NOVARTIS

Prostate Cancer

Reimagining medicine to transform prostate cancer treatment

At Novartis, we are harnessing the innovation of our world-class scientists, strategic partnerships, and one of the industry's most competitive pipelines to explore the potential of new, targeted therapies and precision medicine platforms to address unmet needs in prostate cancer.

Through the science of targeted therapies, our goal is to reduce the global disease burden and extend the lives of patients with prostate cancer.

Understanding prostate cancer

What is prostate cancer?

Cancer is a disease in which abnormal cells divide without control and can invade nearby tissues. Cancer cells can also spread to other parts of the body through the blood and lymph systems.[1]

When cancer starts in the prostate, it is called prostate cancer.[2] The prostate is a small, walnut-shaped gland, located just below the bladder and in front of the rectum, and part of the male reproductive system. The prostate gland surrounds the urethra (the tube that empties urine from the bladder) and produces fluid that makes up part of semen.[2]

What are prostate cancer survival rates?

Prostate cancer can either be localized (there is no sign that the cancer has spread outside the prostate), regional (the cancer has spread outside the prostate to nearby structures or lymph nodes), or advanced (the

cancer has spread to parts of the body farther from the prostate).[3]

Incidence and mortality rates for prostate cancer vary greatly, with more developed nations generally having higher incidence of prostate cancer but lower mortality. For example, the lifetime risk of prostate cancer in the United States (US) is nearly 4 times greater than the global risk.[4]

Approximately 74% of patients with prostate cancer in the US have localized prostate cancer at diagnosis, while approximately 13% have regional prostate cancer. For people with localized prostate cancer, the 5-year survival rate is nearly 100%.[5]

However, for the approximately 7% of patients who have advanced (distant) prostate cancer when they're diagnosed, the 5-year survival rate is around 30%.[5]

Who is affected?

With more than 1.4 million new cases and 375,000 deaths in 2020 alone, prostate cancer is the most frequently diagnosed cancer in over 50% of countries (112/185).[6,7]

The disease is more common in people who[4,8]:

- Are obese
- Have a family history of prostate cancer
- Are of African descent

The greatest risk factor, however, is age: The average age at diagnosis is 66.[9]

What are biomarkers and what is their potential role in prostate cancer?

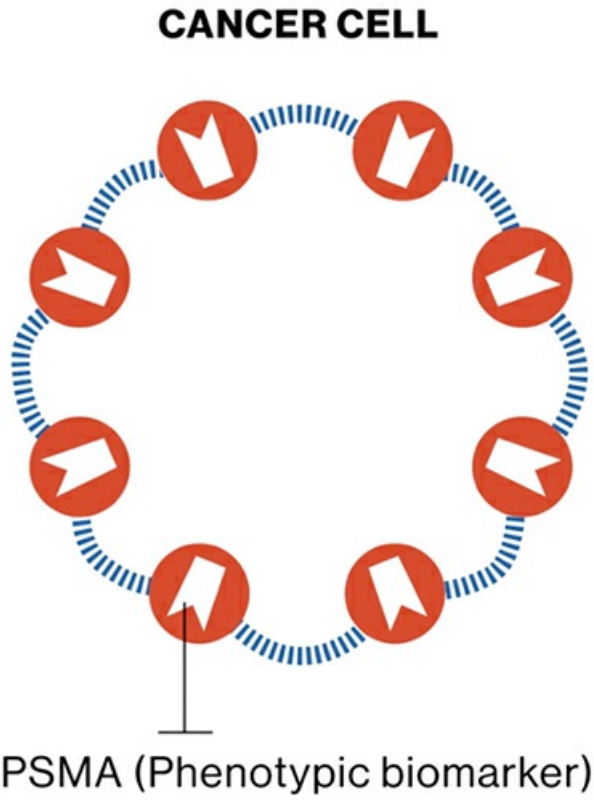
Biomarkers—which are found in blood, other body fluids, or tissue—act as signals for various bodily processes, conditions, or diseases.[10] They may show if a disease has progressed, providing valuable information to health care professionals and helping them to make more informed disease management

decisions.

What is the PSA biomarker?

Prostate-specific antigen (PSA) is a protein made by cells in the prostate gland (both normal cells and cancer cells).[11] It is a biomarker people living with prostate cancer are likely familiar with. PSA—which can be measured with a blood test—has been used to test for prostate cancer since the 1980s.[7,11]

What is the PSMA biomarker?



Prostate-specific membrane antigen (PSMA) is another important biomarker highly expressed (present) in more than 80% of people with prostate cancer.[12,13] It is referred to as a phenotypic (observable) biomarker and can be detected using noninvasive diagnostic tests, mainly through PSMA positron emission tomography/computed tomography (PET/CT). PET imaging involves a needle procedure called a tracer injection.[14, 15]

PSMA PET/CT may be used to tell whether prostate cancer has metastasized, or spread throughout the body, and, importantly, where in the body it has spread.[15,16]

In addition to its diagnostic attributes, PSMA is also a potential target for new treatments in prostate cancer, such as precision medicines.[17]

Novartis and others have ongoing clinical trials investigating the use of molecules that target PSMA in this way.

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