Genetic testing in cancer is done to look for changes in the DNA code called genetic variants. These variants can affect the way cells grow and multiply. There are different types of genetic tests used for cancer. Some tests look at genetic variants in cancer cells. This is called tumor testing or somatic cell testing. Other tests look for genetic variants that a person has from birth. This is called germline testing. While tumor testing may help with cancer treatment, it does not give information about inherited cancer risk. Only testing a person’s healthy cells (germline testing) can identify genetic variants that increase the risk for cancer and can be passed on.

**Tumor (Somatic Cell) Testing**
Tumor testing helps find out which genes are no longer working in a person’s cancer cells. All cancer is the result of genetic variants that stop genes from working correctly. These variants usually happen as random errors in the cell over time. Each cancer has its own unique make-up of genetic variants. There can be dozens or even hundreds of genetic variants that drive cancer growth.

- Done on a piece of the tumor or cancer.
- Looks at genetic variants in cancer cells.
- Done to help find the best medication or treatment for an individual tumor or cancer.
- Does not provide information about inherited risk or cancer risk for others in the family.

**Germline Testing**
Germline testing looks for genetic variants that may have been inherited from a parent. These variants are found in a person's healthy cells, as well as any cancer cells. This test helps identify people who have a higher risk for cancer. Variants found by germline testing could be passed on to a person’s offspring.

- Done on healthy cells in the body (usually a blood or saliva sample).
- Looks for genetic variants that are in all cells of the body.
- Provides information about inherited cancer risk and the risk for future cancers.
- May help the whole family better understand what to do for cancer screening and ways to reduce the risk for cancer.
When someone is diagnosed with cancer, a lot happens in a short amount of time. Information can be forgotten, confused, or reported incorrectly. It is easier to estimate your risk for inherited cancer when your provider knows which genetic tests have been done for yourself and your family members. Getting a copy of any genetic test result is one way to get the most accurate information. This lets your provider determine the best health care options for you.

**TERMS:**

**Genetic variant** - A difference in the DNA code. It may be used to describe DNA changes that are harmless, disease-causing, or of unknown significance. The term “variant” is now often used in place of the term “mutation”.

**Somatic cells** – Any cell of the body other than the egg or sperm. The DNA from somatic (body) cells is not passed on to a person’s offspring. *Somatic (tumor) testing* looks at the DNA in unhealthy cells from a tumor or cancer.

**Germline cells** – Cells that develop into eggs or sperm. These cells determine what DNA could be passed on to offspring. *Germline testing* looks at the DNA in healthy cells in the body (usually from blood or saliva).

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**What to ask when genetic testing has been done for cancer:**

- Was the testing done on a tumor or on a sample of blood (or other type of healthy cells)?
- What genes were looked at?
- What were the results?
- Were any genetic changes found?

**Most helpful:**

- Can I get a copy of the test result?