

## GLOSSARY OF TERMS

<b>A</b>	
<b>adenocarcinoma</b>	A malignant tumour of a gland, usually arising in the epithelial tissue.
<b>adenoma</b>	A benign tumour of a glandular structure or of glandular origin. Adenomas can become malignant and are then known as adenocarcinomas.
<b>adjuvant therapy</b>	Treatment given in addition to primary treatment e.g. chemotherapy, radiation therapy, hormone therapy or biological to decrease the risk of recurrence.
<b>angiogenesis</b>	The process by which new blood vessels are formed.
<b>angiogenesis inhibitors</b>	A group of drugs that prevent the growth of new blood vessels that supply malignant tumours.
<b>antagonist</b>	Drug or chemical which blocks the ability of a naturally occurring body chemical (hormone or neurotransmitter) or another drug to bind to its receptor, therefore preventing a biological response.
<b>apoptosis</b>	A natural process of self-destruction in certain cells, also called programmed cell death.
<b>B</b>	
<b>benign</b>	A tumour that is considered non-malignant and will not spread (metastasise) to other areas of the body. It is not considered life threatening and can usually be successfully surgically removed.
<b>biopsy</b>	The process whereby a small tissue sample is taken with a syringe (aspiration) or by surgical excision for examination under the microscope or by other techniques.
<b>brachytherapy</b>	Radiotherapy involving a small radioactive source implanted close to the tumour. Usually used in tongue, cervical, anal or prostate cancers.
<b>BRCA1 and BRCA2</b>	Genes that if inherited are associated with the development of breast cancer and possibly ovarian cancer.
<b>bronchogenic carcinoma</b>	Cancer of the bronchi - the branching airways that connect the trachea or windpipe to the lungs. It is associated with asbestos inhalation.
<b>bronchoscopy</b>	Technique which uses a small fibre-optical device (bronchoscope) to view inside the bronchi. Used diagnostically in lung cancer.
<b>C</b>	
<b>carcinogens</b>	Cancer-causing substances.
<b>cell cycle</b>	The cycle of events that a cell undergoes during division. When a cell divides it produces two identical copies of itself (mitosis), unless it is a germ cell (involved in reproduction) where the number of chromosomes is halved (meiosis) so that fusion of the maternal and paternal germ cells restores the normal number of chromosomes.
<b>cell cycle kinase inhibitors</b>	A group of molecules that target specific kinases (enzymes) and play an important role in the prevention of tumour growth.
<b>chemotherapy</b>	The treatment of cancer using specific chemical agents or drugs that are destructive to malignant cells and tissues; some chemotherapy may also be

	destructive to healthy cells.
<b>computerised tomography</b>	A process of using X-rays to produce 3-dimensional pictures of soft tissue, especially the brain. It is used diagnostically to detect tumours.
<b>cytology</b>	The study of the structure and function of cells. Specimens are “sent for cytology” i.e. a report on the types of cells (normal and abnormal) contained in the sample.
<b>cytotoxic</b>	Toxic or poisonous to cells.
<b>E</b>	
<b>ECOG</b>	<p>The Eastern Cooperative Oncology Group (ECOG) performance status are scales and criteria used by doctors and researchers to assess how a patient's disease is progressing, how it affects the daily living activities of the patient and determine appropriate treatment and prognosis.</p> <p><b>Grade    ECOG</b></p> <p>0        Fully active, able to carry on all pre-disease performance without restriction</p> <p>1        Restricted in physically strenuous activity but ambulatory and able to carry out work of a light or sedentary nature, e.g., light house work, office work</p> <p>2        Ambulatory and capable of all self-care but unable to carry out any work activities. Up and about more than 50% of waking hours</p> <p>3        Capable of only limited self-care, confined to bed or chair more than 50% of waking hours</p> <p>4        Completely disabled. Cannot carry on any self-care. Totally confined to bed or chair</p> <p>5        Dead</p>
<b>EGF</b>	See: epidermal growth factor.
<b>enzyme</b>	A protein which acts as a catalyst for biochemical reactions in the body.
<b>epidermis</b>	The outer layer of cells in the skin and the covering membrane of solid organs. Most solid tumours are epidermal in origin.
<b>epidermal growth factor (EGF)</b>	A naturally occurring factor that stimulates epidermal cells to grow and divide. It is most important in foetal development and wound healing but also plays a role in cancer, since malignant cells become very responsive to the growth message sent by EGF.
<b>Erb</b>	<p>There are four receptors in the ErbB or HER family of tyrosine kinase receptors family, ErbB1, 2, 3, and 4 also known as: EGFR (HER1/ErbB1), HER2 (ErbB2), HER3 (ErbB3) and HER4 (ErbB4)</p> <p>The ErbB or HER family of tyrosine kinase receptors, especially receptors ErbB1 (or EGFR) and ErbB2 (or HER2), has been identified as an important therapeutic target in a number of cancers.</p>
<b>F</b>	
<b>fibroblast growth factor (FGF)</b>	A growth factor (protein) that acts on fibroblasts – cells in connective tissue that are responsible for the production of collagen and other proteins that make up the connective tissue. It binds to receptors belonging to the tyrosine kinase family.

<b>fibroblast growth factor receptor (FGFR)</b>	Part of a family of receptor tyrosine kinases that is responsible for growth and differentiation of several cell types.
<b>fine needle aspiration cytology (FNAC)</b>	The use of a fine needle to draw a sample of fluid/ cells (aspiration) from a tumour so the cells can be examined under a microscope to aid diagnosis. Most commonly used in the diagnosis of breast cancer.
<b>G</b>	
<b>growth factors</b>	Small proteins produced by the body that enable cells to communicate and effectively coordinate activities between each other.
<b>H</b>	
<b>haematological cancers</b>	Cancers of the blood and lymphatic system.
<b>haemoptysis</b>	Coughing up blood. This can be a symptom of lung cancer.
<b>human epidermal growth factor receptor (HER)</b>	One of a family of receptors that are acted upon by growth factors, mainly epidermal growth factor, stimulating cell growth and division. It is found in large amounts in some types of breast cancer (HER+ or HER positive) where its inhibition by monoclonal antibodies forms part of the treatment for breast cancer.
<b>I</b>	
<b>incidence</b>	The number of times an event or disease occurs in the population over a given time e.g. a particular cancer may occur in 1 person in every 100,000 people each year.
<b><i>in vitro</i></b>	Experiments are those carried out in test tubes or on cells growing in culture.
<b><i>in vivo</i></b>	Experiments are carried out on living animals/people.
<b>K</b>	
<b>kinase</b>	An enzyme that acts to add a phosphate group to a protein. This usually causes a protein to become active, although in some cases it can cause an active protein to become inactive. They are therefore crucial to cell functioning. Kinases are named after the particular amino acid to which the phosphate is added, so a tyrosine kinase adds phosphate to a tyrosine, a serine kinase adds phosphate to serine etc.
<b>kinetochore</b>	The central part of a chromosome that attaches to a spindle during the process of cell division.
<b>L</b>	
<b>large cell carcinoma</b>	One of a group of non-small cell lung cancers (NSCLC) that usually starts in the bronchi and is associated with smoking.
<b>leukaemia</b>	A group of malignant diseases in which the bone marrow and other blood forming organs produce increased numbers of a type of white blood cell called a leucocyte.
<b>lymph</b>	Fluid present within the vessels of the lymphatic system derived from the blood, which then bathes the tissues and is drained in the lymphatic vessels (and eventually returned to the blood). It is similar in nature to plasma and contains lymphocytes. Lymph is filtered through lymph nodes where foreign particles such as bacteria are removed.
<b>lymphocyte</b>	A type of white blood cell also present in lymph nodes, spleen, thymus gland, gut wall and bone marrow. They are part of the immune system and produce

	antibodies as well as having other roles in immunity.
<b>lymph nodes (glands)</b>	Nodes or swellings in the lymphatic vessels, comprising lymphoid tissue, that filter lymph and produce lymphocytes. Groups of lymph nodes are found at various sites in the body e.g. groin, armpit, neck and behind the ear.
<b>lymphoma</b>	Cancer of the lymphoid tissue.
<b>M</b>	
<b>malignant</b>	Tumours that have the ability to invade and destroy surrounding tissues and the capacity to spread or metastasise to other parts of the body.
<b>mammogram</b>	X-ray of the breast used to detect and diagnose breast disease including breast cancer.
<b>mastectomy</b>	The removal of a breast as part of the treatment for breast cancer.
<b>metastasis (pl. metastases)</b>	This word is used both for the process of metastasising and is the singular noun for a secondary tumour.
<b>metastasise</b>	Where tumour cells detach from the primary tumour, enter the blood, lymphatic system or body cavity and attach at a distant site where they form metastases - also called secondary tumours.
<b>mitosis</b>	The process of cell division whereby the full complement of chromosomes is replicated and each identical “daughter” cell has the full number of chromosomes. It is the normal process by which the body produces new cells for growth and repair.
<b>mitotic spindle</b>	A protein (tubulin) structure that attaches to the chromosomes and, by contraction, pulls the two sets of chromosomes apart - one set moving to each of the two poles at opposite ends of the cell.
<b>monoclonal antibody</b>	Antibody produced in the laboratory from cloned cells. A lymphocyte (antibody producing cell) is fused with a rapidly dividing tumour (usually myeloma) cell to produce an immortal cell line that produces only one type of antibody.
<b>mutations</b>	Changes in DNA. Mutations result in the normal functioning of a cell being altered.
<b>N</b>	
<b>neo-adjuvant therapy</b>	Neo-adjuvant chemotherapy is given before surgery or radiotherapy to reduce the size of the tumour with the intention improving the efficacy of surgery or radiotherapy.
<b>neoplasia</b>	Neoplastic disease is another term for cancer.
<b>nucleus</b>	The “control centre” of the cell that contains deoxyribonucleic acid or DNA.
<b>O</b>	
<b>oncogene</b>	A cancer-causing gene.
<b>oncogene mutation</b>	A change or mutation in an oncogene. Such mutations contribute to the formation of a tumour.
<b>P</b>	
<b>pericytes</b>	Perivascular cells or pericytes are vascular smooth muscle cells or mural cells which cover the surface of the vascular tube and contribute to the formation and stability of blood vessel walls. They are functional contributors to tumour angiogenesis and therefore potential new targets for antiangiogenic therapies.
<b>pFGFR</b>	A plasmid construct of fibroblast growth factor receptor (FGFR). Plasmids are

	fragments of DNA found in bacteria that are used experimentally to manipulate DNA. The genome for FGFR is expressed differently in different cells, so different pFGFRs are used in research into how FGFR regulates cell function.
<b>platelet-derived growth factor (PDGF)</b>	A growth factor produced by platelets that acts on pericytes and smooth muscles cells. Blood vessels are composed of two interacting cell types: endothelial cells form the inner lining of the vessel wall, and pericytes cover the surface of the vascular tube and contribute to the formation and stability of blood vessel walls. PDGF therefore helps to promote growth of new vessels that is part of the process of angiogenesis.
<b>platelet derived growth factor tyrosine kinase (PDGF tyrosine kinase)</b>	Part of the receptor for PDGF (see kinase). Signalling via the PDGF receptor is important in growth of new blood vessels.
<b>polo-like kinase</b>	Enzymes (see kinase) that are important regulators of the cell cycle. They are involved in the formation and dynamics of the mitotic spindle apparatus.
<b>polyploidy</b>	The condition where there are more than the usual two sets of chromosomes in a cell.
<b>positron emission tomography (PET)</b>	A technique used to evaluate tissue metabolic activity by measuring the emission of radioactive particles from molecules of radioactively labelled glucose (tissues need glucose for energy). It can distinguish malignant tissue from normal tissue.
<b>prevalence</b>	How widely spread or how many people are affected by a disease in the community at any one time. It is affected by the incidence of the disease and how long people live once diagnosed.
<b>R</b>	
<b>radiotherapy</b>	The treatment of disease (usually cancer) with penetrating radiation, such as X-rays, beta rays or gamma rays.
<b>receptor</b>	The specialised part of a cell which recognises, binds to and is activated by a biological or synthetic messenger (called a ligand). Receptor-ligand binding produces a biological response. Most receptors are on the cell surface, apart from those for steroids and steroid hormones which are in the cell nucleus.
<b>regression</b>	When a tumour shrinks it is said to regress. For many cancers regression is only partial and not complete.
<b>relapse</b>	The term used when a disease returns after an absence or flares up.
<b>remission</b>	A term used to describe a disease being significantly reduced (partial remission) or eliminated completely (complete remission).
<b>resistance</b>	Where tumour cells initially respond to a treatment but after time the treatment is no longer effective.
<b>S</b>	
<b>signal transduction</b>	The mechanism whereby a signal is sent from the cell surface to the nucleus. Many of the messages sent throughout the body, for example by growth factors or neurotransmitters, are relayed via receptors on the cell surface. Once activated, receptors pass messages to the cell nucleus through signal transduction pathways.
<b>signal transduction inhibitors</b>	A group of drugs that prevent the ability of cancer cells to multiply rapidly and invade other tissues.
<b>staging</b>	Classification system for tumours. For solid tumours it is a consideration of its

	size and the presence or absence of metastases. For haematological cancers it involves looking at the number of sites involved and their location.
<b>squamous cell carcinoma</b>	A type of cancer arising from flat cells of the epithelium; can also affect the lungs, cervix, and oesophagus.
<b>T</b>	
<b>targeted therapy</b>	Therapies that have been designed to act on a particular aspect of cellular functioning that is responsible for making that cell malignant.
<b>thoracocentesis</b>	The insertion of a fine needle through the chest wall into the pleural cavity (the space around the lungs) to withdraw fluid, blood, pus, or air. Also called thoracentesis or plurocentesis.
<b>tyrosine kinase</b>	Cellular chemicals that play a major role in the cell division process. They signal the section of the cell cycle known as mitosis to begin.
<b>V</b>	
<b>vascular endothelial growth factor (VEGF)</b>	A family of growth factors, consisting of VEGF A to VEGF E, that bind to endothelial cells and stimulate cell growth, proliferation and migration which results in the formation of new blood vessels or new lymph vessels.
<b>vascular endothelial growth factor receptor (VEGFR)</b>	Receptors for VEGF. There are three different types: VEGFR-1 involved in angiogenesis and regulation of haematopoietic (blood forming) cells and inflammatory cells; VEGFR-2 the principal VEGRF involved in angiogenesis; VEGFR-3 involved in lymphangiogenesis (formation of new lymph vessels).