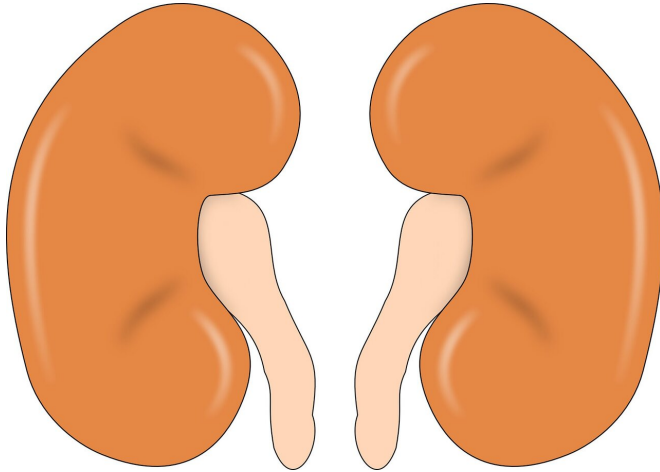


Research suggests new therapeutic target for kidney diseases

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Researchers have published a new study that suggests a signaling pathway called ROBO2 is a therapeutic target for kidney diseases, specifically kidney podocyte injury and glomerular diseases.

Kidney podocytes are special octopus-like cells that are critical in maintaining the kidney glomerular filtering system and normal kidney function. This is the first time the ROBO2 pathway has been linked to glomerular diseases such as membranous nephropathy (affecting the filters) and focal segmental glomerulosclerosis (scarring in the kidney).

Chronic kidney disease affects an estimated 37 million people in the United States and more than 850 million people worldwide, and causes substantial morbidity and mortality worldwide. A significant proportion of patients with [chronic kidney disease](#) eventually will develop kidney failure and need dialysis or kidney transplantation to prolong their life.

Researchers at Boston University School of

Medicine (BUSM) analyzed two induced kidney podocyte injury experimental models and found that those models without the ROBO2 gene were protected from kidney injury, while those with the ROBO2 gene developed severe kidney damage after kidney injury. Using cell culture analysis, they also found that higher ROBO2 protein levels resulted in reduced podocyte adhesion.

"As ROBO2 podocyte expression is well conserved among different mammalian species, our research suggests that ROBO2 is a novel drug target for glomerular diseases such as membranous nephropathy and focal segmental glomerulosclerosis, which is one of the most common causes of [kidney failure](#) in patients with no cure or treatment currently available," said corresponding author, Weining Lu, MD, associate professor of medicine and pathology & laboratory medicine at BUSM.

In collaboration with Pfizer, Lu's research has led to a compound targeting the ROBO2 pathway, which is currently being tested in phase 2 [clinical trials](#) for chronic [kidney disease](#). "The study may ultimately lead to new treatment for patients so they can live to normal life expectancy on their own kidney and avoid dialysis or kidney transplantation."

More information: Anna Pisarek-Horowitz et al. Loss of Roundabout Guidance Receptor 2 (Robo2) in Podocytes Protects Adult Mice from Glomerular Injury by Maintaining Podocyte Foot Process Structure, *The American Journal of Pathology* (2020). [DOI: 10.1016/j.ajpath.2019.12.009](https://doi.org/10.1016/j.ajpath.2019.12.009)

Provided by Boston University School of Medicine

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