

New research sheds light on gene destruction linked to aggressive prostate cancer

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Researchers at Queen's University in Kingston, Canada have identified a possible cause for the loss of a tumour suppressor gene (known as PTEN) that can lead to the development of more aggressive forms of prostate cancer.

"This discovery gives us a greater understanding of how aggressive prostate cancer develops because we now have some insight into the mechanism by which the PTEN gene is destroyed," says Jeremy Squire, a professor in the Department of Pathology and Molecular Medicine.

PTEN is one of a small class of [tumor suppressor genes](#) that closely regulates the growth of cells. When PTEN is altered or deleted in [prostate cells](#), they lose the ability to make a protein that controls normal growth. Cells can then grow uncontrolled and can develop into a prostate cancer.

Dr. Squire, with his [postdoctoral fellow](#) Maisa Yoshimoto, examined cancerous tissue samples and determined that the loss of the [PTEN gene](#) occurred close to a large, unstable segment of DNA. Their discovery suggests that proximity of PTEN to this region makes cancer-suppressing genes more prone to being deleted or inactivated.

Researchers discovered the gene using a novel gene-detection technology developed by Dr. Squire and his laboratory. They identified and analyzed with unprecedented accuracy the loss of critical tumour genes using a highly sensitive fluorescent labelling system. The technology

significantly improves on current methods for identifying PTEN loss and has the potential to lead to better treatment of prostate cancer patients.

The Del-TECT gene-detection technology was licensed to CymoGen Dx through PARTEQ Innovations, Queen's technology transfer office last year. CymoGen DX invented the labeling system.

The researchers' findings appear in the current edition of the journal *Genes, Chromosomes and Cancer*.

Provided by Queen's University

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