

# Study identifies new target to fight prostate, lung cancer

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A newly identified molecular chain of events in a mouse model of prostate cancer highlights novel targets to treat it and other cancers. A team led by Marcelo Kazanietz, PhD, a professor of Systems Pharmacology and Translational Therapeutics, published in *Cell Reports* that the overexpression of a protein called PKC $\epsilon$  with the loss of the tumor suppressor Pten causes the progression of prostate cancer.

This deadly combination produces an uptick in the levels of the cancer-promoting molecule CXCL13. When the team purposely disrupted CXCL13, or CXCR5, the cell-surface receptor it attaches to, the metastatic and tumor-forming characteristics of the mouse [prostate cancer cells](#) were impaired.

"In addition to providing evidence for a vicious cancer cycle driven by PKC $\epsilon$ , our studies identified a compelling rationale for blocking the CXCL13-CXCR5 molecules as a new cancer treatment," Kazanietz said. He and colleagues plan to identify compounds to block CXCR5 or CXCL13 with potential to be developed as anti-cancer agents. The researchers also suggested that CXCL13 levels in blood could be used as a biomarker to measure the precise state of [prostate cancer](#) progression in a patient.

The team's next step will be to interfere with CXCR5/CXCL13 signals not only from the cancer cells but also from other cells in the tumor microenvironment that contribute to cancer growth.

Pulmonologists and oncologists have also observed that PKC $\epsilon$  is overexpressed in [lung cancer patients](#), but they do not fully understand its exact molecular consequences. In general, a high level of PKC $\epsilon$  is associated with a poor prognosis.

"We are in the midst of extending these findings to lung [cancer](#)," said Kazanietz, who is collaborating with Penn Medicine researchers David Feldser, PhD, an assistant professor of Cancer Biology, Steven M. Albelda, MD, a professor of Pulmonary, Allergy and Critical Care, and Evgeniy Eruslanov, PhD, a research assistant professor of Thoracic Surgery.

Provided by Perelman School of Medicine at the University of Pennsylvania

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