Anna Greka, M.D., Ph.D.
Institute Member and Director of the Kidney Disease Initiative at the Broad Institute of MIT and Harvard; Associate Professor at Harvard Medical School; Associate Physician in the Renal Division in the Department of Medicine at Brigham and Women's Hospital; Founding Director of Kidney-NExT at Brigham and Women's Hospital and Harvard Medical School

Anna Greka is an institute member of the Broad Institute of MIT and Harvard, where she directs the institute's Kidney Disease Initiative. Greka is a physician-scientist leading the translation of scientific discoveries from the laboratory to clinical trials. She is an associate professor at Harvard Medical School (HMS); an associate physician in the Renal Division in the Department of Medicineat Brigham and Women's Hospital (BWH); and the founding director of Kidney-NExT, a Center for Kidney Disease and Novel Experimental Therapeutics at BWH and HMS.

The Grekalaboratory specializes in connecting human genetic and genomic discoveries to disease mechanisms and ultimately to therapeutics for a wide array of diseases. Her team focuses on a detailed, mechanistic understanding of disease pathways and circuitsas the foundation for the development of targeted therapies.

Specifically, the Grekalab studies mechanisms of cell survival and metabolic regulation, including calcium signaling and transient receptor potential (TRP) ion channel biology. Applying this expertise to the study of kidney podocytes, the laboratory identified a specific TRPC5 channel blocker as the first mechanism-based therapeutic strategy for FSGS, a progressive kidney disease. Based on this discovery, TRPC5 inhibitors are now being tested in the clinic.

More recently, significant effort has been directed toward understanding the mechanisms leading to toxic proteinopathies, diseases caused by mutations that result in misfolded proteins, such as MUC1 kidney disease. Greka and her teamdiscovered that these proteins become trapped in the early secretory pathway bya cargo receptor called TMED9. They went on toidentify a promising therapeutic lead (BRD4780) that can clear misfolded MUC1 and other toxic proteins from cells.

The Grekalaboratory is also interested in using the modern tools of genomics and other multi-omic approaches to understand the mechanisms of disrupted cellular metabolism, with important connections to obesity and diabetes.

Finally, the study of ion channel biology remains an active area of investigation for the group, with a special focus on harnessing the considerable therapeutic potential of ion channels for a wide range of diseases, from kidney disease to neuropsychiatric and neurologic disorders.

Greka has been the recipient of several honors, including the 2018 Seldin-Smith Award for Pioneering Research from the American Society of Clinical Investigation, a 2017 Presidential Early Career Award for Scientists and Engineers, a 2014 Top 10 Exceptional

Research Award from the Clinical Research Council, and a 2014 Young Physician-Scientist Award from the American Society of Clinical Investigation Council. She also serves on the Harvard-MIT M.D.-Ph.D. Program Leadership Council.

Greka holds an A.B. in biology from Harvard College and an M.D. and Ph.D. in neurobiology from HMS. She received her medical and scientific training in the Harvard-MIT program in Health Sciences and Technology in the laboratory of National Academy of Sciences member David Clapham, where she explored the role of TRP channels in neuronal growth cone motility.

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