A new avenue for dialysis research

A message from the director

DR. JONATHAN HIMMELFARB

We enter spring with a big announcement for the new Center for Dialysis Innovation, a joint venture between UW Bioengineering and UW Medicine that aims to one day develop mobile dialysis technology. In early March at an open house for the CDI, Northwest Kidney Centers' CEO Joyce Jackson announced the nonprofit's commitment of a $15 million grant to the CDI over the next five years to kick-start its research. The new research center brings together researchers from the Kidney Research Institute and the UW department of biomaterials and bioengineering. I am co-leading the center with Buddy Ratner, a professor of bioengineering and chemical engineering. We are incredibly grateful to Northwest Kidney Centers for their continued support and visionary thinking in launching the Kidney Research Institute in 2008, and now for providing the catalyst to kick off the Center for Dialysis Innovation. Through this incredible partnership we are well positioned to provide a future for people receiving dialysis treatment that will be complication free, restorative of kidney health and liberating. More than 150 people from the kidney and engineering communities attended the open house on March 9 and University of Washington School of Medicine Dean Paul Ramsey and Northwest Kidney Centers' Joyce Jackson spoke during the brief program. Turn the page to see photos from the event.

Inside you’ll also have a chance to learn more about a dialysis study related to the gut microbiome and Ed Kelly, an investigator working on the kidney-on-a-chip, who has expanded his mentorship efforts by working with undergrads through a unique internship program. Our research fellows have also had great success at national meetings. Read more about them on page 3. And finally, turn to the back page to read about Bessie Young’s APOL1 investigators meeting where genetic researchers and ethicists from across the country convened to discuss the responsible sharing of genetic data.

We thank you for your continued support of the Kidney Research Institute.
Two University of Washington undergraduate students, Ed Kelly, are working on the kidney-on-a-chip project and gaining valuable lab experience through the GenOM-ALVA program at UW.

ALVA stands for Alliances for Learning andVision for Underrepresented Americans—it’s a UW program that targets underrepresented students for internships. The GenOM-ALVA program is for incoming freshmen interested in science research, especially research in genetics and genomics.

“The program is important because it exposes students to laboratory research at the beginning of their undergraduate career,” says Ed. “If they find that they enjoy this work, there is the possibility to work in a lab throughout their time here at UW.”

Kidney Research Institute fellows win research training prizes at national meetings

Congratulations to three research fellows at the KRI who have won big at recent research meetings across the country.

Eli Weber won the Emil A. Pfizer Student Award at the 2017 Annual Society of Toxocology Meeting for his work on modeling drug-induced nephrotoxicity using the kidney-on-a-chip microphysiological system.

Eli specifically used the kidney microphysiological system to evaluate safety profiles for structural variants of polymyxin B. This class of antibiotics is only used as a last resort for treating multi-drug resistant bacteria because of their high incidence of nephrotoxicity. Being able to use the kidney-on-a-chip to demonstrate decreased toxicity of new therapeutic candidates first before human testing is a significant leap forward in drug development.

Ranita Patel, a pediatric nephrology research fellow, was awarded the John Mahan best abstract award at the Renal Research Institute’s 9th International Pediatric Nephrology Fellows Meeting in late January.

Ranita also works on the kidney-on-a-chip—her abstract was on “Utility of a Microphysiological 3D Model of the Human Kidney Proximal Tubule for Predictive Toxicity Testing.” The aim is to understand kidney physiology and additionally, to test toxicity of medications or other therapeutic agents. Ranita tested the toxic effects of the antiviral drug, Tenofovir, for her abstract.

Ke Wang won first place at the 13th Annual Western Region Young Investigators Forum for her talk on the “Association of Antihypertensive Medications with Arteriosclerotic Fistula Maturation: the Hemodialysis Fistula Maturation (HFM) Study.”

At the event, nephrology fellows training in the western United States present their clinical and basic science research. Ke, as one of the top four, went on to present at a National Kidney Foundation meeting in April 2017.

Ranita Patel.
The investigators and Scientific Advisory Board members of Kidney Research Institute investigator Dr. Bessie Young's grant, “Community-Based Evaluation of APOL1 Genetic Testing in African Americans,” met in Seattle earlier this year to discuss the goals of the grant and the responsible sharing of genetic data.

Bessie received a three-year grant in 2015 to evaluate views concerning providing genetic testing information about the Apolipoprotein (APOL1) gene mutation to patients and family members who may be at risk for kidney disease. Gene mutations in APOL1 may cause up to 40 percent of kidney disease in African Americans who receive renal replacement therapy.

The goal of the grant, funded by the Ethical, Legal and Social Implications program at the National Human Genome Research Institute, is to address a bioethics concern, specifically to gain community input on the question of genetic testing for kidney disease risk in African American communities.

"We need to better understand the risks and benefits of sharing genetic testing information with people before we create policies that might do so," says Bessie.

As part of the study, Bessie and her team are meeting with members of the general public, healthcare providers and research professionals to gain a better understanding of what the greater community believes the approach to providing genetic testing information to those at risk should be.

The Scientific Advisory Board will meet again next year to discuss results of the project.