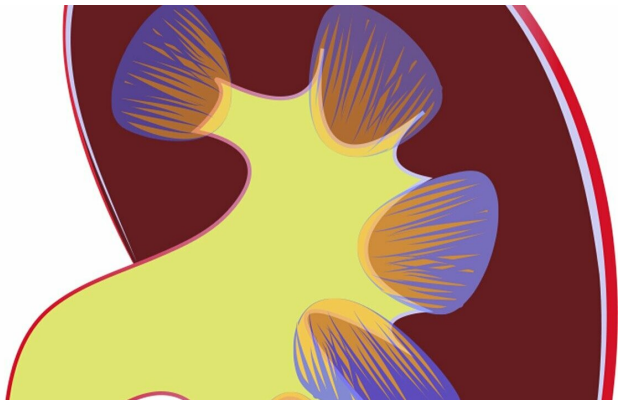
New strategy for untreatable kidney disease: targeting cell energy

8 May 2019, by Ziba Kashef



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The best hope for people with an inherited form of kidney disease that causes kidney failure is dialysis or a kidney transplant. But a study led by Yale researchers reveals a potential strategy for developing new drug therapies for these patients.

Senior author Barbara Ehrlich and her team used mouse models and human tissue samples to study one of the two mutated genes that lead to autosomal dominant polycystic kidney disease (ADPKD). This form of kidney disease is the most commonly inherited type and difficult to treat. The researchers focused their investigation on measuring the production of energy in kidney cells affected by the disease. They discovered that when the gene for the protein called Polycystin 2 is turned off or missing, cellular energy ramps up, leading to the formation of cysts that damage the kidneys.

With this insight, the researchers have identified a promising approach for treating the condition by targeting the abnormal increase in kidney cell energy and growth. Having this novel target for drugs opens the door for developing new therapies that will benefit patients, they said.

The study, co-authored by Allison Brill working in Ehrlich's lab, was published in *Science Signaling*.

More information: Ivana Y. Kuo et al. Polycystin 2 regulates mitochondrial Ca2+ signaling, bioenergetics, and dynamics through mitofusin 2, *Science Signaling* (2019). DOI: 10.1126/scisignal.aat7397

Provided by Yale University

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