

Kidney Precision Medicine Project: Hope for the Future

By Jonathan Himmelfarb



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The Kidney Precision Medicine Project (KPMP) is a transformative initiative funded by the National Institute of Diabetes and Digestive and Kidney Diseases. It is designed to tackle the major public health burdens resulting from acute kidney injury (AKI) and chronic kidney disease (CKD). The rationale for KPMP is straightforward: Despite the significant impact of AKI and CKD on patient outcomes, no proven safe and effective therapies exist for AKI, and

only a few are available for CKD.

The landscape of treatment for these kidney disease syndromes has not changed substantially in many years, and we have a poor understanding of AKI and CKD heterogeneity between individuals. Thus, at present we are not close to the precision medicine goal of finding the right treatment at the right time for the right patient with CKD and AKI.

The KPMP is focused on finding new ways to treat AKI and CKD by safely and ethically obtaining and evaluating human kidney biopsy specimens from individuals who volunteer to participate. The kidney tissue will be analyzed in multiple ways, including intensive cutting-edge molecular analysis and the innovative use of digital histopathologic analysis coupled with machine-learning tools. This kidney tissue will be used to create a human kidney tissue atlas in health and disease as a publicly available resource for patients, caregivers, and researchers.

The KPMP focuses on people who have very common types of kidney disease for which we don't really know the best treatment. With this focus, we can have the most impact in improving the outcomes for people everywhere living with kidney diseases. If we are successful, the KPMP will allow the entire kidney community to discover critical cells, pathways, and targets for novel therapies and to eventually devise individualized treatments based on these new insights. This is the essence of what kidney precision medicine is all about: bringing the right treatments at the right dose at the right time to the right patient with kidney disease.

There are several unique and exciting components to KPMP. One of the most important aspects of this

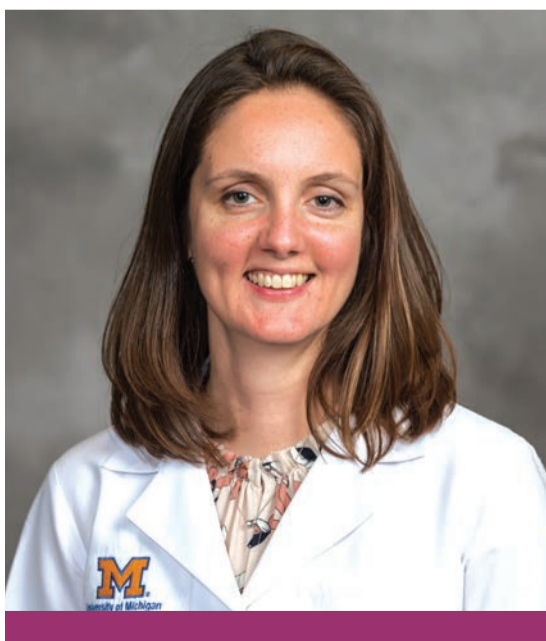
project is that we've put patients at the forefront of our study. Patients are involved in all aspects of the study as equitable partners in KPMP. For example, our Community Engagement Committee is primarily made up of kidney disease patients who have helped develop our approach to informed consent and have provided multiple recommendations during protocol development. In addition to broad patient involvement, KPMP has a large and diverse group of stakeholders, each dedicated to the long-term success of the project. Also, KPMP is committed to fostering the development of junior investigator careers, including providing funding and travel awards for early-career investigators to attend our face-to-face meetings. We hope that KPMP contributes to fostering the next generation by strengthening the pipeline of researchers, clinicians, and educators.

On a personal level, it is both humbling and inspiring to be able to serve as part of the leadership for this historic project. For my entire professional life, I've taken care of patients with varying stages and types of kidney disease and have wished for more and better treatment options. I am hopeful that at the end of the day, this project will help us fully understand our patients' medical conditions in ways that we often do not understand now, and completely change the way we care for our patients for the better. ■

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Perspectives from a Junior Investigator in the Kidney Precision Medicine Project

By Laura H. Mariani



Laura H. Mariani

“The future belongs to those who believe in the beauty of their dreams.”

— Eleanor Roosevelt

Working with the Kidney Precision Medicine Project (KPMP) consortium as a junior investigator is a tremendous opportunity for me, with tangible training experiences and many more intangible moments for professional growth and creativity.

Certainly, the tangible training experiences are exceptional, and the KPMP consortium has not only allowed, but encouraged, contributions from junior investigators, allowing us to learn best by doing. In particular, each research team from a recruitment site interpreted the request for application independently and proposed an approach relevant to their own institutions to recruit

patients with either chronic kidney disease or acute kidney injury for a kidney biopsy to be used for research. But as the recruitment sites were assembled and became a single KPMP research team, the protocols were harmonized and transformed to a shared approach, accommodating differences in institutions and patient populations along with the needs of the tissue interrogation sites.

I learned the true value of multidisciplinary perspectives to accomplish this task and other tasks of a large consortium. The products are made infinitely better by the inclusion of perspectives from patients, clinicians, study coordinators, clinician and basic scientists, programmers, biostatisticians, ethicists, and, perhaps most important, project managers to keep everyone on task.

And then, to be able to participate in translating a protocol into the nuts-and-bolts tools necessary to launch a multisite study is the sort of invaluable training experience provided to KPMP junior investigators. There is no better way to really understand a study than to help write the manual of procedures, draft questions on case report forms, sit with a programmer building