



CANCERcare®

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fact sheet

MOLECULAR PROFILING: PERSONALIZING TREATMENT FOR BREAST CANCER

The genetics of a tumor make each patient's cancer unique. For example, doctors now know that there are many different types of breast cancer with distinct molecular patterns, or profiles. These distinct genetic changes can cause the breast cancer to be more or less likely to respond to certain therapies.

In recent years, researchers have made increasing use of an approach called molecular profiling to better understand the genetic makeup of breast tumors. The information they have gathered has been used to identify and develop targeted therapies that are tailored to specific patients. Molecular profiling is also enabling physicians to better predict which treatments will and will not work for individual patients. This personalized approach is giving doctors and patients new hope as breast cancer patients have more targeted treatment options.



WHAT IS MOLECULAR PROFILING?

Because no two cancers are alike, cancer treatment plans shouldn't be either. Molecular profiling characterizes the genetic and molecular structure of a tumor by identifying targets known as tumor biomarkers, which are biological molecules found in the blood, other body fluids or tissues. Based on the information gathered from a patient's tumor, doctors are able to identify the appropriate therapies that target the biomarkers within an individual patient's cancer cells.

Understanding the unique biomarkers found in a patient's tumor can also spare patients from receiving cancer therapies that are less likely to be effective and from experiencing unnecessary side effects from treatment.

HOW IS MOLECULAR PROFILING BEING USED IN BREAST CANCER?

Molecular profiling techniques are already being used to personalize breast cancer therapy in specific types of patients. This targeted approach helps spare healthy cells and causes less severe side effects than conventional chemotherapy.

HER2-positive breast cancer:

About 20 percent to 25 percent of breast cancers are HER2-positive. These cells have increased amounts of HER2 receptors, and typically respond well to targeted treatments that block the activity of the HER2 receptor.

(over)

WHAT ARE THE BENEFITS OF PERSONALIZING CANCER TREATMENT?

- By revealing the unique biomarker targets found in a patient's tumor, and identifying those associated with response to specific treatments, molecular profiling can help doctors select the most appropriate treatments for each patient.
- Targeting a tumor's unique genetic makeup can result in fewer side effects for patients and improve their quality of life.
- Personalizing cancer treatment can also help reduce the cost of treatment by using drugs with a higher likelihood of working in each patient.

CancerCare Can Help

CancerCare's professional oncology social workers are available to help you cope with a cancer diagnosis and its treatment. CancerCare offers face-to-face, online and telephone support groups. CancerCare also offers individual counseling, education and financial assistance. All of our services are offered completely free of charge. To learn more, call us at **800-813-HOPE (4673)** or visit www.cancercares.org.

Another medication, lapatinib (Tykerb), also targets HER2 by getting inside the cancer cell and blocking HER2 signals. Lapatinib also blocks HER1, which can also increase the growth of some breast cancer cells.

Triple-negative breast cancer:

Triple-negative breast cancer is used to describe breast tumors whose cells do not depend on estrogen, progesterone and HER2 for their growth. Approximately 15 percent of all breast cancers are triple-negative tumors. These cancers tend to grow and spread more quickly and extensively than other types of breast cancer.

Currently, chemotherapy is the first line of treatment for women with triple-negative breast cancer. However, researchers are looking for new ways to combine chemotherapy and targeted drugs to improve treatment options for patients. They are also looking at how molecular profiling may help speed the development of effective therapies by blocking molecular pathways that are involved in the development and growth of triple-negative breast cancer cells.

WHAT QUESTIONS SHOULD I ASK MY DOCTOR?

The best way to find out if molecular profiling is right for you is to talk with your doctor and other members of your health care team. They will be able to answer any questions that you may have about your cancer and tumor type. Take a friend with you to your appointment to help write down answers to any questions you may have. Here are some questions you may want to ask:

- What are my treatment options?
- What are the benefits of molecular profiling?
- Are there any risks involved? If so, what are they?
- Is my tumor eligible for molecular profiling?
- When should my tumor be examined?
- Is it too late to have my tumor examined if I have already undergone treatment?
- How much does molecular profiling cost? Is it covered by my insurance?

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