KAISER PERMANENTE®

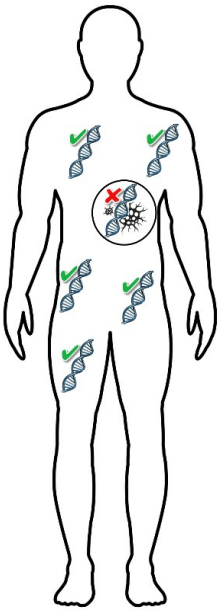
Genetic Tests in Cancer

Tumor Testing versus Germline Testing

Genetic testing in cancer looks 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. 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.

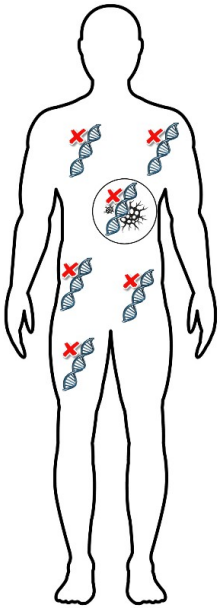
Tumor testing may help with cancer treatment, but it does not identify inherited cancer risk. Testing a person's healthy cells (germline testing) can identify genetic variants that increase the chance for cancer and can be passed on.



Tumor (Somatic Cell) Testing

- Tests part of the tumor or cancer.
- Looks at genetic variants in cancer cells.
- Helps find the best treatment for that tumor or cancer.
- Does not give information about inherited risk or the chance for cancer in close relatives.

Tumor testing helps find out which genes are no longer working in a person's cancer cells. All cancer is caused by 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.



Germline Testing

- Tests healthy cells in the body (blood, saliva, or skin sample).
- Looks for genetic variants that are in all cells of the body.
- Gives information about inherited cancer risk and the chance for future cancers.
- May help others in the family know what to do for cancer screening and how to lower the chance for cancer.

Germline testing looks for genetic variants that may have been inherited from a parent. These variants are found in a person's healthy cells and may also be found in cancer cells. This test helps identify people who have a higher chance for cancer. Variants found by germline testing could be passed on to a person's children.

Why should I get a copy of my (or my relative's) test results?

When someone is diagnosed with cancer, a lot happens in a short amount of time. Information can be forgotten, confused, or reported incorrectly.

Getting a copy of any genetic test result is the best way get accurate information. This helps your provider recommend the best health care options for you. It is easier to predict your chance for inherited cancer when we know which genetic tests have been done for you and your family members.

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

Was testing done on the tumor or on a sample of blood (or other type of healthy cells)?

Which genes were looked at?

What were the results?

Most helpful:

Can I get a copy of the test result?

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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