

## Support for relatives and carers

We understand your loved one is going to be your priority right now, but it is 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)

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

Whiston Hospital  
Warrington Road,  
Prescot, Merseyside, L35 5DR  
Telephone: 0151 426 1600

St Helens Hospital  
Marshall Cross Road,  
St Helens, Merseyside, WA9 3DA  
Telephone: 01744 26633

Southport Hospital  
Town Lane, Kew,  
Southport, Merseyside, PR8 6PN  
Telephone: 01704 547 471

Ormskirk Hospital  
Dicconson Way, Wigan Road,  
Ormskirk, Lancashire, L39 2AZ  
Telephone: 01695 577 111

[www.MerseyWestLancs.nhs.uk](http://www.MerseyWestLancs.nhs.uk)



Mersey and West Lancashire  
Teaching Hospitals  
NHS Trust

# Genomic testing in lung cancer

If you need this leaflet in a different language or accessible format please speak to a member of staff who can arrange it for you.

اگر به این بروشور به زبان دیگر یا در قالب دسترس پذیر نیاز دارید، لطفاً با یکی از کارکنان صحبت کنید تا آن را برای شما تهیه کند.

Jeśli niniejsza ulotka ma być dostępna w innym języku lub formie, proszę skontaktować się z członkiem personelu, który ją dla Państwa przygotowuje.

Dacă aveți nevoie de această broșură într-o altă limbă sau într-un format accesibil, vă rog să discutați cu un membru al personalului să se ocupe de acest lucru pentru dumneavoastră

如果您需要本传单的其他语言版本或无障碍格式，请联系工作人员为您安排。

إذا احتجت إلى هذه النشرة بلغة أخرى، أو بتنسيق يسهل الوصول إليه، يرجى التحدث إلى أحد الموظفين لترتيب ذلك لك.

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## What is genomic testing

Genomic testing (sometimes called molecular testing) is a type of medical test that looks at the DNA of cancer cells, to identify genetic changes (also called variants or mutations) that may be pushing cancer's growth. In the case of lung cancer, this testing is used to:

- Identify mutations that can be targeted with special treatments (called targeted therapy).
- Help doctors choose the most effective treatment plan based on the unique biology of the cancer.
- Avoid treatments that are less likely to work.

## Key points

- Genomic testing is done on the cancer cells.
- Most of the genetic changes that cause lung cancer are not inherited, they happen over time due to things like smoking or environmental exposures.
- These are called acquired variants.
- The changes can be found in:
  - Genes (like EGFR, ALK, KRAS, etc.)
  - Proteins
  - Other features of the tumour.

## Why it is important

Doing genomic testing early in a lung cancer diagnosis helps guide doctors to the right treatment at the right time, which can improve the way cancer is treated and avoid unnecessary side effects.

## Follow up care

- You will have regular appointments to monitor your response to treatment and any side effects with the oncology team.
- Blood tests will be done to check how the treatment is affecting your body.
- If the cancer responds well and you tolerate the treatment, it will usually continue.
- Your visits are a great opportunity to discuss any questions, concerns, or changes you notice. Writing down questions before your appointments can help you remember everything you want to ask.

## 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/)
- ROS1ders <https://www.theros1ders.org/>
- MET Crusaders <https://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)

## Why it is important to talk with your clinical team

Having an open conversation allows you to:

- Understand your genomic test results clearly
- Learn how those results impact your treatment options
- Discuss any concerns or preferences you have
- Your oncology team can help tailor a treatment plan that is personalised to your case.

## What are targeted therapies?

Targeted therapies treat some lung cancers by focusing on specific genetic changes or abnormalities that help cancer cells grow and survive.

They often come in the form of oral tablets and may be used alone or alongside other treatments like chemotherapy or immunotherapy.

Ask your oncology team for further details such as how the therapy is expected to work and how long will treatment continue.

## Here is a breakdown of what genomic testing involves for lung cancer

### Testing

Your team will collect a sample of tissue from your tumour called a biopsy.

If a tissue biopsy is not possible, they may take a blood sample instead, sometimes called a “liquid biopsy”. This tests for circulating tumour DNA (ctDNA), microscopic pieces of a tumour which can sometimes be found in the blood.

### Analysis

The biopsy sample is sent to a special laboratory for detailed analysis looking for genetic changes in the cancer cells.

This process can take days to weeks. You can ask your clinical team when to expect your results. ctDNA results may take up to three weeks from the date of collection as the sample is sent to a special laboratory in Manchester called the Northwest Genomic Laboratory.

### Results

Your clinical team will review the results with you and explain what they mean.

They will discuss how the results affect your treatment options, including whether a targeted therapy is available based on the genetic changes found.

## Common genetic changes tested in lung cancer

- EGFR
- ALK
- MET
- ROS1
- BRAF
- RET
- KRAS G12C
- PD-L1
- HER2

This list is growing as research discovers new important genetic variants. Your clinical team can provide the most up to date information.

## What can genetic variants mean for your treatment?

If your tumour tests positive for a variant, you may:

- Be offered a targeted therapy
- Be eligible for clinical trials testing new treatments targeting that variant.

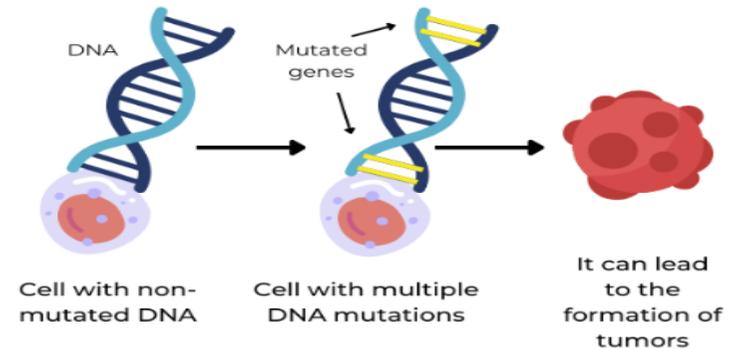
## Your treatment options may change based on

- Whether your tumour has a targetable genetic variant
- What specific variant it is
- Your personal health circumstances.

If no current targeted therapy is available for your variant, your oncologist can discuss other treatment options best suited for you.

## What does genomic testing mean for you?

Genomic testing can play a key role in shaping your treatment plan. Certain types of Non-Small Cell Lung Cancer (NSCLC) can respond well to targeted therapies that specifically attack cancer cells with particular genetic changes.



## Your treatment decision will depend on multiple factors including

- Your overall health and medical history
- The presence (or absence) of specific genetic variants in your tumour
- Sometimes, even if a genetic variant is found, targeted therapy might not be the best option depending on your unique situation
- Every person and every cancer are different. There is no one size fits all approach.