

## PCA3 Molecular Urine Assay Pivotal U.S. Clinical Study Confirms Utility for Predicting Repeat Biopsy Outcome

**Introduction and Objective:** The PCA3 molecular urine assay has demonstrated utility to supplement existing methods for guiding repeat prostate biopsy (rBx) decisions. In this multi-center prospective pivotal clinical study, we evaluated its clinical performance in men undergoing rBx.

**Materials and Methods:** Subjects were enrolled from 14 community-based urology clinics, group health organizations and academic institutions. The study population consisted of 466 men  $\geq 50$  years of age who had  $\geq 1$  prior negative prostate biopsy and were recommended for rBx. Urine samples were collected before biopsy, and PCA3 scores were determined using the PROGENSA<sup>®</sup> PCA3 assay. PCA3 scores were correlated with rBx outcome. Multivariable logistic regression (LR) was performed with factors for PCA3 score, age, race, serum PSA level, DRE result, family history and number of previous negative biopsies.

**Results:** Prostate cancer was diagnosed in 21.9% (102/466) of subjects. Men with PCA3 scores  $< 25$  were 4.6 times more likely to have a negative rBx than men with PCA3 Scores  $\geq 25$ . At this cutoff, the NPV was 90% (table); 8 high grade (Gleason sum  $\geq 7$ ) cancers would have been missed whereas 50% of rBx would have been avoided. The PCA3 score significantly increased the predictive accuracy of the LR model: at 90% sensitivity, addition of the PCA3 score to the LR model increased specificity by 22.6 (90% CI: 9.0-33.1), PPV by 6.4 (2.8-9.6) and NPV by 7.1 (1.7-13.4) percentage points relative to the LR model without the PCA3 score.

**Table:** Performance characteristics of PCA3 at a cutoff of 25 (95% CI)

Sensitivity	Specificity	NPV	PPV	Odds ratio
77.5% (68.4-84.5)	57.1% (52.0-62.1)	90.0% (86.5-93.1)	33.6% (30.0-37.2)	4.6 (2.75-7.62)

**Conclusions:** The clinical utility of the PROGENSA PCA3 assay for predicting rBx outcome was confirmed in a multi-center pivotal U.S. clinical study. Lower PCA3 scores were associated with a decreased likelihood of a positive rBx. The NPV was 90% at a PCA3 score cutoff of 25; at this cutoff only 8 high-grade cancers would have been missed whereas 50% of rBx could have been avoided.