

What is personalised care in lung cancer?



Everyone is unique, and so is every lung cancer. Personalised care in lung cancer is tailored to an individual. It considers the genetic information of a person's lung cancer and their lifestyle and environment.¹⁻³

We are moving towards personalised care in lung cancer.⁴ A better understanding of lung cancer biology has moved care from a traditional approach to a precision approach.⁵



- Everyone with lung cancer used to be treated the same with the same type of treatment^{5,6}
- **Traditional treatments (chemotherapy and radiation therapy) and/or surgery were most commonly used⁵**



- New tests and scientific discoveries have enabled us to better understand how certain molecules can contribute to lung cancer developing^{5,7,8}
- A lung cancer's genetic information (known as biomarkers) can lead to a better understanding of what is making the cancer grow, to help find the best treatment options^{7,8}
- **This approach looks at a lung cancer's genetic information, using the most up-to-date tests, to help decide the best treatment^{1,2,7}**



- The goal of personalised care is to tailor care for every individual's unique cancer, from screening to diagnosis and treatment²
- The hope for the future is to not only use a lung cancer's genetic information to help guide decisions about care (like in precision care), but to also consider the person's environment and lifestyle^{2,3}
- **Testing lung cancers and collecting and studying the genetic information can help make this a reality²**

Lung cancer is not a single disease⁷



Every year, more than **2.2 million** people are diagnosed with lung cancer worldwide.⁹

There are two major types of lung cancers. They grow and spread in different ways. Up to 85% of people have **non-small cell lung cancer (NSCLC)** and up to 15% have **small cell lung cancer (SCLC)**.^{10,11}



NSCLC can be categorised further into subtypes according to the type of cell the cancer develops in.^{7,10–12}

Doctors can also identify lung cancer **biomarkers**, which can help guide decisions about treatment.^{7,12}

What are biomarkers?



Biomarkers are molecules found in cells (e.g. genes) that provide important information about a person's cancer.¹³ New biomarkers for lung cancer are constantly being evaluated.¹⁴

Knowing the subtype and biomarker status of your lung cancer can help improve care^{15,16}

Testing lung cancers is key for personalised care



Doctors can use tests to identify lung cancer biomarkers. Biomarkers might be identified from a sample of the lung cancer. This is known as biomarker testing. If a biomarker is detected, there may be a suitable treatment that can target it.^{7,14,15,17–21}



Biopsy

Solid tissue biopsy involves taking a sample of cancer cells directly from a solid tumour

Liquid biopsy is a new, non-invasive approach that examines fluids (for example, blood)



Finding biomarkers

Single biomarker tests detect one biomarker

Comprehensive genomic profiling detects multiple biomarkers with a single test



Test results

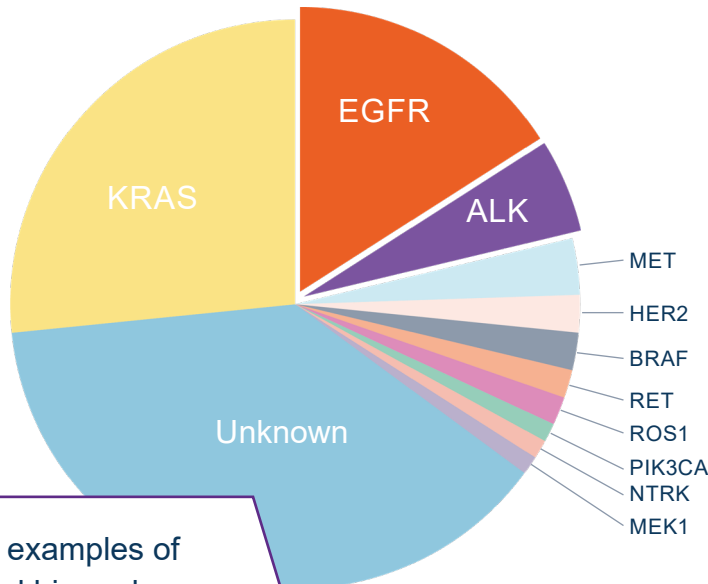
Test results may reveal biomarkers (but results are not always conclusive)



Personalised treatment

Targeted treatments and **immunotherapies** can target the detected biomarker, making the treatment more effective, with fewer side effects than traditional treatments

Some biomarkers have already been identified in NSCLC:^{16,22–27}



Biomarkers mostly commonly tested for in NSCLC: **EGFR** and **ALK**^{7,27}

Other examples of identified biomarkers:

RET, NTRK and **ROS1**^{5,17}

If a lung cancer tests positive for the **EGFR biomarker**, then it may respond well to a certain type of treatment called **EGFR inhibitors**. Lung cancers with the **ALK biomarker** may respond well to **ALK inhibitors**.⁷

These aren't the only key biomarkers. For example, **PD-L1** is an immune system biomarker that can be found at high levels in lung cancer cells. It can be targeted by a type of immunotherapy called **immune checkpoint inhibitors**.²⁸

What's next for personalised care in lung cancer?



Biomarker testing is done routinely in some hospitals for people with NSCLC.¹⁵ Testing for various biomarkers (including EGFR, ALK, MET, a certain type of BRAF, ROS1, NTRK and RET) is now recommended for daily practice.^{29,30} Sometimes testing may not be feasible.¹⁵ This is because:

- Biomarker testing isn't available everywhere²
- Some people might not have identifiable biomarkers^{2,15}
- Treatments aren't available for every biomarker¹⁵

But more scientific research could help make personalised care a reality for more people with lung cancer.² For example:



Liquid biopsies in routine care

- Liquid biopsies can help detect multiple biomarkers using one fluid sample (e.g. blood)^{31–33}
- This is very helpful for lung cancer because the lung is deep in the body, making it difficult to reach³³
- Liquid biopsies are new, so more research is needed to use them fully in routine care of lung cancer^{31,32}



Screening programmes to predict lung cancer

- In the future, screening for biomarkers could help indicate cancer (or the risk of cancer), potentially before symptoms appear^{34,35}
- Earlier detection means people can actively manage their health and take steps to prevent lung cancer from progressing³⁴



Researching new treatments and biomarkers

- Testing lung cancers and collecting and studying the genetic information can help speed up research and development^{36,37}
- A better understanding of every lung cancer can help researchers carry out more efficient and effective medical research, for new or improved treatments and biomarkers³⁷
- Other lung cancer biomarkers are constantly being evaluated, including those that can be targeted by immunotherapies¹⁴



Ongoing development of advanced tests

- Comprehensive genomic profiling tests can identify multiple lung cancer biomarkers rapidly³⁸
- Carrying out these tests and developing new advanced tests may help doctors choose the best treatment options³⁹

Regular testing at different stages of your life is key. It can help choose the most effective care, identify new biomarkers and develop new treatments. The goal is to see more people recover from lung cancer.^{2,36}

If you or the person you care for has been diagnosed with lung cancer, speak to your doctor about biomarker testing to help personalise care

Potential benefits of personalised cancer care



Personalised care can provide better treatments and better ways to manage cancer.^{4,34,37}

It can help people avoid unnecessary treatments that don't work for them and allow them to start the right treatment earlier.³⁷ If used in practice, personalised care could lead to:

- **Better health outcomes**^{34,37}
- Improved **quality of life** with less impact on daily routines^{4,37}
- **Financial benefits** by using more effective treatments earlier^{4,37}
- Broader benefits to **society** through improved health and wellbeing, and more efficient use of healthcare resources^{37,40,41}

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