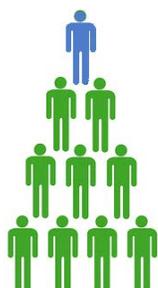


# Genetic Testing for Prostate Cancer

**Genetic testing is offered to anyone with metastatic prostate cancer.**



**About 1 in 10 men with metastatic (cancer that has spread) prostate cancer has a genetic change (mutation) that puts them at higher risk for cancer.**

Prostate cancer is the most common cancer in American men. Most prostate cancer happens randomly, without any specific cause. Prostate cancer is not usually caused by lifestyle or exposure to things in the environment. However, some prostate cancer is caused by an inherited genetic risk.

**Genetic testing looks at many different cancer genes.**

There are many genes that can cause a high risk for cancer. We use a genetic testing panel that looks at more than 30 cancer risk genes.

**Genetic testing may help you and your doctor.**

Genetic testing looks for genetic changes (mutations) that could guide your cancer treatment or make you eligible for research trials. It could also help predict future cancer risks for you and your family. Testing is usually done by a blood test and takes 2 to 3 weeks for results. While genetic testing is offered to anyone with metastatic prostate cancer, it is your choice to be tested or not.

**Your personal and family cancer history may suggest an inherited genetic risk.**

It is not always easy to know which cancers are due to inherited genetic risk. Your medical history or your family's cancer history may show signs that an inherited mutation might be involved. For example, there may be others in the family with prostate cancer. Some families have a lot of other cancers, such as: breast, ovarian, colon, uterine, pancreatic, stomach (gastric), and melanoma.

**A genetic counselor can help:**

- Determine if your cancer diagnosis could be related to an inherited cancer gene mutation
- Guide you through decisions about genetic testing and any results you receive
- Help develop a care plan for inherited cancer risks
- Offer support to individuals and families

## DID YOU KNOW?

- All cancer is caused by genetic changes in the body.
- Cancer starts when enough genetic changes (mutations) build up and interfere with cell growth.
- Mutations that lead to prostate cancer usually happen by chance.
- A person with mutation in a cancer risk gene is born with one genetic change in all their cells and is more likely to develop cancer.

### There are three types of results you can get from a genetic test.



**Negative:** A negative result means that no harmful mutation was found in any of the tested genes. Most people who are tested get a negative result. Since testing only looks at certain genes, there could still be a genetic risk, even with a negative result.



**Positive:** A positive result means a mutation was found that causes a high cancer risk. This mutation can be passed to offspring and may be present in other family members.



**Variant of uncertain significance (VUS):** A VUS means a genetic change was found in one of the genes, but we do not know if it causes a risk for cancer. Many variants are harmless changes. Your medical care will not change if a VUS is found.

### The genes most often connected to a higher risk for prostate cancer are:

**HOXB13** – A mutation in this gene raises the risk for prostate cancer.

**BRCA1 and BRCA2** – A mutation in either of these genes raises the risk for breast cancer, ovarian cancer, and prostate cancer. There is also a higher risk for pancreatic cancer and melanoma.

**ATM, PALB2, and CHEK2** – A mutation in one of these genes raises the risk for breast cancer and prostate cancer. There is also a higher risk for pancreatic cancer.

**MLH1, MSH2, MSH6, and PMS2** – A mutation in any one of these genes raises the risk for colon cancer. There is also a higher risk for prostate cancer, uterine cancer, and ovarian cancer.

#### References:

- 1) NCCN Clinical Practice Guidelines in Oncology (Prostate Cancer); version 4.2019-August 19, 2019
- 2) Das et.al., *Bringing Prostate Cancer Germline Genetics into Clinical Practice*, J Urology. August 2019