

Biomarker Testing in Cancer Treatment

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Trying to understand how [biomarker testing](#) fits into your cancer care plan can be overwhelming. But having a sense of how biomarker testing works may help you make better decisions with your doctor on what treatments may be best for you.

Biomarker testing is a way to look for certain biological substances that can provide doctors with information about a person's cancer. Some biomarkers are unusually high levels of certain proteins made by cancer cells; this is called overexpression. Other biomarkers are specific gene mutations that help cancer develop and grow.

Biomarker testing is for people who already have cancer, either a solid tumor cancer, like lung cancer, or a blood cancer, like leukemia. Some biomarker tests may check for one biomarker, while others may check for multiple biomarkers at once.

Depending on the type of cancer that a person has, a doctor will need to take a sample of that person's cancer cells for biomarker testing. There are different ways this can be done. For people who have a cancer that has a solid tumor (like breast cancer or lung cancer), the doctor would take a biopsy where they remove a piece of tissue or sample of cells from the body. Another way is a liquid biopsy, which is done by taking a sample of blood or other fluids, when a person has a blood cancer or their tumor is too hard to reach to get cells from it. In either case, the samples are sent to a lab to be tested.

Below are some common biomarkers that doctors may test for and the cancer they are often associated with:

Biomarker	Cancers known to be related to the biomarker
<i>BRCA1</i> and <i>BRCA2</i> mutations	Breast and ovarian cancers
<i>TP53</i> mutation	Cholangiocarcinoma, Wilms tumor, and osteosarcoma, as well as head and neck, bladder, lung and melanoma
<i>KRAS</i> mutation	Colorectal cancer and non-small cell lung cancer
HER2 protein overexpression	Breast, ovarian, bladder, pancreatic and gastric cancers
PD-L1 protein overexpression	Non-small cell lung cancer, liver and stomach cancer, gastroesophageal junction cancer and classical Hodgkin lymphoma
PSA protein overexpression	Prostate cancer
<i>ALK</i> mutation	Non-small cell lung cancer, anaplastic large cell lymphoma, histiocytosis
<i>BRAF</i> mutation	Cutaneous melanoma, Erdheim-Chester disease, Langerhans cell histiocytosis, colorectal cancer, and non-small cell lung cancer
<i>EGFR</i> mutation	Non-small cell lung cancer, glioblastoma, head and neck, breast and pancreas cancer
<i>ROS1</i> mutation	Non-small cell lung cancer

*This is not a full list of all biomarkers and cancer types related to each.

The results of biomarker testing may show that a person's cancer might respond to an available therapy. Certain therapies might even target a specific biomarker. Or the results may show that the person's cancer has a biomarker that makes it less likely a specific therapy will work — this information could spare a person from receiving a treatment that was not the best option. Biomarker testing may also help doctors find and recommend a clinical trial investigating a potential new cancer treatment that is related to a specific biomarker.

In short, biomarker testing can be a useful tool to help you and your doctor choose a cancer treatment. To help guide discussions with your doctor about biomarker testing and your cancer care, you can find a list of potential questions to ask [here](#). Asking questions can help you better understand the role of biomarker testing and how it can uncover more information that may help in your cancer care.