



CANCERcare®

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fact sheet

LUNG CANCER: NEW TOOLS FOR MAKING DECISIONS ABOUT TREATMENT

Many advances are being made in the treatment of lung cancers. Tumors in the lung may be treated with surgery, radiation, chemotherapy, targeted therapy, or combinations of these approaches. To recommend the best treatment for your cancer, your doctor needs to get as much information as possible about your tumor. Most of this information comes from tests performed on tumor samples obtained when you have a biopsy.



UNDERSTANDING YOUR TUMOR TYPE

Types of lung cancers. There are three common types of lung cancers: adenocarcinomas (60%), squamous cell carcinomas (20%) and small cell lung cancers (13%).

These distinctions are important, as they will help your health care team determine which chemotherapy is likely to be effective. For example, studies show that the drug pemetrexed (Alimta) works better than gemcitabine (Gemzar) in people with adenocarcinomas, whereas the opposite is true for people with squamous cell lung cancers. And the drug bevacizumab (Avastin), while helpful in individuals with adenocarcinomas, can cause bleeding in people with squamous cell lung cancers.

Cancer stage. The stage of the cancer describes a cancer's size, where the cancer is found, and whether it has spread from the lung. In stage 1 lung cancers, the tumor is contained inside the lung. In stage 4 (metastatic) lung cancers, the tumor has spread outside the lung to other organs in the body.

Your treatment will differ depending on your cancer's stage.

Tumor features. Examining tumor samples under a microscope is the only way to prove cancer is present, and this process gives doctors important information. This is how tumor type is determined. Doctors recommend different treatments for lung cancers based on the type of lung cancer.

ONCOGENIC DRIVERS AND PERSONALIZED MEDICINE

In the past, patients with the same types and stages of lung cancers received the same treatment. Just as no two persons are exactly the same, no patients' tumors are exactly the same. In some cases, doctors can use information about your tumor to help them decide whether one treatment is more likely than another to work in your case. This approach to cancer treatment, called personalized medicine, was made possible by the discovery of genetic changes in the tumor tissues. These genetic changes, termed oncogenic drivers, make cancer cells much more dependent on certain proteins than normal cells.

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When a specific drug (called a targeted therapy) is given to negate the effect of the special proteins, cancer cells die and normal cells are largely spared.

Your doctors can perform tests on the tumor tissues removed at the time of your biopsy to see if these drivers are present. If they are, there is a good chance the drugs targeting the oncogenic driver will help you. If the changes are not there, the drugs are unlikely to work, and your doctor can recommend better options. These genetic changes are found only in the cancerous tissues. They are not inherited from your parents and cannot be passed on to your children. Typically, your doctor sends the required tissue sample to the hospital or to a company that provides the tests. The results are received within a few days or weeks, depending on the test. These tests are recommended in accepted treatment guidelines for the care of persons with lung cancers and are usually covered by your insurance.

The two most important oncogenic drivers in lung cancers are EGFR (epidermal growth factor receptor) and ALK (anaplastic lymphoma kinase). If a mutation is detected in the EGFR gene in your tumor, there is a good chance that the cancer will shrink if you receive either erlotinib (Tarceva) or afatinib (Gilotrif). If genetic changes are detected in the ALK gene in your tumor, crizotinib (Xalkori) or ceritinib (Zykadia) may be effective.

Proteomic testing. A blood test called VeriStrat is available for people with advanced non-small cell lung cancer. The test looks at protein patterns in the blood and predicts how patients are likely to respond after receiving an EGFR inhibitor.

KRAS mutation analysis. KRAS is another gene that may cause cancer when it is mutated, or changed. Many lung cancers carry this mutation. Research shows that EGFR inhibitors may be less effective in tumors that carry a KRAS mutation. A test known as KRAS mutation analysis can tell your doctor whether your tumor carries this mutation.

Talk with your doctor about whether or not you should be tested for oncogenic drivers, and what the results could mean for your treatment. Typically, your doctor sends the required blood or tissue sample to the company that provides the test, and results are received within a few days or weeks, depending on the test. These tests may be covered by your insurance. Check with your provider to be sure.



CancerCare® Can Help

Founded in 1944, CancerCare is the leading national organization providing free support services and information to help people manage the emotional, practical and financial challenges of cancer. Our comprehensive services include counseling and support groups over the phone, online and in-person, educational workshops, publications and financial and co-payment assistance. All CancerCare services are provided by professional oncology social workers.

To learn more, visit www.cancercare.org or call **800-813-HOPE (4673)**.

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