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# Researchers identify pathway important for kidney function

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Boston University researchers, in collaboration with Centers for Therapeutic Innovation (CTI) at Pfizer Inc. (NYSE:PFE), have discovered a novel molecular pathway needed to regulate kidney podocytes—special octopus-like cells that are critical in maintaining normal kidney function.

The findings, which appear in *JCI Insight*, may help identify a new drug target for chronic kidney diseases associated with podocyte loss.

"These findings are important because podocyte damage or loss often lead to chronic kidney disease and eventually kidney failure," said corresponding author Weining Lu, MD, associate professor of medicine at Boston University School of Medicine (BUSM). "This study may one day impact patients with chronic kidney disease that often leads to kidney failure," he added.

Chronic kidney disease is one of the most common, non-communicable diseases responsible for substantial morbidity and mortality worldwide. It is estimated that approximately 27 million people in the U.S. (13 percent of the population) and more than 500 million people worldwide suffer from this condition. A significant proportion of patients with chronic kidney disease will eventually develop kidney failure and will need dialysis or kidney transplantation for survival.

Researchers first identified several novel molecular components in a signaling pathway called ROBO2 in the podocyte. They then performed

biochemical experiments and found that increased ROBO2 signaling activity caused more podocyte loss in cell culture plates. These tests were further validated in experiments comparing models with the ROBO2 gene to those without the ROBO2 gene. The model without the ROBO2 gene retained more podocytes, while more podocytes were lost in the model with the ROBO2 gene.

This is the first joint publication between BUSM/Boston Medical Center (BMC) and CTI, a unique model for academic-industry collaboration that is designed to bridge the gap between early scientific discoveries and its translation into new medicines.

"Dr. Lu's identification of the novel role of ROBO2 has provided a key insight into mechanisms that may underlie and be responsible for chronic kidney disease," said CTI's Chief Scientific Officer, Dr. Anthony J. Coyle. "As a result, BUSM/BMC and CTI are now working together to develop potential new medicines for chronic kidney disease."

"This joint publication demonstrates that an academic-industry collaborative model has the potential to translate breakthrough science into novel medicines and generate new scientific knowledge that will benefit society," explained Lu.

Provided by Boston University Medical Center

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