

## PCA3 - Prostate Cancer Biomarker

Prostate cancer is the most frequent malignant neoplasm in men and the second most common cause of cancer-related deaths in American men.<sup>1</sup> PCA3 testing may be useful in conjunction with other patient information to determine whether a biopsy should be repeated in men  $\geq 50$  years.<sup>1</sup>

### Disease Overview

#### Physiology

PCA3 is noncoding RNA and is overexpressed in men with prostate cancer. PCA3 has been reported to have a median 66-fold upregulation compared with adjacent nonneoplastic tissue.<sup>2</sup>

#### Diagnostic Issues

PCA3 testing can be helpful in determining whether to perform a repeat biopsy in patients with indeterminate PSA results.<sup>1</sup>

#### Test Interpretation

Clinical sensitivity: 77.5% relative to prostate biopsy outcome; based on a PCA3 ratio cutoff value of 25

Clinical specificity: 57.1% relative to prostate biopsy outcome; based on a PCA3 ratio cutoff value of 25

#### Results

Result	PCA3 Ratio	Interpretation
Negative	0-17	Associated with decreased likelihood of a positive biopsy for prostate cancer
	18-24	Should be interpreted with caution; due to normal test variability, specimens with PCA3 scores near the cutoff may yield a different overall interpretation upon repeat testing
Positive	25-31	Should be interpreted with caution; due to normal test variability, specimens with PCA3 scores near the cutoff may yield a different overall interpretation upon repeat testing
	>31	Associated with increased probability of a positive biopsy for prostate cancer

### Tests to Consider

#### PCA3 - Prostate Cancer Biomarker by Transcription-Mediated Amplification 2010102

**Method:** Qualitative Transcription-Mediated Amplification

- NOTE: This ARUP assay is currently unavailable due to a nationwide manufacturer reagent shortage
- Aids in decision to repeat biopsy in men  $\geq 50$  years who have had one or more negative prostate biopsies and for whom a repeat biopsy would be recommended by a urologist based on current standard of care
- Not for initial prostate cancer screening
- Specimen collection must follow DRE
- Sufficient number of prostate cells must be present in urine for analysis
- PCA3 testing should not be used in patients with atypical small acinar proliferation (ASAP) on their most recent biopsy

#### Related Tests

##### Prostate Specific Antigen, Total 0070121

**Method:** Quantitative Electrochemiluminescent Immunoassay

- Preferred initial screening test for prostate cancer in conjunction with DRE
- Use to monitor patients for recurrence of cancer

##### Prostate Specific Antigen, Free Percentage (Includes Free PSA and Total PSA) 0080206

**Method:** Quantitative Electrochemiluminescent Immunoassay

- Percentage of free PSA compared to total PSA
- Not for initial prostate cancer screening
- May provide additional prostate cancer risk information for patients with mildly elevated total PSA and a negative DRE
- Alternative to PCA3 testing in indeterminate PSA cases

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## References



1. [NCCN Clinical Practice Guidelines in Oncology: prostate cancer early detection](#), version 2.2019. National Comprehensive Cancer Network. [Updated: May 2019; Accessed: Jun 2020]
2. Salagierski M, Sosnowski M, Schalken JA. [How accurate is our prediction of biopsy outcome? PCA3-based nomograms in personalized diagnosis of prostate cancer](#). Cent European J Urol. 2012;65(3):110-112. PubMed

## Related Information

[Prostate Cancer - PSA](#)  
[Prostate Cancer Early Detection Screening Algorithm](#)

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