

Researchers find new target for kidney cancer therapy

November 10 2014

Cincinnati Cancer Center (CCC) researchers have discovered that a membrane channel, Transient Receptor Potential Melastatin 3, or TRPM3, promotes growth of kidney cancer tumors, and targeting this channel therapeutically could lead to more treatments for a disease that currently has few treatment options.

A [membrane channel](#) is a family of proteins that allows the movement of ions, water or other solutions to pass through the membrane.

These findings are being published in the Nov. 10, 2014, edition of the journal *Cancer Cell*.

"Metastatic clear cell kidney cancer is largely incurable, and existing treatments for the disease are only minimally effective," says Maria Czyzyk-Krzeska, MD, PhD, senior author of the study, member of the CCC and the University of Cincinnati (UC) Cancer Institute and professor in UC's department of cancer biology. "Our team found a new target in kidney cancer known as TRPM3. TRPM3 is increased in 60 percent of kidney clear cell carcinomas where it promotes growth of tumors by stimulating intracellular pathways that initiate autophagy—a quality control process in [cancer cells](#) that also generates intracellular nutrients.

"During [tumor](#) growth, cancer cells become addicted to autophagy as a source of nutrients. Furthermore, autophagy contributes to chemotherapy resistance in kidney cancer. The new target we've

identified regulates kidney cancer cell autophagy."

The experiments were conducted using animal models, human cell cultures and tumor specimens. The researchers analyzed expression of the channel, its effect on tumor growth and on autophagy and how regulation of autophagy contributed to [tumor growth](#).

"Our discovery of a TRPM3 stimulated network in the regulation of autophagy and [kidney cancer](#) growth could lead to use of the channel as a new actionable target in renal cancer. There are already FDA-approved TRPM3 inhibitors on the market, so this is quite promising," Czyzyk-Krezeska says.

Provided by University of Cincinnati Academic Health Center

Citation: Researchers find new target for kidney cancer therapy (2014, November 10) retrieved 25 April 2024 from <https://medicalxpress.com/news/2014-11-kidney-cancer-therapy.html>

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