

## **Prostate-Specific Antigen (PSA)**

PSA is a protein produced by cells of the prostate gland and its role is to liquefy the semen. Most of the PSA is carried out of the body in semen, but a very small amount is also released into the bloodstream. In the blood, the PSA can be free (free PSA) or bound with a protein (complexed PSA – cPSA). The standard PSA test measures the total PSA (the sum of the free and the bound forms).

### **Why the PSA Test is Performed?**

The test is used to:

- Screen men for prostate cancer
- Determine the necessity for a biopsy of the prostate
- Guide treatment for prostate cancer and monitor its effectiveness
- Detect recurrence of prostate cancer

PSA test increases the chance of finding prostate cancer when it is very early. However, there is no consensus about routinely using the PSA test to screen for prostate cancer in asymptomatic men. Men who have symptoms that may be caused by prostate cancer (back pain, pelvic pain, difficult, painful and/or frequent urination) often undergo PSA testing along with digital rectal exam (DRE).

In patients with diagnosed prostate cancer, the PSA test can help determine how advanced the disease is.

### **How the Test is Performed and How to Prepare for the Test?**

A blood sample is taken from a vein. A patient should avoid ejaculation for 24 hours before sample collection.

### **What Abnormal Results Mean**

Elevated PSA levels may be due to any kind of prostate disease:

- Benign prostatic hyperplasia (BPH)
- Prostatitis
- Prostate cancer

Other factors that can elevate the PSA levels are:

- Urinary tract infection
- Cystoscopy
- Prostate biopsy
- Prostate surgery
- A larger prostate
- Ejaculation
- Prostate examination
- Urinary retention
- Catheter placement into the bladder
- Age (PSA slowly increases as a man ages)

Some drugs can falsely lower PSA levels – finasteride, dutasteride, antiandrogen drugs (flutamide, nilutamide, bicalutamide).

Low levels of PSA do not rule out the possibility of prostate cancer. However, in general, the higher a man's PSA level, the higher the probability of having prostate cancer. A continuous or a rapid rise, or a rapid change of PSA levels further raise the likelihood of cancer.

Decreased levels of free PSA or increased levels of cPSA may also indicate an increased risk of prostate cancer.

The PSA testing can help detect prostate cancer. But PSA test results alone cannot diagnose prostate cancer. The prostate biopsy is the only way to diagnose this cancer.

A rising PSA level in a patient, who has been treated for prostate cancer, may indicate recurrence of prostate cancer.

### **Alternative Names**

Prostate-specific antigen is also known as human kallikrein 3.

### **Useful Information**

Rigorous physical activity affecting the prostate (e.g. bicycle riding) may temporarily elevate PSA levels. DRE can also cause a temporary elevation in PSA, so the PSA test is usually done prior to performing the DRE. For the same reasons, the blood should be collected before any kind of prostate manipulation or it should be collected six weeks after the manipulation.