

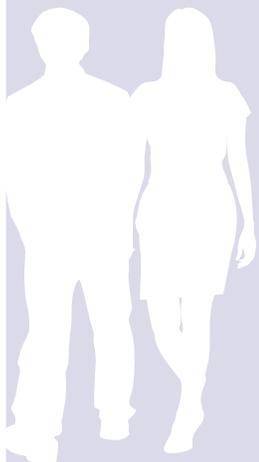
MOLECULAR PROFILING for cancer

WHAT YOU NEED TO KNOW

You or your loved one has been diagnosed with a type of blood cancer. One of the technologies your doctor may offer you is known as “molecular profiling.” What does it mean and how does it work?

This fact sheet will help you:

- Learn about molecular profiling
- Get to know the benefits
- Understand how it works
- Find out what it means for you



The goal of **molecular profiling** is to develop targeted and effective therapies for your cancer.

What is molecular profiling?

Cancer happens when abnormal cells grow and spread. This growth is driven by genetic or molecular changes that we inherit from our parents or develop on our own. Each cancer has a unique set of molecular changes in the cancer cells.

Molecular profiling uses technologies to allow doctors to see the molecular differences between cancer cells and healthy cells.

About molecular profiling

- It uses various technologies to understand the nature of cancer cells.
- Biomarkers (molecules) show abnormal signs that could mean disease.
- It can help identify a person's response, resistance, or lack of response to certain treatments.
- It can lead to targeted and more effective therapy for cancer.

What are the benefits?

Molecular profiling gives your doctor information about which of your genes have changed (mutated).

This process can identify changes that help your doctor:

- Diagnose your cancer
- Know how your body will respond to a specific drug
- Decide which cancer treatment is best for you
- Predict what will happen over time (give a prognosis)
- Treat your cancer

Molecular profiling can offer a better chance to manage or cure your disease.

Your doctor can use precision medicine, also called personalized medicine, to treat the disease with the information molecular profiling provides. The result is more effective treatment with fewer side effects.

A **biomarker** is a molecule found in blood or tissue. It may be used to see how well the body responds to a treatment for a disease or condition.



How does it work?

Molecular profiling identifies the DNA (genetic material), RNA (carrier of genetic codes), or protein molecule that is linked to a specific cancer. You will provide a sample of tissue, bone marrow, lymph node, or peripheral blood (blood that is circulating in your body). The sample is sent to the lab for molecular profiling tests. These tests identify the unique biomarkers that match your type of cancer.

Here are five molecular profiling technologies:

Name of test	Description
Immuno-histochemistry (IHC)	This test uses antibodies to detect antigens (markers) in your tissue sample. This information helps your doctor diagnose your specific type of cancer.
Fluorescence in situ hybridization (FISH)	This test looks at genes and chromosomes in your cells. It helps your doctor to diagnose you, assess your risk, and decide on the type of treatment to give you.
Next-generation sequencing (NGS)	This test examines stretches of your DNA or RNA and gives information related to your prognosis and treatment.
Quantitative polymerase chain reaction (qPCR)	This technique looks at a specific segment of your DNA. It can detect a very low amount of blood cancer cells that cannot be seen using a microscope.
Cancer biomarkers	<p>These molecules show abnormal processes, signs, or substances in your body that may point to a disease or condition. There are three types of biomarkers:</p> <ul style="list-style-type: none">- Diagnostic markers help diagnose or classify- Prognostic markers help determine what will happen over time (your outcome)- Predictive markers help tailor treatment decisions

Precision medicine uses information about a person's lifestyle, environment, and biology. This helps to prevent, diagnose, and treat diseases.

Questions to ask your healthcare team

Your healthcare team may include your doctor, nurse, social worker, and pharmacist. To make sure you receive the best care, be open and honest with the team. Molecular profiling may not be available or may not be right for you. Talk to your team about whether it is a good option.

Here are some questions you may want to ask:

- Questions to ask**
- Is my cancer eligible for molecular profiling?
 - Can I do molecular profiling if I have already received treatment?
 - What are the benefits? What are the risks?
 - What biomarkers are associated with my cancer?
 - What could molecular profiling or biomarker analysis tell me about my cancer?
 - Will I need any more testing? If so, what types of tests?
 - What is the cost? Can it be covered by my insurance?
 - Who will do the analysis? Where will it be done?
 - How long will it take to get the results? How will you use the results?
 - Is molecular profiling likely to identify a targeted treatment for my type of cancer?
 - What happens if molecular profiling identifies a prescription drug that is not yet approved, but may be an effective treatment for me?
 - Will I need to get another molecular profile done for this cancer? What if I develop a different type of cancer?



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