



Know your lung cancer

Lung cancer is not a single disease

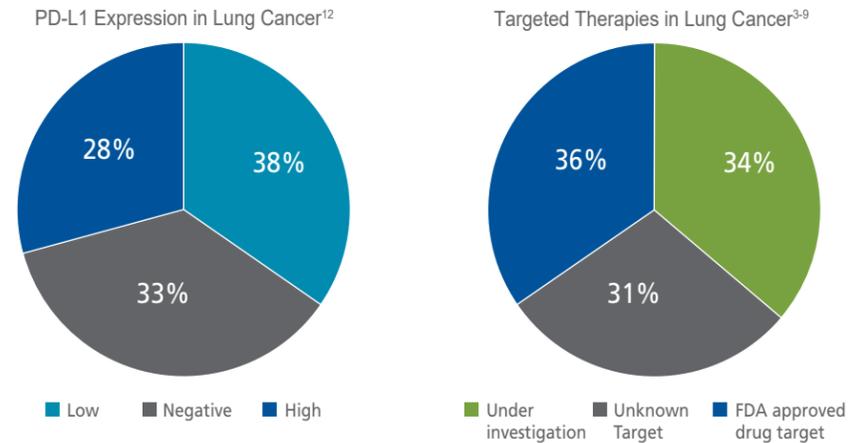
Lung cancer is the second most commonly diagnosed cancer in both men and women in the United States.¹ It is caused by uncontrolled growth of tumor cells in the lungs.² To understand your lung cancer your doctor will obtain a sample of tumor.² Another doctor, a pathologist, will examine the sample and run tests to determine the type of lung cancer you have. There are 2 major types of lung cancer – Non-Small Cell Lung Cancer (NSCLC) which is 80-85% of all lung cancers and Small Cell Lung Cancer which is 10-15% of all lung cancers.² There are different types of NSCLC too.² The classification is based on tumor histology or how the tumor cells look under the microscope. Lung cancer tumors also have other features that help determine how they should be treated. Some of these characteristics are called biomarkers. Molecular biomarkers in NSCLC can be alterations or mutations in the tumor genes, or proteins expressed by a tumor cell.

Why is it important to test for Biomarkers?

Did you know that nearly 69% of lung cancers have a specific type of genetic biomarker that shows a change in the tumor genes that make the cancer grow?³ This is important because, in some cases, it means that drugs can and have been designed specifically to target those changes, which can stop the cancer from growing. These drugs are called targeted therapies.³

Today, approximately 1 in 3 of NSCLC have targeted therapies that are FDA approved⁴ with others also being researched.^{5,6,7,8,9} These targeted therapies are not chemotherapy.⁴ They are drugs that are prescribed by your oncologist to treat your particular type of lung cancer.⁴ Testing is recommended to determine exactly what kind of lung cancer you have and if you will be able to initially be treated with targeted therapy or immunotherapy.¹⁰ Immunotherapy is a type of cancer treatment that helps boost your immune system to fight cancer.

Another example of a biomarker is PD-L1, a surface protein that dampens the activity of your own immune system.¹¹ Up to 66% of lung cancer tumors are expressors of the PD-L1 biomarker, which indicates that immunotherapy may be a good treatment option.¹²



When should I receive a targeted therapy vs. immunotherapy for my lung cancer?

Based on a study reported at the American Society of Clinical Oncology, researchers believe that those patients that can receive a targeted therapy based on tumor testing results should get a targeted therapy.¹³

¹ Siegel, R.L., Miller, K.D. and Jemal, A. (2020), *A Cancer J Clin*, 70: 7-30 doi:10.3322/caac.21590
² <https://www.cancer.org/content/dam/CRC/PDFPublic/8703.00.pdf>
³ Fred R Hirsch, Kenichi Suda, Jacinta Wiens, Paul A Bunn, Jr *Lancet* 2016; 388: 1012–24
⁴ <https://www.cancer.org/cancer/lung-cancer.html>
⁵ <https://clinicaltrials.gov/ct2/results?cond=Lung+Cancer&term=KRAS&cntry=&state=&city=&dist=>

⁶ <https://clinicaltrials.gov/ct2/results?cond=Lung+Cancer&term=PTEN&cntry=&state=&city=&dist=>
⁷ <https://clinicaltrials.gov/ct2/results?cond=Lung+Cancer&term=MAP2K1&cntry=&state=&city=&dist=>
⁸ <https://clinicaltrials.gov/ct2/results?cond=Lung+Cancer&term=PIK3CA&cntry=&state=&city=&dist=>
⁹ <https://clinicaltrials.gov/ct2/results?cond=Lung+Cancer&term=ERBB2&cntry=&state=&city=&dist=>
¹⁰ Lindeman et al., *Arch Path Lab Med* 2018, 142(3), 321-346

When should I be tested?

Because the results of biomarker testing are used for your treatment plan, testing at diagnosis of metastatic NSCLC and sometimes at progression (if the cancer starts to grow again) is recommended.^{13,14}



What questions should I consider asking my doctor?

- How is the testing done?
- Are there any risks or complications I should know about related to the testing?
- Do you know if insurance benefits may cover the cost for my tests?
- Will I get a copy of my test results?
- Is this test done only once, or would I possibly need more tests in the future?
- What is the treatment plan for my particular type of lung cancer?

¹¹ <https://www.cancer.org/latest-news/fda-approves-new-immunotherapy-drug-for-bladder-cancer.html>
¹² C. Aggarwal, et al *Ann Oncol* 27 (Supplement 6): vi359–vi378, 2016
¹³ Gregg JP, et al. *Transl Lung Cancer Res* 2019;8(3):286-301.
¹⁴ Lindeman NI, et al., *J Thorac Oncol* 2018;13(3):323-358.