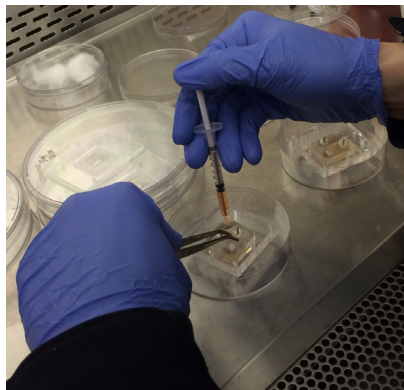
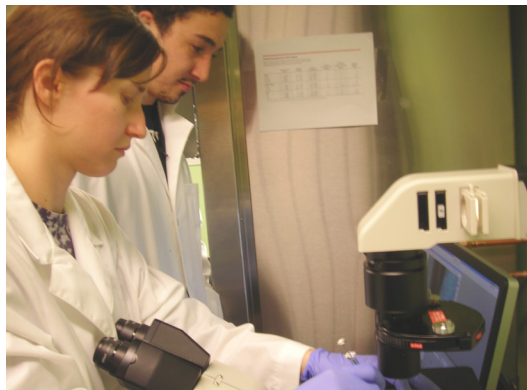


A collaboration between Northwest Kidney Centers and UW Medicine



LEFT: Students Alenka Jaklic and Elijah Weber, members of Dr. Ed Kelly's lab at the University of Washington, insert kidney cells into a chip. Investigators are creating chips that will mimic the functionality of a live kidney, providing a better way to test drug safety. Read more about the project on page 2.
RIGHT: Injecting cells into a chip.

2014: recruiting more investigators, study participants

A message from the director

DR. JONATHAN HIMMELFARB

We've had a very promising start to 2014 at the Kidney Research Institute. In February, we made our annual presentation to Northwest Kidney Centers' Board of Trustees. Northwest Kidney Centers and UW Medicine collaborated to found the KRI in 2008 and we remain closely involved with both organizations. We focused on the patient and staff experience in kidney research, giving the Board a sense of the direct interface between KRI staff and investigators, Northwest Kidney Centers' staff and patients, and the incredible importance of these relationships. Visit kri.washington.edu to hear patient Michael Wiley's perspective on this relationship and his current involvement with one of our studies.

We were also able to share some impressive milestones for our young research program. To date, the KRI has secured more than \$45 million in grant funding. In less than five years, our investigators have published a total of 477 publications. In this newsletter, we've highlighted just 10 recent publications that are particularly relevant to clinical care—see page three to see the range of topics these papers cover.

Turn the page to read about two of our talented investigators, Dr. Ronit Katz and Dr. Susan Wong. Ronit, a senior biostatistician who joined us last fall, specializes in cardiovascular disease and other risks associated with kidney disease. Susan, a nephrology fellow, was recently awarded a grant through the American Kidney Fund's Clinical Scientist in Nephrology Program, the only fellow in the country to receive this prestigious award. Both Ronit and Susan are extremely knowledgeable and driven, major additions to both the Kidney Research Institute and the University of Washington's Division of Nephrology.

Our relationship with Northwest Kidney Centers continues to grow. About 300 of the nonprofit's dialysis patients are now involved in Kidney Research Institute studies, and many of the organization's supporters are big proponents of kidney research. It is the community's high level of involvement and engagement in research that allows the Kidney Research Institute and its collaborators to continue working to improve the lives of people with kidney disease.

We appreciate your continued support of the Kidney Research Institute.

ON THE HORIZON

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TRANSFORMING LIVES THROUGH INNOVATION AND DISCOVERY

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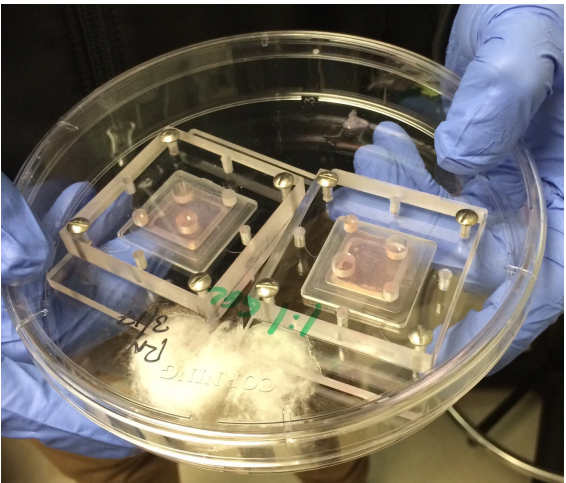


Kidney-on-a-chip:
investigators continue to build chips, will soon test toxicity

Although animal drug testing provides researchers with an idea of how a drug will react in humans, the intricate makeup of the kidney means this method isn’t foolproof.

“We need a better model, a model that can accurately predict how a drug will behave before it’s ever put into a human,” says Dr. Ed Kelly, associate professor in the Department of Pharmaceutics at University of Washington and a primary investigator on the project. “We’re hopeful that the kidney-on-a-chip could be that model.”

Investigators at the Kidney Research Institute and the University of Washington began work on the kidney-on-a-chip, a tissue engineered human kidney microphysiological system, back in September of 2012. Since then, investigators have been collecting tissue samples, isolating cells, and building blood vessels, ultimately creating chips that mimic a real kidney.



So how exactly do these chips work?

A kidney contains a million nephrons, and each nephron is made up of tiny blood vessels called the glomerulus. The glomerulus filters the blood and sends the remaining fluid on through the renal tubule. Researchers in Kelly’s lab are developing chips with the tubule while across the University of Washington campus, Dr. Ying Zheng, an assistant professor in bioengineering at UW and another primary investigator on the project, develops chips with kidney blood vessels.

“Right now we’re seeing how these very important parts of the kidney work on their own,” says Zheng. “Pretty soon, we’ll build the blood vessels around Ed’s tubule on a chip to see if the two components together correctly mimic the function of a living human kidney. After that, it’ll be time to introduce toxins.”

In the future, investigators hope to develop a chip that models the liver, intestine and kidney to see how a drug reacts to each of these different organs. For now though, the team is working hard to master these tiny kidney models.

“Pretty much everything we are doing hasn’t been done before,” says Kelly. “It’s exciting to be a part of.”

“Pretty much everything we are doing hasn’t been done before. It’s exciting to be a part of.”
– Dr. Ed Kelly

Research fellow Dr. Susan Wong awarded prestigious fellowship for personal development



Dr. Susan Wong.

exceptional—not only does it support your research work but it also awards funding towards our profession and personal development as researchers, which is very unique.”

Wong will research the circumstances around, and health outcomes

Dr. Susan Wong, a nephrology fellow at the University of Washington who focuses her research on health services and health disparities in kidney disease, was recently awarded the prestigious two-year Clinical Scientist in Nephrology fellowship from the American Kidney Fund.

“Being selected is a great honor,” says Wong, the only person in the country to receive the award this year. “The fellowship is

of, patients who do not receive chronic dialysis for their end-stage renal disease. She will also use the funding to get a Masters in Epidemiology as well as undergo specialized training on palliative care and advanced care planning for patients with kidney disease.

“Palliative care is strong for cancer patients but we’ve been very slow to develop it for patients with kidney disease and the dialysis population,” says Wong. “I’m excited to have the opportunity to conduct research that will allow us to improve this type of care for our patients. Past awardees have really revolutionized how we provide care to patients with kidney disease.”

Wong is mentored by Dr. Ann O’Hare at the VA Health Services Research and Development Center. The Kidney Research Institute’s Drs. Jonathan Himmelfarb and Yoshio Hall have also been influential to Wong. Hall was awarded the same fellowship in 2003.

“The KRI is a good place to get ideas and to learn—it’s a great resource for fellows,” says Wong.

Recent publications from Kidney Research Institute investigators

Author	Title	Journal	Date
Dr. Cassy Robinson-Cohen, et al.	Assessment of Physical Activity in Chronic Kidney Disease	Journal of Renal Nutrition	June 2012
Dr. Bob Roshanravan, et al.	Association Between Physical Performance and All-Cause Mortality in CKD	Journal of the American Society of Nephrology	April 2013
Dr. Ann O’Hare	Vascular Access for Hemodialysis in Older Adults: a “Patient First” Approach	Journal of the American Society of Nephrology	June 2013
Dr. Rajnish Mehrotra, et al.	Initiation of Dialysis Should be Timely: Neither Early Nor Late	Seminars in Dialysis	September 2013
Dr. Ronit Katz, et al.	Cystatin C Versus Creatinine in Determining Risk Based on Kidney Function	New England Journal of Medicine	September 2013
Dr. Ian de Boer, et al.	Adverse Effects of Systemic Glucose Absorption With Peritoneal Dialysis: How Good is the Evidence?	Current Opinion in Nephrology and Hypertension	November 2013
Dr. Kathy Tuttle, et al.	New Therapies for Diabetic Kidney Disease	New England Journal of Medicine	November 2013
Dr. Ian de Boer, et al.	Physical Activity and Change in Estimated GFR Among Persons with CKD	Journal of the American Society of Nephrology	December 2013
Dr. Yoshio Hall, et al.	Characteristics and Performance of Minority-Serving Dialysis Facilities	Health Services Research	December 2013
Dr. Jonathan Himmelfarb, et al.	Provision of Antioxidant Therapy in Hemodialysis (PATH): A Randomized Clinical Trial	Journal of the American Society of Nephrology	December 2013

Kidney Research Institute takes part in community events, highlights importance of clinical research

On Jan. 30, the Kidney Research Institute participated in AWARE for All, a Center for Information and Clinical Research Participation event to educate the community about clinical research. Attendees learned what being part of a trial entails, how past research has impacted patient care, and ways to be involved locally.

On April 5, KRI investigators and staff attended the American Diabetes Association expo in Seattle, educating attendees about kidney research and gathering contact details for people interested in joining KRI studies.

Research staff Mary Bray, Connor Henry, Dr. Paramita Mukherjee, and Dr. Margaret Yu at the American Diabetes Association expo April 5 in Seattle.



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Senior biostatistician Dr. Ronit Katz arrives, analyzes data for a variety of studies

Dr. Ronit Katz has worked on kidney epidemiology for the last decade at the University of Washington, so a move to the Kidney Research Institute was a natural transition. She arrived in September 2013 and works with investigators on a variety of studies.

"It's fantastic to look at the full spectrum of kidney disease—basic science, dialysis studies, acute kidney injury," says Katz. "I get to see the full picture of kidney disease now, and it's very interesting."

As a biostatistician, Katz provides the tools for investigators to conduct their research, helping them figure out if they have the statistical power and resources to do what they want to do. She could be involved with a study at any stage.

"Sometimes investigators come to me with a hypothesis and I work with them to determine – is this a clinical trial or could we involve a cohort? Or, they come to me with data, and I help them analyze it. I'm also involved at the grant writing stage."

Katz, who generally works on 15 studies at a time, got her Ph.D. at Oxford and has taught epidemiology and biostatistics in the past. She currently mentors fellows and young investigators in the nephrology field.

"I feel privileged and humbled to join the KRI and work alongside passionate researchers," says Katz. "The collaboration is like nothing I've seen before. The support people get, the support I get—it's just a wonderful research environment."

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