New Prostate Tissue Biomarkers Enhance Detection of Prostate Cancer

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Technology description

Description

Approximately 200,000 men in the United States were diagnosed with prostate cancer in 2009. The American Cancer Society reports that nearly 29,000 men will die annually from this disease.

Typically, prostate tumors arise in multiple foci that are distributed throughout the prostate. This condition is associated with molecular changes in the histologically normal appearing associated prostate tissue, which have been termed a "field defect" or "field effect." These genetic and epigenetic changes are thought to represent early changes in the cancer process.

Like many other cancers, prostate cancer often can be treated successfully if it is diagnosed at an early stage. The predominant tools for early detection of prostate cancer are prostate specific antigen (PSA) testing and digital rectal exam. However, PSA screening has poor specificity and often yields false results. Needle biopsy has become the standard to confirm the diagnosis of prostate cancer, but eight to 30 punches may be required to detect cancer because of volume-related sampling error. Extensive biopsies can result in significant complications including infection and bleeding.

A UW–Madison researcher has identified gene loci that are abnormally methylated in histologically normal prostate tissues that contain cancer. The methylated loci may be used as biomarkers for the presence of prostate cancer. Assays to detect the abnormal methylation do not require the presence of cancer in the analyzed biopsy tissue.

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