UNDERSTANDING SERIES

# LUNG CANCER BIOPSIES


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A GUIDE FOR THE PATIENT

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# WHAT IS A BIOPSY?

## WHAT DOES A BIOPSY TELL US?

A biopsy is a procedure to determine if a suspicious area is cancer. In a biopsy, tissue or fluid is removed from the body and examined under a microscope by a doctor called a pathologist. If the biopsy indicates there is cancer present, it also identifies the type of cancer. If it is lung cancer, the biopsy should show the type of lung cancer, either non-small cell or small cell. Once cancer is diagnosed, sometimes a biopsy is used to learn more information about the cancer and to guide treatment.

**There are a number of ways that tissue or fluid can be removed for biopsy. The type of procedure is determined by what is being studied, where it is located in the lung and your overall health. There are several types of doctors who perform different types of biopsies including pulmonologists, interventional radiologists and thoracic surgeons.**

# TYPES OF BIOPSIES

**SURGICAL VS. NON-SURGICAL.** Tissue or fluid used for biopsy can be obtained in several ways. One way is by surgery, which involves the use of general anesthesia and usually involves a hospital stay. Non-surgical biopsies are generally done as an outpatient procedure and under local anesthesia. In addition to removing tissue or fluid for testing, some of these procedures can also be used to prepare the area for future treatment if necessary.

## NON-SURGICAL BIOPSIES

- **NEEDLE BIOPSY OR NEEDLE ASPIRATION.** A hollow needle is inserted through the skin to draw out tissue for testing. The procedure is usually done with the aid of imaging tests such as CT scans, fluoroscopy, ultrasound or MRI to determine where to insert the needle. Two types of this kind of biopsy are fine needle aspiration and core needle aspiration.
- **THORACENTESIS.** A hollow needle is used to draw fluid that has collected between the lungs and the chest wall. The fluid is then tested to see if it contains cancer cells.
- **ENDOSCOPIC ULTRASOUND (EUS).** An endoscope with an ultrasound device at its tip is inserted through the mouth and into the esophagus, providing guidance for needle biopsy (both fine needle aspiration and core needle) of nodules and lymph nodes in the mediastinal (central) area of the chest.

**BRONCHOSCOPY.** A thin, lighted tube (bronchoscope) is passed down the throat through the mouth or nose and into the center area of the lungs. A needle is then inserted down the tube and samples are removed for testing.

### MORE SPECIALIZED PROCEDURES THAT USE A BRONCHOSCOPE INCLUDE:

**AUTOFLUORESCENCE.** Uses a bronchoscope with a special light and a camera, which captures live color video viewed on a monitor. Under this light, abnormal/pre-cancerous tissue appears in a different color than normal tissue.

**ENDOBRONCHIAL ULTRASOUND (EBUS).** Uses a bronchoscope and ultrasound (high frequency sound waves) and allows for better examination of the lymph nodes and other structures in the center of the chest to see if cancer has spread.

**ELECTROMAGNETIC NAVIGATION.** Uses a bronchoscope to reach the lungs. Pictures from a CT scan and GPS-like technology are used to create a map and navigate to the nodule. This procedure allows doctors to get to the outer areas of the lung which may be difficult to reach using traditional bronchoscopy.

## SURGICAL BIOPSIES

**MEDIASTINOSCOPY.** An incision made just above the breastbone allows a device with a camera attached to pass into the middle of the chest (mediastinum) to see if cancer is present there and to check central lymph nodes for cancer.

**THORACOSCOPY.** An incision in the chest wall allows a device with a camera attached to be inserted into the chest cavity so the lungs and surrounding area can be explored. Tissue samples can also be removed for testing.

If, based on imaging and other tests, the nodule has a strong chance of being cancer and the recommended treatment would be surgery to remove the cancer, the biopsy is done as part of the surgical procedure.

**THORACOTOMY.** An incision made between the ribs to allow removal of the cancer.

**MINIMALLY INVASIVE SURGERY.** A series of small incisions allows the insertion of a camera and small instruments for the biopsy. This surgery may be done by VATS (video assisted thoracic surgery) or RATS (robotic-assisted thoracic surgery). Once it is complete and cancer is confirmed, a part of the lung (or the entire lung) will be removed.

### LIQUID BIOPSY

**Liquid biopsy is different because it does not diagnose cancer but it can determine if there are gene or protein changes in the cancer to help guide treatment. Most commonly, this test is done by drawing blood with a needle. This test works best when the cancer has spread outside of the lung and can be useful when tissue biopsy is not available.**

## BIOPSY RISKS

All tests and procedures have risks. Lung biopsies can cause part of the lung to collapse and/or bleeding but your personal risks depend on factors like the type of procedure used and your overall health. Talk with your treatment team to understand the risks and benefits of the procedure that is recommended for you.

### DOES A BIOPSY MAKE CANCER SPREAD?

**Some people worry that a biopsy procedure will make cancer spread. Biopsies for cancer in the testicle, eye and ovary may carry a small risk of spread but for most lung cancer biopsies there is no good evidence of such a risk.**

## BIOPSY RESULTS

If the biopsy is done during surgery that may lead to the removal of the tumor, the biopsy results may take a matter of minutes. In other cases, results can take anywhere from a few days to more than a week. Ask your treatment team when to expect your results so you will have an idea how long your wait may be.

Cells that are damaged (mutated) and become cancer look very different under the microscope than cells that are normal. A pathologist (a doctor who studies tissue, fluid and blood samples) is trained to know the difference. The types of lung cancer look different as well. The pathologist may also use tests to determine if the cancer started in the lungs or in another part of the body and spread to the lungs.

Other tests may also be done to check for biomarkers in the sample. Biomarkers are features of the cancer that give the doctor information about the cancer, such as specific proteins on the surface of the cell or genetic information inside the cell. Some biomarkers can help predict how the cancer will act while others indicate whether a specific treatment may be effective.

# QUESTIONS TO ASK ABOUT YOUR BIOPSY

- What are my biopsy options?
- Which option do you recommend and why?
- What are the risks and benefits?
- How should I prepare?
- How long will the procedure take?
- How long will it take to get the results?
- Do you recommend testing the sample for other things such as biomarkers?
- What will happen after the biopsy?

# WHERE CAN I GO FOR MORE INFORMATION?

**For more information about lung cancer and current treatments, to discuss support options or for referral to other resources, please contact us:**

**HELPLINE** | 1-800-298-2436

**BIOMARKER TESTING & CLINICAL TRIAL MATCHING** | lungmatch.org

**ALL THINGS LUNG CANCER** | go2foundation.org

**E-MAIL** | support@go2foundation.org

**MAIL** | 1700 K Street NW, Suite 660, Washington, DC 20006
1100 Industrial Road, #1, San Carlos, CA 94070

SAVING LIVES AND ADVANCING RESEARCH BY EMPOWERING THOSE LIVING WITH AND AT RISK FOR LUNG CANCER


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Founded by patients and survivors, $GO_2$ Foundation for Lung Cancer transforms survivorship as the world's leading organization dedicated to saving, extending, and improving the lives of those vulnerable, at risk, and diagnosed with lung cancer.

$GO_2$ Foundation works to change the reality of living with lung cancer by ending stigma, increasing public and private research funding, and ensuring access to care.



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