

Scientists find new gene tool for predicting course of prostate cancer

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Credit: University of Rochester Medical Center

Researchers from UR Medicine's Wilmot Cancer Institute and Roswell Park Cancer Institute in Buffalo reported in the journal *Oncotarget*, they have discovered a possible new tool for predicting whether prostate cancer will reoccur following surgery based on the expression patterns of four genes.

The Wilmot/Roswell Park tool was able to predict recurrence, based on human tissue samples and known patient outcomes, with 83 percent accuracy. Currently the only other way to estimate tumor aggressiveness is with a Gleason score, a grading system for [prostate tumors](#) that has limited power in most cases, researchers said.

Prostate cancer is the most common cancer in men and the incidence is expected to rise with an aging population. Some [prostate cancers](#) grow very slowly, and when the disease is detected early the five-year survival rates are nearly 100 percent. However, some men are diagnosed with more aggressive localized disease and even after having a radical prostatectomy to remove the entire prostate gland, cancer will return in one-third of patients.

"Our study sought to improve upon the prediction tools used in these types of cases so that oncologists would know with more certainty when to recommend additional treatment, such as radiotherapy, immediately after surgery," said Hucky Land, Ph.D., director of research at Wilmot and the Robert and Dorothy Markin Chair of the University of Rochester Medical Center Department of Biomedical Genetics, who led the research. (Most patients receive no further treatment after surgery.)

Earlier, Land's lab discovered a large group of non-mutated genes that are actively involved in cancer development. After analyzing expression of this gene set in frozen prostate cancer tissue samples, researchers discovered the four-gene signature, which was expressed differently in prostate cancer that later returned. Justin Komisarof, an M.D./Ph.D. student in the Land lab, developed the various algorithms and methods to evaluate the gene signature. The research team concluded that their tool outperformed other scientific methods, and they have applied for a U.S. patent.

More information: A four gene signature predictive of recurrent prostate cancer. *Oncotarget*. [DOI: 10.18632/oncotarget.13837](https://doi.org/10.18632/oncotarget.13837)

Provided by University of Rochester Medical Center

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