



# Biomarker testing in lung cancer

A guide for people with  
lung cancer and their loved ones

# What is biomarker testing?

A biomarker test checks cancer cells for important genetic changes (mutations). Testing lung cancer in this way is a vital early step in making sure you or your loved one starts on the best treatment plan.



“Although I initially received chemotherapy, I received targeted therapy after I got the results of my biomarker test.” - **Sally**



“I was first diagnosed with a tumour in the brain, but a scan showed that I had lung cancer. My biomarker test showed that my cancer was ALK positive, so I was put on a targeted treatment.” - **Andy**



“I had surgery to remove a mass in my lung. I didn’t know I was tested at the time, but my biomarker test revealed my cancer didn’t carry a mutation that had a targeted treatment.” - **Brian**

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of all patients with non-small cell lung cancer have at least one mutation that has a targeted treatment<sup>1</sup>, yet the opportunity to test for mutations could be missed in some patients.<sup>2</sup>

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The 2021 GLCC Patient Experience Survey suggested that around one third of 54 patients asked were either not offered a biomarker test or were unsure whether they had been offered one.<sup>3</sup>

## Why should you ask your clinical team about biomarker testing?

- Cancer biomarkers are molecules that can be found in your tissue, blood, or other body fluids. They can give your clinical team more information on what is causing your cancer to grow and spread.<sup>4</sup>
- When a biomarker test is done, your clinical team are looking to see which genetic changes your cancer has – these are called mutations.
- Because there are many different types of non-small lung cancer, biomarker testing at the time of diagnosis can be a critical first step in helping your clinical team decide your treatment.

**Biomarker testing can also be called “genetic,” “molecular” testing.**

## What does biomarker testing involve?



### 01. Testing

Your clinical team will collect some tissue from your tumour in a procedure called a biopsy. If a tissue biopsy cannot be performed, your clinical team may take a blood sample.



### 02. Analysis

Your biopsy will be sent to a laboratory for analysis and a report will be sent to your clinical team. This can take 3-4 weeks, but you may want to ask your clinical team when to expect the results.



### 03. Reporting

Your clinical team will explain the results of the test and discuss implications for your treatment, if any, including whether targeted therapy may be an option available to you.



Mutations found in lung cancer patients include EGFR, ALK, MET, ROS1, BRAF, RET, NTRK1, KRAS, PD-L1 and HER2.

This is a changing list as new mutations and treatments are still being discovered. Speak with your clinical team for more information.

### What can genetic mutations mean for your treatment?

- Your treatment options may change depending on whether or not your tumour has a targetable mutation, what that mutation is, or your personal circumstances.
- If you test positive for a mutation, you may be placed on therapy that is already approved, or you may be eligible for a current or future clinical trial.<sup>5</sup>
- Each targeted therapy treats a particular mutation. If your lung cancer does not have a mutation that has an available treatment, speak to your oncologist about your treatment options.



## What should you ask your clinical team?

You have the right to information about your cancer and treatment from your clinical team, including information about biomarker testing.

### Questions you may wish to ask:

- Have you done biomarker testing on me?
- Do you plan to do biomarker testing on me, and if so when?
- When will I get the results of my biomarker test?
- What were the results of my biomarker test?
- What do the results of my biomarker test mean for my treatment?
- If you aren't doing a biomarker test, what is the reason?

### Guide for loved ones



This is complicated! Immediately after diagnosis your loved one may not be in the best state of mind to ask questions or take information in, but the earlier you engage in conversations about biomarker testing the better.

So, with your loved one's permission, why don't you ask their clinical team instead – do they plan to do biomarker testing, and if so, when?

## What does biomarker testing mean for you?

Biomarker testing can be an important part of shaping your treatment. Some types of non-small cell lung cancer can be treated with targeted therapies.

However, it is important to understand that your treatment will depend on several factors, not just whether or not your cancer has a mutation that has a targeted treatment. Every person, and every cancer, is different.

That is why it is so important to have a conversation with your clinical team.

## What happens once you've started treatment?

**Targeted therapies are used to treat lung cancer. They work by targeting a specific change in or around the cancer cells that is helping them to grow. Targeted therapies can take different forms.**

If you are given targeted therapy, you may want to ask your clinical team how long the therapy is expected to work for and what changes in symptoms you should look out for. The targeted therapy may stop working, so you may want to ask how you tell if the therapy has stopped working, and what happens next.

It can take some time to see how targeted treatments are working, though you may become aware of changes in symptoms more quickly. You can experience side effects, so speak to your clinician about any concerns you have.

You will have regular follow-up appointments during your treatment. Your clinician may do blood tests to see if the treatment is affecting your body. If your cancer is responding to the targeted therapy, then treatment will continue, as long as you're coping with any side effects and want to continue.

Your visits are a good time to ask your clinical team questions and talk about any changes or problems you notice. It can be useful to write down the questions you want to ask before your visit.

### Guide for loved ones



It is important to be realistic and understand the implications of mutations. If your loved one's cancer has a mutation that has a targeted treatment, it doesn't mean the cancer is any less serious.

However, certain mutations can change the treatment options available, and in turn predict the possible response of that treatment.

This is why it is so important to have the conversation about biomarker testing with your loved one's clinical team.

Here are some trusted support organisations that have further information on biomarker testing, targeted treatments, and living with lung cancer. Your hospital may also run a local support group.

## Lung cancer support organisations

**Roy Castle Lung Cancer Foundation**

[www.roycastle.org](http://www.roycastle.org)

**ALK Positive Lung Cancer UK**

[www.alkpositive.org.uk](http://www.alkpositive.org.uk)

**EGFR Positive UK**

[www.egfrpositive.org.uk](http://www.egfrpositive.org.uk)

**EGFR Resisters**

[www.egfrcancer.org/](http://www.egfrcancer.org/)

**ROSI ders**

[www.ros1cancer.com/](http://www.ros1cancer.com/)

**KRAS Kickers**

[www.kraskickers.org/](http://www.kraskickers.org/)

**MET Crusaders**

[www.metcrusaders.org/](http://www.metcrusaders.org/)

**RET Positive**

[www.retpositive.org/](http://www.retpositive.org/)

**Exon 20 Group**

[www.exon20group.org/](http://www.exon20group.org/)

**NHS**

[www.nhs.uk/conditions/lung-cancer](http://www.nhs.uk/conditions/lung-cancer)

## General support organisations

**Cancer Research UK**

[www.cancerresearchuk.org](http://www.cancerresearchuk.org)

**Macmillan Cancer Support**

[www.macmillan.org.uk](http://www.macmillan.org.uk)

### Guide for loved ones



We understand your loved one is going to be your priority right now, but it's important that you also look after yourself, have support, and know where to seek advice.

**Macmillan Cancer Support** – [www.macmillan.org.uk/cancer-information-and-support/supporting-someone](http://www.macmillan.org.uk/cancer-information-and-support/supporting-someone)

**Maggie's** – [www.maggies.org/cancer-support/supporting-someone-cancer/support-adult-carers/](http://www.maggies.org/cancer-support/supporting-someone-cancer/support-adult-carers/)

**Mind** – [www.mind.org.uk/information-support/helping-someone-else/carers-friends-family-coping-support/](http://www.mind.org.uk/information-support/helping-someone-else/carers-friends-family-coping-support/)