

ASSAYS	DESCRIPTION	TYPE	£ PRICE
<b>Telomerase</b>	<b>Telomerase</b> is a key enzyme that helps cells to continue self-replication. Limited replication occurs in stem cells (e.g. healing cells). Unlimited replication occurs in cancerous stem cells. These cells become immortal. Telomerase activation, in pre- cancerous cells and the resultant growth of a population of cells with active telomerase, is considered a crucial step in cancer formation	Gene Expression	<b>230.00</b>
<b>TNF-β</b>	<b>Tumour Necrosis Factor Beta</b> is a pro-inflammatory cytokine produced by some immunological cells, mainly the Th-1 type lymphocytes. High quantities indicate the Th-1. e.g., cellular (destructive) type of immunological response to the presence of bacterial/viral infection or to treatment.	Gene Expression	<b>150.00</b>
<b>TRAIL</b>	<b>Tumour Necrosis Factor</b> Related Apoptosis Inducing Ligand is a type II transmembrane protein of the tumour necrosis factor super-family. It acts as the ligand for apoptosis-inducing death receptors DR-4 and DR-5, decoy receptors DcR-1 and DcR-2 and osteoprotegerin. In cases of cancer, high quantities are associated with the destruction of transformed cells that are sensitive to apoptosis (programmed cell death).	Gene Expression	<b>150.00</b>
<b>VEGF</b>	<b>Vascular Endothelial Growth Factor</b> is a key factor in angiogenesis (i.e. neo- vascularisation or formation of new blood vessels). High quantities can be associated with tumour growth, due to an increased supply of nutrients and oxygen to the transformed cells, through the new blood capillaries. Low quantities may result in cardio-vascular problems due to a decreased supply of nutrients and oxygen to the normal cells. The processes of wound healing (i.e. after an operation or experiencing physical trauma) or pregnancy are accompanied by elevated VEGF quantities.	Gene Expression	<b>150.00</b>
<b>P53 WILD (NORMAL)</b>	<b>P53 Wild (normal)</b> This is an activator of anti-tumour p21 and Bax genes whilst suppressing oncogenes Bcl-2 and survivin. An increased level of p53 protein is known to facilitate the destruction or repair, of any cell with damaged DNA, otherwise the cell becomes pre-cancerous or cancerous. P53 protein is involved in controlling inflammation and normal glucose metabolism	Protein Level	<b>310.00</b>
<b>P53 MUTATED</b>	<b>Mutated p53 protein</b> This is a very important factor contributing to tumour development. A lack of p53 protein, the presence of mutated p53 or misfolded p53, allows the cells to divide unchecked after radiation or chemical treatment (in many cancers).		
<b>P53 MISFOLDED MUTATED</b>	<b>Misfolded (inactive) or mutated p53</b> It stimulates inflammation and glycolysis (fermentation of glucose to generate energy). It is well known that cancerous cells use glycolysis to generate energy to survive and grow. Mutated p53 also increases angiogenesis (formation of capillary blood vessels) helping a tumor to grow. Its level correlates with aggressiveness and enhanced metastasis. An increased extra-cellular level of mutated /misfolded p53 protein can indicate the presence of abnormal /pre-cancerous/cancerous cells somewhere in the body that are able to release p53 protein into the blood circulation. Free mutated or misfolded p53 can be considered as a tumor associated antigen. As such these forms of p53 protein can, at least to some extent, trigger the anti- tumor immune response.		

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<b>P53</b>	<b>P53</b> is a major tumour suppressor gene, which becomes active when there is a need to prevent the transformation of any cells into cancerous ones. An activated p53 pathway will then trigger the reparation processes within the damaged cells. If reparation is not possible, the p53 pathway triggers programmed cell death (known as apoptosis).	Gene Expression	<b>150.00</b>
<b>SURVIVIN</b>	<b>Survivin</b> gene is not active in normal mature cells. It is active in a developing foetus, probably, in stem cells and in cancer cells. Survivin is involved in the suppression of programmed death of any cells (apoptosis) and stimulates the proliferation of pre-cancerous/cancerous cells. The ability of survivin to inhibit destruction of cancerous cells allows it to be considered as an oncogene. Some immunological factors are able to activate survivin. The resistance to apoptosis of cells with an active survivin gene, can be overcome by activation of the p21 gene, an agent which triggers necrosis (accidental cell death) and activation of anti-tumour immunological factors.	Gene Expression	<b>150.00</b>
<b>TGF-β</b>	<b>Transforming Growth Factor Beta</b> is an anti-inflammatory cytokine mainly produced by the Th-3 type of lymphocytes. It is a multi-functional protein that is also produced by every cell including platelets, bones, spleen and haematopoietic cells. Its major effects include the production of the extra cellular matrix, regulation of cell growth and differentiation. Increased quantities are frequently associated with both inhibition of angiogenesis (formation of new blood vessels) and tumour suppression activity. Long-term high quantities may be linked to a parasitic infection and suppression of both the immunological and inflammatory response and neurotoxicity. Low quantities are associated with inefficient immunoprotection against the development of chronic inflammation.	Gene Expression	<b>150.00</b>
<b>TNF-α</b>	<b>Tumour Necrosis Factor Alpha</b> is a pro-inflammatory cytokine mainly produced by the macrophages of the immune system in response to various endotoxins and probable injury. High quantities trigger inflammation and destruction of some cells. Chronically high circulating levels of TNF-α lead to the development of sickness syndrome, flu-like symptoms, cachexia, anorexia, psychotic episodes, depression, sepsis and in many cases, the progression of any existing disease. A persistently decreased quantity indicates insufficient activity of some immunological cells, such as monocytes and macrophages, weakening defense against many infectious species and cancerous cells.	Gene Expression	<b>150.00</b>
<b>IL-8</b>	<b>Interleukin-8</b> is a chemokine, mainly produced by stimulated blood monocytes. In addition to mononuclear cells, it is produced by other types of leukocyte cells (myeloid precursors, NK cells, neutrophils, eosinophils and mast cells), various tissue cells (fibroblasts, endothelial and epithelial cells) and tumour cells. Its production can be induced various stimuli, such as the cytokines IL-1 and TNF-α, bacterial, viral and plant products, etc. IL-8 activates the neutrophils which are cells of the innate immunity. High quantities are associated with the presence of bacterial or viral infections, inflammation, and in the case of a tumour, the promotion of its growth due to stimulation in the formation of new blood capillaries around a tumour and the stimulation of telomerase activity. Low quantities are associated with insufficiently active neutrophils, monocytes and, possibly, cytotoxic macrophages.	Gene Expression	<b>150.00</b>

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<b>Il-10</b>	<b>Interleukin-10</b> is an anti-inflammatory cytokine produced by some regulatory cells of the immune system and promotes humoral immunity associated with the Th-2 lymphocytes and the development of B-lymphocytes. It also has the ability to suppress the activity of the macrophages, the Th-1 lymphocytes, the NK cells and the dendritic cells of the immune system. High quantities are associated with the presence of myco-bacteria, parasites or retrovirus. Very high quantities of IL-10 assist in the proliferation of both infected or transformed cells and their protection from destruction whilst moderately high quantities of IL-10 have very important anti-inflammatory, anti-tumour and anti-aging effects. Low quantities are associated with inefficient immuno-protection against the development of chronic inflammation.	Gene Expression	<b>150.00</b>
<b>Il-12</b>	<b>Interleukin-12</b> is a cytokine produced mainly by macrophages, dendritic cells and, to some extent, by B-cells (lymphocytes) needed to develop normal active immunological activity. Increased quantities are associated with both active NK cells and active Th-1 cellular immunity in response to a bacterial infection or some form of treatment. Low quantities are associated with a risk of low activity of the Th-1 type of immunity.	Gene Expression	<b>150.00</b>
<b>Il-17</b>	<b>Interleukin-17</b> is a cytokine produced by the T-helper-17 active immunological cells (lymphocytes) which promote inflammation and auto-immunity. It induces the production of interleukins 6 and 8, granulocyte colony stimulating factor and prostaglandin E2. If IL-17 is captured by the herpes virus it may interfere with the immune response against virus-infected cells or it may protect any infected cells against virus-induced death. Increased quantities are frequently associated with the development of diabetes. In some cases it can have pro-tumour effects. A persistently decreased quantity will make the gut vulnerable to yeast/fungal overgrowth.	Gene Expression	<b>150.00</b>
<b>MMP-2</b>	<b>Matrix Metallo Proteinase-2</b> is an enzyme mainly produced by the macrophages or some transformed cells. It assists in the destruction of the extra cellular matrix (ECM) surrounding the cells. High quantities indicate the destruction of ECM and a risk of damage to the normal cells, also to the spread of any transformed cells present. Low quantities lead to decreased ECM degradation and hence excessive ECM accumulation which is damaging for the kidneys and is a feature of glomerulonephritis.	Gene Expression	<b>150.00</b>
<b>MMP-9</b>	<b>Matrix Metallo Proteinase-9</b> is an enzyme involved in the degradation of collagens of the extra cellular matrix (ECM). Increased quantities are associated with inflammation and the loss of control of angiogenesis (the formation of new blood vessels). Increased quantities of MMP-9 also leads to damage to the blood brain barrier which becomes particularly significant during the development of (multiple sclerosis).	Gene Expression	<b>150.00</b>
<b>P21</b>	<b>P21 gene</b> promotes the self-destruction of transformed / abnormal cells and in this capacity it is considered as an anti-tumour gene and antagonist to the oncogene survivin (see below). It triggers the inhibition of any cell cycle followed by an arrest of cell proliferation. However, overactive p21 is able to trigger tumour growth or, makes cancer cells dormant and therefore resistant to both destruction and proliferation. However, a long-term increase can have pro-tumour effects. The p53 gene is one of the regulators of p21 gene activity.	Gene Expression	<b>150.00</b>

ASSAYS	DESCRIPTION	TYPE	£ PRICE
<b>IFN<math>\gamma</math></b>	<b>Interferon Gamma</b> is a cytokine produced mainly by the Natural Killer (NK) cells of the immune system having anti-viral and anti-proliferation properties. It amplifies the release of pro-inflammatory cytokines. High quantities indicates destruction, of primarily transformed or infected cells and suppression of angio- genesis (e.g., new blood capillaries) whilst inflammation takes place.	Gene Expression	<b>150.00</b>
<b>IL-1<math>\alpha</math></b>	<b>Interleukin-1Alpha</b> is a pro-inflammatory cytokine, mainly produced by macrophages of the immune system in response to bacterial infection. It stimulates the production of pro-inflammatory prostaglandins. High quantities are associated with inflammation, disruption of liver and pancreas functioning and in cases of cancer a risk of liver metastasis. Low quantities are associated with a risk of decreased ability of the immune system to generate an acute defensive response.	Gene Expression	<b>150.00</b>
<b>IL-2</b>	<b>Interleukin-2</b> is a cytokine produced by immature CD-4 Th precursor cells Th-0 cells and some Th-1 cells (lymphocytes) of the immune system. It is amplificatory in the release of pro- inflammatory cytokines which promote the proliferation of various active immunological cells displaying both anti-tumour and pro-tumour effects. High quantities are associated with increased activity of the defence system and a long- term increase can lead to the development of auto-immunity. Low quantities indicate that the cellular immune response is insufficiently active and in the long-term is associated with a decreased defensive ability of the immune system	Gene Expression	<b>150.00</b>
<b>IL-4</b>	<b>Interleukin-4</b> is an anti-inflammatory cytokine mainly produced by the Th-2 cells (lymphocytes) of the immune system. It promotes proliferation of various cells, including cancerous cells. IL-4 is also able to inhibit the production of pro- inflammatory substances produced by macrophages. A tumour can only produce IL-4 for self-proliferation. High quantities are associated with an active humoral immune response due to the presence of myco-bacteria and very occasionally parasites. A long-term increase may lead to the development of auto-immunity. Low quantities indicate a non-active humoral immune system response.	Gene Expression	<b>150.00</b>
<b>IL-5</b>	<b>Interleukin-5</b> is a pro-inflammatory cytokine produced by the Th-2 cells (lymphocytes) of the immune system. Increased quantities are associated with the presence of parasitic infections, allergens and inflammation due to the activation of eosinophils (i.e., defence system cells). If cancer is present active eosinophils can have an anti-tumor effect.	Gene Expression	<b>150.00</b>
<b>IL-6</b>	<b>Interleukin-6</b> is a pro-inflammatory cytokine produced by a range of various cells, but mainly macrophages and is associated with infections, trauma, inflammation, insulin resistance and auto-immunity. High quantities are frequently associated with infections and indicate a metastatic risk if there is a tumour. The nervous system and bones are also affected by a high level. Low quantities indicate that there is a decrease of the response of the immune system to infection, trauma, etc.	Gene Expression	<b>150.00</b>
<b>IL-7</b>	<b>Interleukin-7</b> is a cytokine, produced by stromal cells, keratinocytes and other types of cells but is not produced by normal lymphocytes. Its production can be stimulated by Interferon gamma. It has diverse effects on the hematopoietic and immunological systems. It is a growth and differentiation factor for B- lymphocytes. High quantities can be associated with an increase in the population of B-lymphocytes and also with increased activity of some cytotoxic lymphocytes and macrophages. Low quantities are associated with a drastic decrease of both T- and B-lymphocytes.	Gene Expression	<b>150.00</b>