

# Prostate cancer gene test provides new early detection

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Prostate cancer (PCa) is one of the most common male cancers in the Western world. Currently, early detection of PCa depends on an abnormal digital rectal examination and an elevated prostate-specific-antigen (PSA) level requiring a prostate biopsy, often associated with anxiety, discomfort, complications, and heavy expenses. The prostate-cancer-gene-3 (PCA3) test is a new PCa gene-based marker carried out with a urine sample. PCA3 is highly specific to PCa and has shown promising early detection results at repeat biopsy. It may allow patients to avoid unnecessary biopsies. The PCA3 gene is dominant in over 95% of malignant prostate tissue compared to benign and normal prostate tissue.

Several studies have been done to evaluate the PCA3 assay. In 2007, Marks et al showed that urine PCA3 levels were more accurate than serum PSA measurements for predicting the results of repeat biopsy (Marks LS, Fradet Y, Deras IL, et al. PCA3 molecular urine assay for prostate cancer in men undergoing repeat biopsy. *Urology* 2007; 69:532-537).

In the October 2008 issue of *European Urology* (<http://www.elsevier.com/locate/eururo>), Haese et al took the study by Marks et al even further in their evaluation of the PCA3 assay in a larger population of European men with one or two negative biopsies scheduled for repeat biopsy in order to determine its effectiveness in detecting PCa at repeat biopsy.

The PCA3 score was calculated and compared to biopsy outcome. The diagnostic accuracy of the PCA3 assay was compared to the percentage of free prostate-specific antigen (%fPSA). Most of the PSA that circulates in the serum is attached to larger protein substances, so called 'complexed' PSA. The rest of the PSA is unbound or 'free'. Research suggests that PSA created by prostate cancer is more likely to be the 'complexed' type while non-cancerous or benign PSA is more the 'free' type.

In 463 men, the positive repeat biopsy rate was 28%. The probability of a positive repeat biopsy increases with rising PCA3 scores. The PCA3 score was superior to %fPSA for predicting repeat prostate biopsy outcome and may be indicative of clinical stage and significance of PCa.

The utility of the PCA3 score is independent of the number of previous biopsies, prostate volume, and total PSA.

Source: Elsevier

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