

Meet the Marker: PSAP

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Prostate cancer is the second most common cancer in men worldwide, accounting for over 15% of all cancers diagnosed in men, and its effects can be devastating.¹ In fact, prostate cancer is the second leading cause of cancer deaths among males in most Western countries.³

Despite these troubling figures, the good news is that prostate cancer is one of the more treatable cancers in men, able to be completely cured if it is detected in its early stage.³ This demonstrates a great need for sensitive, reliable prostate cancer diagnostic markers, as well as prognostic indicators.

Prostate-Specific Acid Phosphatase (PSAP), also known as Prostatic Acid Phosphatase (PAP), has been a significant marker for prostate cancer for over 70 years.⁴ The enzyme is produced in prostate epithelial cells and is believed to be a key regulator of prostate cell growth, although its mechanism is still not fully understood.³ It is specific to prostate adenocarcinoma and so may be used to differentiate prostatic adenocarcinoma from urothelial carcinoma, which may appear microscopically similar.² In such poorly-differentiated cases, only prostatic adenocarcinoma will appear positive for PSAP.²

Since the introduction of PSA, even more prostate cancer markers, such as Prostate Specific Antigen (PSA), have been added to the diagnostic arsenal. In normal prostate tissue, PSA is secreted from the prostatic epithelium into secretory ducts.⁶ When the basal cell layer in the prostate is disrupted by cancer, PSA will leak into circulation, causing elevated serum levels of PSA as a diagnostic indicator.⁶ Today, PSA has replaced PSAP as a more preferred diagnostic marker for prostate cancer due to its higher sensitivity to localized disease.^{3,6} However, PSA does not distinguish between early and late stages of prostate cancer and is not as sensitive to metastatic prostate cancers.⁶ PSAP does appear to indicate disease progression, as PSAP levels appear to increase proportionally with prostate cancer progression.³ Additionally, PSAP has been found to detect metastatic prostate cancer in cases where PSA was not as sensitive.⁵

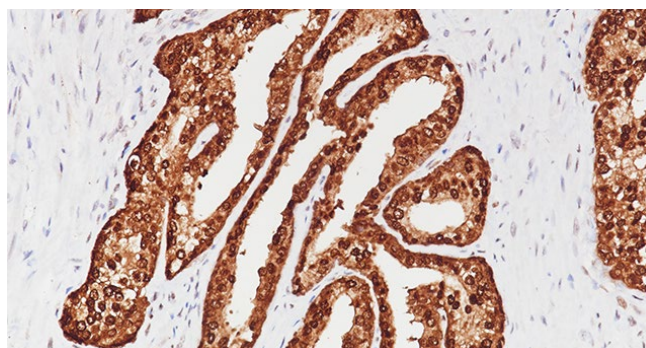
Given this balance of strengths, laboratories may be interested in utilizing PSAP in conjunction with other prostate cancer markers for maximum sensitivity and utility.

Global Cancer Incidence in Men

| Rank | Cancer | New Cases in 2020 | % of All Cancers |
|------|--------------|-------------------|------------------|
| | All Cancer* | 9,342,957 | |
| 1 | Lung | 1,435,943 | 15.4 |
| 2 | Prostate | 1,414,259 | 15.1 |
| 3 | Colorectal** | 1,065,960 | 11.4 |
| 4 | Stomach | 719,523 | 7.7 |
| 5 | Liver | 632,320 | 6.8 |

*Excludes non-melanoma skin cancer

**Calculated by adding cases of colon cancer and cases of rectal cancer



Prostate stained with PSAP [rACPP/1338] antibody

Source: American Institute for Cancer Research . (2021, May 25). Prostate cancer statistics: World cancer research fund international. World Cancer Research Fund International. Retrieved February 22, 2022, from <https://www.wcrf.org/dietandcancer/prostate-cancer-statistics/>

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