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Agent prevents prostate cancer growth and spread in animal studies

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Researchers at Georgetown Lombardi Comprehensive Cancer Center have completed a critical step in the journey from a basic science discovery in the lab to a potential clinical application, showing that an experimental agent prevents tumor growth and spread in mice with prostate cancer harboring a common chromosomal abnormality.

Published online Dec. 5 in *PLOS ONE*, the scientists say the agent, YK-4-279, is the first drug targeted at the chromosomal translocations found in about half of prostate cancer cells. These translocations occur when two normal genes break off from a chromosome and fuse together in a new location. This so-called ETS fusion produces new genes that manufacture proteins, which then push prostate cancer cells to become more aggressive and spread.

"Having a compound that works in mouse models brings us closer to early phase human clinical trials," says the study's lead investigator, Aykut Üren, MD, associate professor of molecular oncology at Georgetown Lombardi. "However, we are only mid-way through that process. We need to establish the potential side effects and figure out the best way to administer this compound in a human clinical study."

Üren and his colleagues used two prostate cancer lines growing in immunocompromised mice. "YK-4-279 was very effective against the mice with ETS fusion and was not effective against the mice without it," Üren reports. "That demonstrated to us the specificity with which the drug works, and gave us a good reason to expect a similar response in

patients with ETS fusion-positive prostate cancer in future clinical trials."

The researchers also found that mice tolerated long-term treatment (6-12 weeks), and that YK-4-279 inhibited both the growth of the primary tumor and spread of the cancer to the lungs.

Provided by Georgetown University Medical Center