

Personalised cancer care: Guide to medical terms



Contents

Key terms	2, 3
Cancer biomarker examples	4, 5
References	6–8

About this guide

The **Personalised cancer care: Guide to medical terms** is designed to improve knowledge and understanding of personalised care in cancer. It is for people who have been diagnosed with cancer and their loved ones. It provides clear and succinct definitions of the key terms used in personalised cancer.

This guide is intended to be used together with other materials such as the **Personalised cancer care factsheets** and **infographics**, which delve into more detail around the concepts and benefits of personalised cancer care.

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Key terms

Term	Definition	Also known as...
Biomarker	Molecules found in cells (e.g. genes). Testing for biomarkers can provide important information about a person's cancer. ¹ New biomarkers for different cancer types are constantly being discovered. ²	Genetic information Molecular marker Oncogene Tumour marker
Biopsy	A medical procedure that involves removing a sample of cells from the body so they can be examined. Solid tissue biopsies are most commonly used, while liquid biopsies are a new type of biopsy. ^{3,4}	
Cancer	A disease in which abnormal cells divide without control and can form a mass or lump of cells called a tumour . Cancer can form in any tissue in the body. They can sometimes spread to other parts of the body through the blood and lymph systems, known as metastasis . ^{5,6} There are more than 250 known types and subtypes of cancer, including lung cancer and cancer of unknown primary . ^{2,7,8}	
Cancer of unknown primary	A type of cancer in which the metastatic cancer (when the cancer spreads to somewhere else in the body, also known as metastasis) is found, but the place where it began (called the primary site) is not. ^{8,9} This type of cancer might be harder to understand and treat than other cancers. ^{8,9}	Carcinoma of unknown primary CUP
Chemotherapy	A treatment that kills cancer cells, which grow and divide quickly, by stopping or slowing their growth. ^{10,11}	
Comprehensive genomic profiling	A next-generation sequencing test that can detect multiple biomarkers at the same time. It can provide important information that can help guide decisions about treatments across all cancer types. ^{12,13}	CGP
Gene	A part of DNA that contains important information for the development of certain components in a cell (e.g. proteins). ¹⁴	
Genetic testing	A test that looks at certain genes to identify genetic differences or susceptibility to particular diseases (such as cancer) or abnormalities. ^{14,15}	
Genomic testing	A test that looks at multiple genes at the same time, from a sample of a person's saliva, cells or blood. ^{14,16–18} It can identify some biomarkers in cancer cells. ¹⁸	Biomarker testing Genomic profiling Molecular testing Somatic testing Tumour genetic testing Tumour profiling Tumour subtyping Tumour testing
Germline mutation	A genetic change in a sperm or egg. When they come together to form a fertilised egg, the genetic change is passed on to the offspring. Cancer caused by germline mutations is called inherited cancer. ¹⁹	
Immunohistochemistry	A laboratory test that uses antibodies (immune proteins) to identify certain biomarkers (known as antigens) in a sample of tissue. ²⁰	IHC
Immunotherapy	A treatment that uses the body's own immune system to prevent, control and eliminate cancer. Examples of immunotherapy include immune checkpoint inhibitors and cancer vaccines. ^{21,22}	Immuno-oncology
Liquid biopsy	A new and non-invasive biopsy that analyses different components of the cancer from a sample of bodily fluids, such as blood. These cells may then be tested for biomarkers . ^{3,23}	

Term	Definition	Also known as...
Lung cancer	Cancer that forms in the tissues of the lung. The two main subtypes are small cell lung cancer and non-small cell lung cancer . They grow and spread in different ways. ^{24,25} The type of lung cancer a person has may help guide decisions about treatment. ²⁵	Lung carcinoma
Metastasis	The spread of cancer from the location in the body where the cancer first formed (called the primary site) to another part of the body. In metastasis, cancer cells break away from the original tumour , travel through the blood or lymph system, and form a new tumour in other organs or tissues of the body. ²⁶	Metastatic cancer Secondary cancer
Next-generation sequencing	An advanced laboratory method that captures a large amount of genetic information from a single sample. Comprehensive genomic profiling is an example of a next-generation sequencing test. ^{12,13,27}	NGS
Non-small cell lung cancer	The most common subtype of lung cancer , accounting for 85% of cases. The three main subtypes of non-small cell lung cancer are adenocarcinoma, squamous cell carcinoma and large cell carcinoma. ²⁸	NSCLC
Personalised cancer care	An approach to cancer care based on a person's unique health needs. It considers the genetic information (biomarkers) of a person's cancer and their lifestyle and environment to diagnose and treat cancer. ^{2,29}	Personalised care Personalised healthcare Personalised medicine
Radiation	A treatment that uses high doses of radiation to kill cancer cells and shrink tumours. ³⁰	
Relapse	When cancer, or the signs and symptoms of cancer, return after a period of improvement. It may come back in the same place it started or elsewhere in the body. ^{31,32}	Recurrence
Small cell lung cancer	A less common form of lung cancer , accounting for 15% of cases. Small cell lung cancer usually grows and spreads faster than non-small cell lung cancer . ²⁸	SCLC
Solid tissue biopsy	A biopsy that removes a small amount of cells directly from a solid tumour. These cells may then be tested for biomarkers . ^{3,4}	Tissue biopsy
Stage (of cancer)	The extent of a cancer, such as how large the tumour is and if it has spread. ³³	
Targeted treatment	A type of treatment that targets specific types of cancer cells, with fewer effects on healthy cells. They are often directed at biomarkers that contribute to the growth, spread and survival of cancer cells. ^{34,35}	Targeted therapy
Tumour	A mass or lump of cells. Tumours can be non-cancerous (benign) or cancerous (malignant). ³⁶	
Tumour-agnostic treatment	A new approach to cancer care that is based on the cancer's genetic information (biomarkers), which cause the cancer to develop and grow. ^{1,37,38} These treatments may be used across a range of cancer types, regardless of where in the body it started. ^{37,38}	Pan-tumour therapy Pan-tumour treatment Tumour-agnostic therapy Tumour-independent therapy Tumour-independent treatment

Cancer biomarker examples

Biomarker name	Description	What does this mean for me?	Also known as...
ALK	<p>A gene that makes a protein involved in cell growth. Changes in the ALK gene and protein are found in some cancers, including non-small cell lung cancer.^{39,40}</p> <p>These changes may cause the growth of cancer cells in the body.⁴⁰</p>	<p>The ALK biomarker is usually found in non-small cell lung cancers. About 4% of people with adenocarcinoma non-small cell lung cancer have certain changes to the ALK gene.³⁹</p> <p>People who have cancer cells with certain changes to ALK may respond well to a treatment called a tyrosine kinase inhibitor or ALK inhibitor.³⁹</p>	Anaplastic lymphoma kinase
BRCA1 BRCA2	<p>Genes that make proteins that help stop cell growth. A person who inherits changes in the BRCA1 or BRCA2 gene have a higher risk of getting breast, ovarian, prostate and other types of cancer.^{41,42}</p>	<p>If a person has the BCRA1 or BCRA2 gene, they may choose to reduce their risk of developing breast or ovarian cancer in the future by either having surgery to remove their breasts or ovaries or taking risk-reducing treatments.⁴²</p>	<p>Breast Cancer Gene 1</p> <p>Breast Cancer Gene 2</p>
CA 15-3	<p>A protein made by normal breast cells. CA 15-3 levels in the blood may be higher than normal in some people with breast cancer.⁴³</p> <p>CA 15-3 does not cause cancer, but it is produced by cancer cells.⁴³</p>	<p>A CA 15-3 test is often used to check how well treatment is working for people with stage 4 breast cancers.⁴³</p>	Cancer antigen 15.3
CEA	<p>A protein that may be found in the blood of some people with certain types of cancer, particularly colon.^{44,45}</p> <p>CEA does not cause cancer, but it is produced by cancer cells.^{44,45}</p>	<p>A CEA test is often used to check how well treatment is working in certain types of cancer, particularly colon and bowel cancer.^{44,45}</p>	Carcinoembryonic antigen
KRAS	<p>A gene that makes a protein involved in cell growth, maturation and death.⁴⁶</p> <p>Changes in the KRAS gene can be found in some types of cancer, including non-small cell lung cancer, colorectal cancer and pancreatic cancer.^{46,47}</p> <p>These changes may cause the cancer to grow and spread in the body.⁴⁷</p>	<p>KRAS is the most common biomarker found in lung adenocarcinomas (a type of non-small cell lung cancer). It occurs in 20 to 40% of lung adenocarcinomas.⁴⁸</p> <p>There have recently been some promising results using new treatments that target certain versions of KRAS in medical studies.⁴⁷</p>	Kirsten rat sarcoma virus
NTRK1 NTRK2 NTRK3	<p>A gene can join other genes in a process called gene fusion.^{49,50}</p> <p>Fusions that involve NTRK gene 1, 2 or 3 can result in the production of proteins which cause the growth of cancer cells in the body.^{49,50}</p>	<p>NTRK gene fusions occur in approximately 0.3% of people with cancer. They are found more frequently in certain rare cancers and less frequently in common cancers.⁵⁰</p> <p>People who have NTRK gene fusions may respond well to certain targeted treatments called NTRK inhibitors.^{49,50}</p>	<p>Neurotrophic tyrosine receptor kinase 1</p> <p>Neurotrophic tyrosine receptor kinase 2</p> <p>Neurotrophic tyrosine receptor kinase 3</p> <p>NTRK fusions</p>

Biomarker name	Description	What does this mean for me?	Also known as...
PD-L1	<p>A protein that is found on various normal cells and sometimes at high levels on certain cancer cells, particularly lung cancer cells.^{51–53}</p> <p>PD-L1 can bind to another protein called PD-1, which is found on certain immune cells (called T-cells).^{51–55}</p> <p>Acting like a “brake”, when PD-L1 and PD-1 bind together, they keep T-cells from killing other cells, including cancer cells.^{51–55}</p>	<p>PD-L1 can be detected by immunohistochemistry and targeted by a certain type of immunotherapy called immune checkpoint inhibitors.^{51–55}</p> <p>These treatments block PD-L1 or PD-1, which stops them from binding. This releases the “brakes”, leaving T-cells free to kill cancer cells.^{51–54}</p>	Programmed cell death protein ligand-1
PSA	<p>A protein made by normal prostate cells. PSA levels in the blood may be higher than normal in people with prostate cancer.⁵⁶</p> <p>PSA does not cause cancer, but it is produced by cancer cells.⁵⁶</p>	A PSA test measures the level of PSA in a person’s blood. It is often used to detect and monitor prostate cancer. ⁵⁶	Prostate specific antigen
RET	A gene that makes a protein involved in the growth and development of certain cancers, including non-small cell lung cancer . ^{57,58}	<p>Certain changes in the RET gene occur in 1 to 2% of people with lung cancer. They are usually found in adenocarcinoma non-small cell lung cancer.⁵⁸</p> <p>People who have cancer cells with certain changes to the RET gene may respond well to a new group of treatments called RET inhibitors.^{57,58}</p>	<p>Rearranged in transfection</p> <p>RET gene rearrangement</p> <p>RET fusions</p>
ROS1	A gene that makes a protein involved in normal cell processes. The ROS1 protein is also involved in the growth, development and progression of certain cancers, including lung cancer . ⁵⁹	<p>Certain changes in the ROS1 gene occur in 1 to 2% of people with lung cancer. They are usually found in adenocarcinoma non-small cell lung cancer.⁵⁹</p> <p>People who have cancer cells with certain changes to the ROS1 gene may respond well to a certain tyrosine kinase inhibitor (a type of targeted treatment) that targets ROS1.^{49,59}</p>	ROS1 rearrangement

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