

Lung Cancer: New Tools for Making Decisions About Treatment

Many advances are being made in the treatment of lung cancer. Tumors in the lungs 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 he or she can about your tumor. Most of this information comes from tests performed on tumor samples.

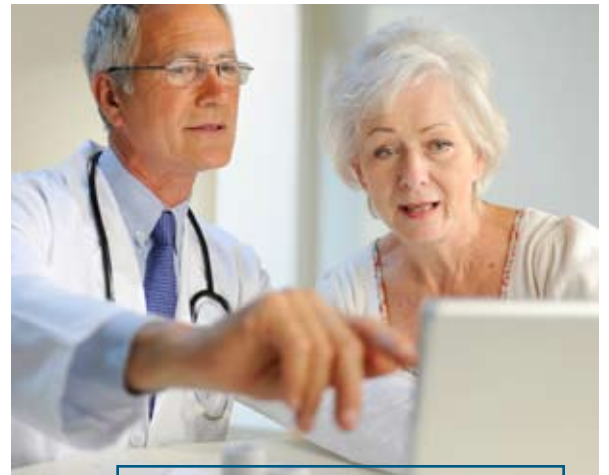
UNDERSTANDING YOUR TUMOR TYPE

Type of lung cancer There are two basic types of lung cancer: small-cell lung cancer and non-small cell lung cancer. Because they are treated differently, it's important to know which type you have.

Cancer stage A cancer's stage describes how far it has spread at the time of diagnosis. In early-stage lung cancer, the tumor is growing inside the lungs. In more advanced lung cancer, the tumor has started to grow outside the lungs. Your treatment options will differ depending on your cancer's stage.

Tumor features Examining tumor samples under a microscope gives doctors important information. For example, it can tell them what kind of cells the cancer started in and, sometimes, how quickly it's growing. These features help guide your doctor's recommendations about how best to treat your cancer.

Only very recently have doctors begun to recommend different treatments for lung cancer based on the type of cell that's affected. For example, some lung cancers start in cells called squamous cells. Studies show that the drug pemetrexed (Alimta) doesn't work well in patients with this type of lung cancer. Another drug, bevacizumab (Avastin) causes very severe side effects in patients with squamous-cell lung cancer. So, except in rare cases, if you have squamous-cell lung cancer your doctors should recommend treatment options for you other than these two drugs.



QUESTIONS TO ASK YOUR DOCTOR

Your doctor considers many factors when recommending the best way to treat your lung cancer. Talk with your doctor about your treatment options. Here are some questions you may want to ask:

- *What type of lung cancer do I have?*
- *What stage is my lung cancer?*
- *In what type of cell did my cancer begin?*
- *How quickly is the tumor growing?*
- *Should I be tested for biomarkers?*

BIOMARKERS AND PERSONALIZED MEDICINE

It used to be that all patients with the same type and stage of lung cancer got the same treatment. Today, researchers know that no two patients' tumors are exactly

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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 new approach to cancer treatment, called personalized medicine, is made possible by the discovery of biomarkers. Biomarkers are molecular characteristics of a tumor that can, in some cases, be used to help make decisions about treatment.

Biomarker tests available to lung cancer patients include:

EGFR mutation analysis EGFR stands for epidermal growth factor receptor. EGFRs are structures found on the surface of some cells that take in messages encouraging those cells to grow and divide. A mutation in the EGFR gene causes some tumor cells to have larger than normal amounts of these receptors. This means that the tumor cells take in too many signals to grow and divide. Some new cancer drugs, such as erlotinib (Tarceva), block these signals. These drugs, called EGFR-inhibitors, may kill cancer cells and shrink the tumor or stop it from growing. A test called EGFR mutation analysis can be performed on a sample of your tumor to help your doctor decide whether your cancer is likely to respond to treatment with an EGFR inhibitor.

Protein pattern analysis Another tool available to doctors is a new blood test called VeriStrat. VeriStrat looks at protein patterns in the blood serum – the liquid part of the blood that remains when blood cells have been removed – and predicts how patients are likely to do 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 biomarkers, and what the results would 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. Biomarker tests may be covered by your insurance. Check with your provider to be sure.

CancerCare Can Help

If you or a loved one has been diagnosed with lung cancer, contact CancerCare. We are a national nonprofit organization that provides free, professional support services for anyone affected by cancer. Our services include individual counseling, support groups, education, financial assistance, and referrals to other resources. To learn more, call us at

1-800-813-HOPE (4673) or visit www.cancer.org.



This fact sheet was made possible thanks to an educational grant from Biodesix, Inc.



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