

Precision Medicine in Oncology: Understanding Targeted Therapy and Biopsies

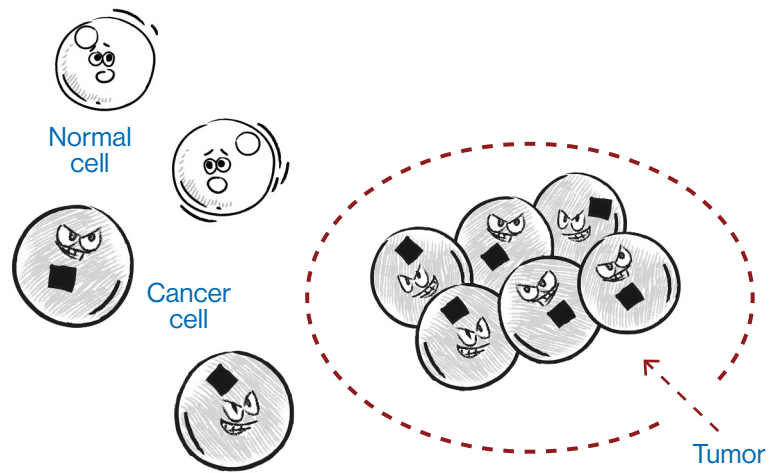
Understanding Targeted Therapies

How Does Cancer Form?

Normal cells know when to stop dividing or making copies of themselves. When a cell loses that control, it can become a cancer cell.

Cancer cells can divide uncontrollably and crowd out normal cells. This may put pressure on healthy organs and disrupt their function. Eventually, some types of cancer cells form a tumor.

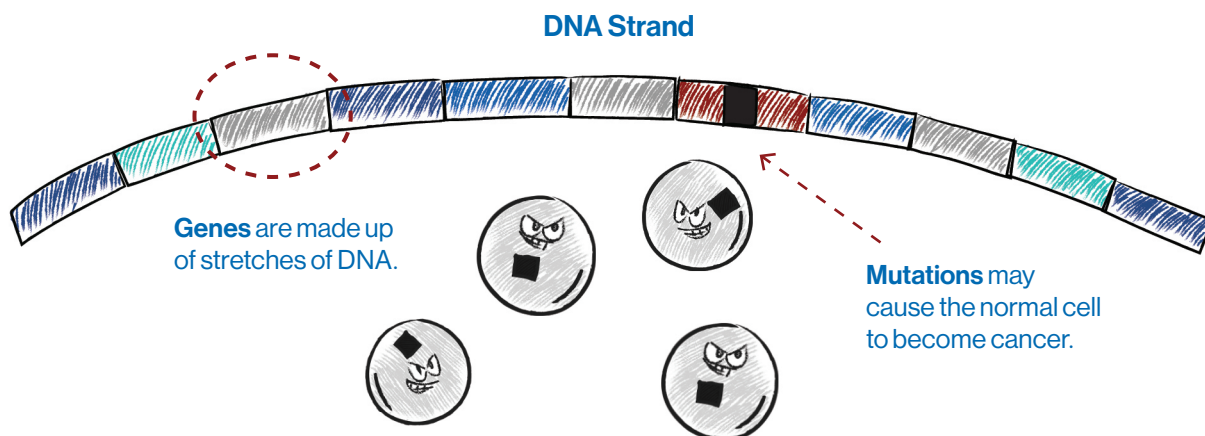
The cancer cells may spread to other parts of the body—this is called “metastasis.” Sometimes there are tumors that do not spread to other parts of the body. These tumors are “benign.” Benign tumors are noncancerous.

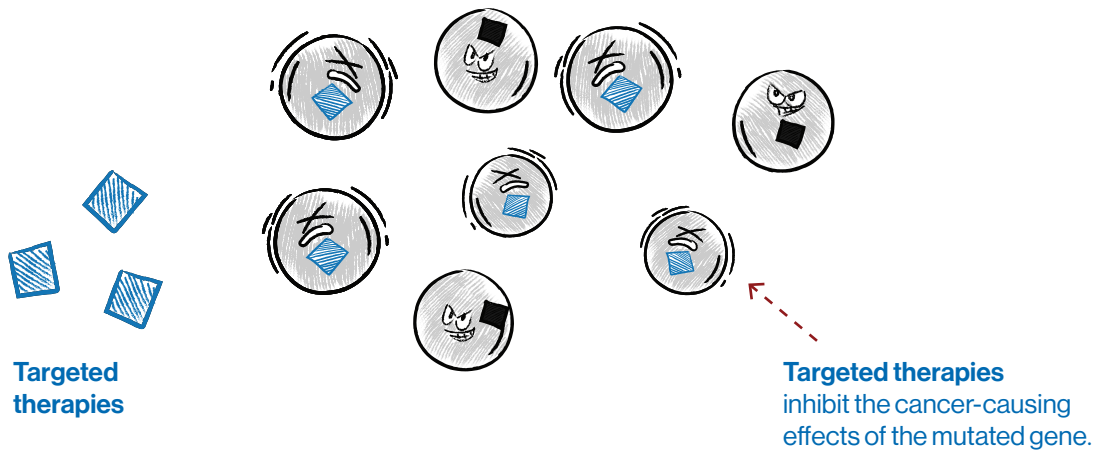


What Causes Cancer Cells to Divide Uncontrollably?

The answer is in their genes. Cancer is a genetic disease.

Genes have the instructions or codes that control the function of every cell, including when to grow and divide. Sometimes the codes controlling growth and division have an error or “mutation” that may cause the normal cell to become a cancer cell and divide much faster than normal. Mutations (or genetic changes) can be inherited or be caused by exposure to cancer-causing things, like cigarette smoke.





What Does This Mean for Cancer Treatment?

Scientific breakthroughs have led doctors and scientists to discover many of these important mutations and develop targeted therapies that may block their cancer-causing effects. These targeted therapies are a type of treatment called “precision medicine in oncology” or “precision oncology.”

Precision Oncology Process

Oncologists determine if targeted therapy is an option by taking a sample of the tumor to determine its cancer-causing mutations. This is called a “tumor biopsy.”

Then they perform a “biomarker test.” This test looks for signs of cancer or which genes are mutated. It also may be used to identify potential treatment options.

Targeted therapies can have side effects.

Biomarker tests look for signs of cancer or which genes are mutated.



Request your patient pathology report from your oncologist.

What About Chemotherapy?

Chemotherapy may be used in different treatment settings for cancer. Chemotherapy may be used as the only treatment for cancer or in combination with other cancer treatments. Chemotherapy may be used before or after surgery or radiation for certain types of cancer. The challenge is to eliminate the cancer cells before harming too many normal cells.

Ask your oncologist about what treatment is best for you.

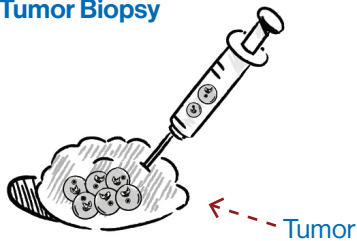
Understanding Biopsies

Why Do I Need a Biopsy?

Biopsies may be a way to diagnose the type of cancer you have. They provide a sample of your cancer cells for the biomarker tests that identify potential treatment targets. This information may identify a targeted treatment that is specific for your type of cancer.

Two types of biopsies are tumor and liquid.

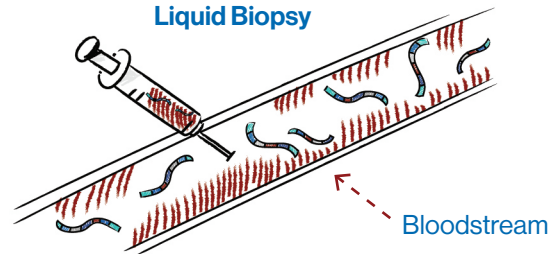
Tumor Biopsy



Tumor biopsy is a procedure where a doctor removes a sample of the tumor through a needle or minor surgery.

Because this type of biopsy is not always possible, a new type of biopsy—blood-based biopsy test—has been developed. These blood-based biopsies are also called “liquid biopsies.”

Liquid Biopsy



Liquid biopsy is a procedure where doctors draw blood to look for mutations. Cancer cells shed small amounts of their DNA into your blood, called circulating free DNA, which can be detected by the liquid biopsy test.

Because liquid biopsies are new, you may also have a traditional tumor biopsy. Your oncologist may recommend starting your treatment based on the liquid biopsy test results while waiting for the tumor biopsy results, which may take a few weeks.

Take Your Targeted Therapy as Prescribed by Your Oncologist

It is important to follow your oncologist’s treatment instructions. Many targeted therapies are oral medications that can be taken at home. If your oncologist prescribed an oral targeted therapy, it is important to take your medicine as prescribed and report side effects to your oncologist.



Questions to Ask Your Health Care Provider

Below are some questions you may want to ask your oncologist.

If you know you have a mutation, ask:

- How is a targeted therapy different from my other treatment options?
- What kind of side effects can I expect from my treatment?
- What is the dosing like for my treatment?

If you haven't been tested for a mutation, ask:

- Have you tested me for genetic mutations for targeted therapy?
- How is this type of testing done?
- Would I need a new biopsy, or do I have previous biopsy tissue available for testing?
- Is a liquid biopsy an option for me?

If you have been tested but don't know your results, ask:

- What are my biopsy results? Do I need to do a confirmation test if my liquid biopsy is negative?
- Do any of the biomarker test results show if there is a targeted therapy that may be an appropriate treatment for me?
- May I have a copy of my patient pathology report?

Other precision medicine–related questions:

- Can someone help me understand my insurance plan's coverage of testing and treatment?
- What factors are being considered as we choose a specific treatment plan?
- Should I speak with a genetic counselor who can help me and my family understand my inherited cancer risk?

Use the space below to add more questions:

If you have any other questions about precision oncology, biopsies, or your cancer care, don't hesitate to ask your oncologist.

