
MONOCLONAL
ANTIBODIES
PRODUCT OVERVIEW
by DIA Source
Proven and Performing

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MONOCLONAL ANTIBODIES...

Polyclonal antibodies, from sheep or rabbit, have been widely used from the 90s, in Immunoassays. While polyclonal antibodies are simple and inexpensive to produce, they usually lack specificity and suffer from batch to batch variability. Monoclonal antibody production requires high skills and is more expensive. However, a careful selection process ensures a superior specificity profile. Moreover, state of the art production techniques ensure a constant and renewable source of antibodies and all batches are identical.

DIAsource MONOCLONAL ANTIBODIES

The DIAsource Monoclonal Antibodies are produced in-house and purified using cutting-edge technologies. The use of these antibodies in DIAsource RIA and ELISA immunoassays for more than 30 years guarantees a high quality and lot-to-lot consistency, and uncompromising quality control.

Throughout our own assays projects our R&D scientists have developed and selected the best matched pairs for sandwich assays, and the best antibody/conjugate pair for the competitive assays. A special focus has been put on sensitivity, selectivity and stability to ensure a long term supply of highly performing material.

THE KEY FEATURES OF OUR MONOCLONAL ANTIBODIES LINE ARE:

- Large scale production in state of the art facilities
- Fully automated purification equipment
- Uncompromised quality control in DIAsource assays
- Excellent lot-to-lot consistency
- Constant stock and fast delivery

MANUFACTURED UNDER ISO 9001: 2008 - ISO13485: 2012

EXPERIENCED TECHNICAL SUPPORT DEDICATED TO DEVELOPMENT PROJECTS AND PRODUCTION TROUBLESHOOTING

OUR MONOCLONAL ANTIBODIES PRODUCT RANGE COVERS THE FOLLOWING AREAS:

- Bone Metabolism
- Cancer
- Cardiovascular diseases
- Diabetes & Metabolism
- Fertility
- Growth Factors
- Thyroid Function

Our Monoclonal Antibodies are available in the purified unconjugated, purified fragmented and purified biotin conjugate formats. Contact us for more information about the formats. DIAsource expertise in antibody development and production, along with our expertise in IVD immunoassay development, creates interesting synergies that can help IVD companies bring new assays to the market in a reliable and efficient way.

BONE METABOLISM

Bones are continuously undergoing a dynamic process of resorption and absorption known as bone metabolism. Signaling pathways on which bone metabolism rely include the action of several hormones, including Osteocalcin, parathyroid hormone (PTH) and Vitamin D.

AGGRECAN (PG)

Aggrecan (PG) is the predominant proteoglycan species in articular cartilage. It is composed of a core protein of 210 kDa to which over 100 chondroitin sulfate chains, about 20-50 keratan sulfate chains and O-linked as well as N-linked oligosaccharides are covently attached. The core protein contains three distinct globular domains (G1-G3).

Cat#	Size	Type	Clone/Host	Isotype	Format	Application
5114616	1 mg	Mab	4D11 2A9*	IgG1, Kappa	Purified Unconjugated	ELISA/RIA/CLIA Detection
5114612					Purified Biotin Conjugated	
5114617					Purified F(ab)'2 Unconjugated	
5314626			1R11 4A6 3B2*	IgG1	Purified Unconjugated	ELISA/RIA/CLIA Capture
5314627					Purified F(ab)'2 Unconjugated	

* Matched pair

OSTEOCALCIN (OST)

Osteocalcin or bone Gla protein (B.G.P) is the major non-collagen protein of the bone matrix. It has a molecular weight of 5800 Da and contains 49 amino-acids, including 3 residues of gamma carboxyl glutamic acid. Osteocalcin is synthesized in the bone by the osteoblasts.

After production, it is partly incorporated in the bone matrix and the rest is found in the blood circulation. The exact physiological function of osteocalcin is still unclear. A large number of studies show that the circulating levels of osteocalcin reflect the rate of bone formation.

CLINICAL APPLICATION:

The determination of the blood levels of osteocalcin is valuable for:

- The identification of women at risk of developing osteoporosis
- Monitoring bone metabolism during the perimenopause and postmenopause
- Monitoring bone metabolism during hormone replacement therapy and treatment of premenopausal women with LH-RH agonists
- Monitoring bone metabolism in patients with growth hormone deficiency, hypothyroidism, hyperthyroidism, chronic renal failure.

Cat#	Size	Type	Clone/Host	Isotype	Format	Application
5113806	1 mg	Mab	BD7*	IgG1, Kappa	Purified Unconjugated	ELISA/RIA/CLIA Detection
5113817					Purified F(ab)'2 Unconjugated	
5313806			CE3 3H10*		Purified Unconjugated	ELISA/RIA/CLIA Capture
5313808					Purified Biotin Conjugated	

* Matched pair

PARATHYROID HORMONE (PTH)

Human parathyroid hormone (hPTH) is a major physiological regulator of phosphocalcic metabolism.
hPTH increases serum calcium concentrations by its actions on kidney (enhancing tubular Ca++ reabsorption and phosphate excretion) and bone (stimulating osteoclastic activity and bone resorption). It indirectly affects intestinal absorption of Ca++ by stimulating renal 1α-hydroxylation of 25 hydroxyvitamin D. The release of PTH is controlled in a negative feedback loop by the serum concentration of Ca++.

CLINICAL APPLICATION:

The measurement of intact hPTH is used to establish the diagnosis of primary hyperparathyroidism by demonstrating elevated serum levels of bioactive PTH. It allows documenting the occurrence of secondary hyperparathyroidism in patients with Vit.D deficiency, intestinal malabsorption, or renal failure. In this last situation, the absence of interference with the inactive carboxyl-terminal fragments is especially valuable. The specificity and high sensitivity of the assay also allows differentiating clearly low serum PTH levels in hypoparathyroidism or in tumor-induced hypercalcaemia.

Cat#	Size	Type	Clone/Host	Isotype	Format	Application
5114906	1 mg	Mab	14H5 1C7	IgG1, Kappa	Purified Unconjugated	ELISA/RIA/CLIA Detection

VITAMIN D (25OH VITAMIN D)

Since many years the role of vitamin D in bone and mineral metabolism was recognized in bone-related diseases. Clinical applications of 25OH Vitamin D measurements were merely related to the diagnosis and monitoring of therapy for rickets (children), osteomalacia, postmenopausal osteoporosis, and renal osteodystrophy. As a results of more recent studies a link between Vitamin D deficiency and many other diseases is suggested. These include cancer, cardiovascular disease, autoimmune diseases, diabetes, depression and many others.

DETERMINING VITAMIN D STATUS:

The measurement of the 25OH Vitamin D concentration in serum or plasma is so far the best indicator of Vitamin D nutritional status. It is generally accepted that serum 25OH Vitamin D levels reflect the body's storage levels of Vitamin D and correlate with the clinical symptoms of Vitamin D deficiency. There is no consensus about the optimal 25OH Vitamin D level, but many publications suggest a range ≥30 ng/mL (>80nmol/L) as optimal.

MEASUREMENT OF 25OH VITAMIN D LEVELS CAN BE USED IN:

- Diagnosing Vitamin D insufficiency or deficiency, to help identifying individuals who may benefit from Vitamin D supplementation to reach optimal levels.
- Monitoring response to Vitamin D supplements for bone-related diseases e.g. rickets (children), osteomalacia, postmenopausal osteoporosis, and renal osteodystrophy or non-bone related diseases.
- Diagnosing Vitamin D toxicity, e.g. patients with suspected toxicity (hypercalcemia).

Cat#	Size	Type	Clone/Host	Isotype	Format	Application
5019700	1 mg	Antigen/ Conjugate*	NA	NA	Purified, carboxylic acid	ELISA/RIA/CLIA/ POCT
5019701					Purified, BSA conjugate	
5019703					Purified, amino	
5019708					Purified, biotin conjugate	
5319706		Mab*	LMBP7013CB	IgG1, Kappa	Purified Unconjugated	
5319716			LMBP7012CB			
5319726			LMBP7011CB			

* Matched pair

In 2009, DIAsource Immunoassays has patented Mouse Monoclonal Antibodies, based on a proprietary Vitamin D hapten, recognizing both 25OH Vitamin D3 and 25OH Vitamin D2. The patent was granted in Europe in 2013 and is pending in the US. The patent covers any monoclonal antibody recognizing both 25OH Vitamin D3 and 25OH Vitamin D2.

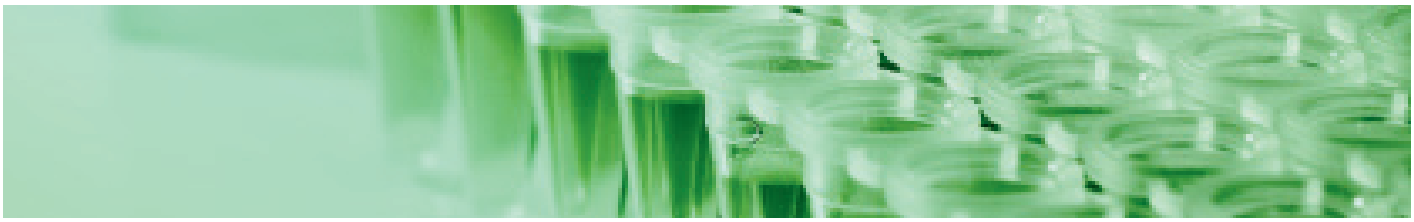
These monoclonal antibodies have been successfully used in commercial RIA (RadioImmunoAssay), ELISA (Enzyme-Linked ImmunoSorbent Assay), CLIA (ChemiLuminescence ImmunoAssay) and POCT (Point Of Care Test), by DIAsource Immunoassays or by DIAsource partners.

⊗ ASSAY DEVELOPMENT SUPPORT:

Over the years DIAsource Immunoassays has built extensive experience in Vitamin D immunoassay development and Vitamin D chemistry. DIAsource Immunoassays offers all components to develop your own Vitamin D assay, through our Starter Kit. Based on your application, and together with our scientific experts, your Starter Kit will be built by selecting the best components from our list of proven materials.

A typical Starter Kit is composed of:

- One of several Monoclonal Antibodies
- One antigen, functionalized according to your application
- Sets of calibrators and controls
- Displacement solution



CANCER MARKERS

Serum tumor markers is a term commonly used to refer to molecules that can be detected in a blood sample by immunochemical methods. Tumor markers are produced either by the tumor (cancer) itself or by the body in response to the presence of cancer or certain non-cancerous benign conditions.

ALPHA-FETOPROTEIN (AFP)

α-Fetoprotein (AFP) is a 70.000 Da MW oncofetal protein synthesized by liver parenchymal cells, yolk sac and gastrointestinal tract of human fetus. The peak of AFP concentration occurs between weeks 12 and 15 of gestation. After birth AFP concentration in plasma rapidly decreases to less than 5 IU/ml. AFP levels are elevated in the following clinical situation:

The main clinical applications of measurements of AFP are found in the monitoring of cancer following treatment. However, AFP measurement may also be of clinical interest in monitoring of pregnancy when applied to serum or amniotic fluid.

- Cancer
- Hepatocellular carcinoma
- Teratocarcinomas and embryonal cell carcinoma of testis and ovaries
- Yolk sac tumor
- Other cancers (less than 5 %)
- Viral diseases
- Acute hepatitis (usually < 100 IU/ml)
- Chronic active hepatitis (usually < 100 IU/ml)

Cat#	Size	Type	Clone/Host	Isotype	Format	Application
5100806	1 mg	Mab	2/21G3*	TBD	Purified Unconjugated	ELISA/RIA/CLIA Detection
5300806		Mab	2/23H5 3H3 2C10*			ELISA/RIA/CLIA Capture
5300808					Purified Biotin Conjugated	

* Matched pair

CALCITONIN (CT)

Calcitonin(CT) is a 32 amino acid peptide hormone secreted by the para-follicular C-cells of the thyroid gland under serum calcium control. After acute administration this peptide acts as a potent hypocalcemic and hypophosphatemic hormone by increasing renal calcium clearance and reducing bone resorption. However its precise physiological role...

The measurement of CT is used for:

- Diagnosis of medullary thyroid carcinoma (MTC)
- Follow up of malignant tumors, to check the success of surgery and to monitor for recurrence
- Diagnosis of the preclinical cases of the familial forms of MTC (MEN II or Sipple syndrome) by the use of stimulation tests (calcium or pentagastrin)
- Study of the pathophysiology of the calcium-phosphate and bone metabolism

Cat#	Size	Type	Clone/Host	Isotype	Format	Application
5104206	1 mg	Mab	6H11 3E4	IgG1, Kappa	Purified Unconjugated	ELISA/RIA/CLIA Detection
5104236			IF2 3G11*			
5104237					Purified F(ab)'2 Unconjugated	
5304206			3B1 1C10		Purified Unconjugated	ELISA/RIA/CLIA Capture
5304226			CB1*			
5304228					Purified Biotin Conjugated	

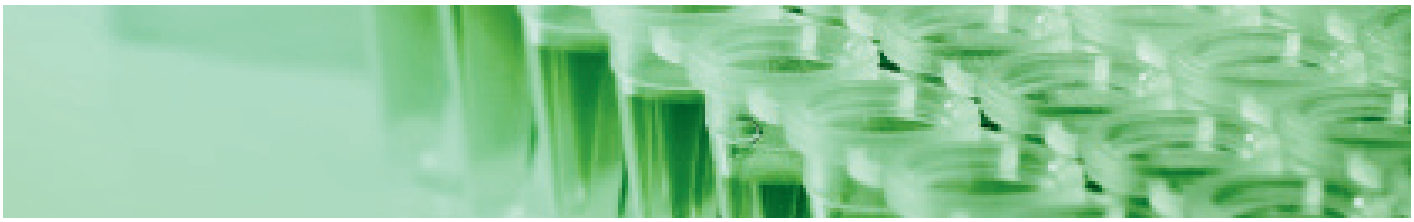
* Matched pair

CARCINO EMBRYONIC ANTIGEN (CEA)

CEA is a 200.000 Daltons oncofetal glycoprotein expressed by normal tissues during the first six months of fetal life. Later on the expression of CEA by normal cells becomes largely repressed except in cancer tissues of various cell types, which may secrete large amounts of this oncofetal protein into the circulation.

Widely accepted as a useful adjunct for monitoring the course of cancer diseases, CEA should not be regarded as a tumor-specific marker because it is still secreted in small amounts by certain normal tissues during adult life, with small serum level increases in case of benign diseases such as cirrhosis, hepatitis, inflammatory bowel diseases, renal failure and in heavy smokers.

Therefore, the measurement of CEA serum concentration for diagnostic purposes must be considered with great care.



CLINICAL APPLICATION:

- Monitoring of cancer diseases
- Diagnostic adjunct in cancer
- Prognostic adjunct in cancer

Cat#	Size	Type	Clone/Host	Isotype	Format	Application
5103306	1 mg	Mab	II35F10 C4*	IgG1, Kappa	Purified Unconjugated	ELISA/RIA/CLIA Detection
5103317					Purified F(ab)'2 Unconjugated	
5303306			4D4 A4*		Purified Unconjugated	ELISA/RIA/CLIA Capture

* Matched pair

CHORIONIC GONADOTROPIN HORMONE (FREE BETA-HCG)

The chorionic gonadotropic hormone is synthesised by the syncytiotrophoblast of the placenta all along the pregnancy and is released in the blood flow as soon as the 9th day following ovulation. The hCG has biologic characteristics similar to the LH. During pregnancy, this placental hormone stimulates the remaining corpus luteum that secretes oestrogen and progesterone for the first three months of the pregnancy.

CLINICAL APPLICATION:

Diagnostic and monitoring test in pregnancy: hCG and its free subunits α and β appear in the serum and urine of pregnant women about 9 days following ovulation. The Free βhCG level then increases rapidly to reach a peak between the 8th and the 12th week.

Tumour marker test in trophoblastic tumours: hydatiform moles and choriocarcinomas may secrete large amounts of native hCG and its two free subunits α and β into the peripheral blood circulation

Tumour marker test in non-trophoblastic cancers: 10 to 15 % of the breast, lung, and digestive tract cancers release hCG and/or either of its two constitutive subunits α and β.

Cat#	Size	Type	Clone/Host	Isotype	Format	Application
5110006	1 mg	Mab	2G7	IgG1, Kappa	Purified Unconjugated	ELISA/RIA/CLIA Detection
5110017					Purified F(ab)'2 Unconjugated	
5310036			3E8 G4 AC11*		Purified Unconjugated	ELISA/RIA/CLIA Capture
5310038					Purified Biotin Conjugated	
5110026			981A 3G6*		Purified Unconjugated	ELISA/RIA/CLIA Detection
5110027					Purified F(ab)'2 Unconjugated	

* Matched pair

CARDIOVASCULAR AND SALT BALANCE

ADRENOCORTICOTROPIC HORMONE (ACTH)

Adrenocorticotropic hormone (ACTH or corticotrophin) is a polypeptide hormone synthesised (from POMC, pro-opiomelanocortin) and secreted from corticotropes in the anterior lobe of the pituitary gland in response to the hormone corticotrophin-releasing hormone (CRH) released by the hypothalamus. It consists of 39 amino acids with a molecular weight of 4540 Da.

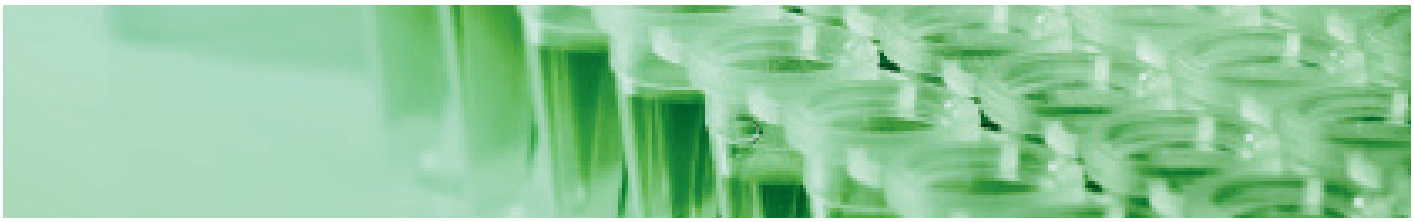
ACTH regulates steroid synthesis by the adrenal cortex. ACTH stimulates the secretion of cortisol from the adrenal glands. Cortisol and other glucocorticoids increase glucose production, inhibit protein synthesis and increase protein breakdown, stimulate lipolysis, and affect immunological and inflammatory responses.Too much ACTH can result in overproduction of cortisol which can cause Cushing's syndrome.

Too much ACTH can be caused by benign pituitary adenoma. Other causes of Cushing's syndrome (too much cortisol) include ectopic production of ACTH as encountered in some lungs tumors and benign and malignant adrenal tumors. The most common cause of Cushing's syndrome is exogenous ingestion of glucocorticoids.

Cat#	Size	Type	Clone/Host	Isotype	Format	Application
5300696	1 mg	Mab	180/A2 LF3/ BC8	IgG1, Kappa	Purified Unconjugated	ELISA/RIA/CLIA Capture

RENIN

Renin is a proteolytic acidic enzyme produced and secreted by the juxtaglomerular cells. It cleaves angiotensinogen into angiotensin I (inactive), which ultimately leads to the production of angiotensin II (active). Therefore, renin, which has a limitating effect on the production of angiotensin, is a key-factor in the regulation of arterial pressure and hydrosodic metabolism.



As most enzymes which act outside of the cells in which they are synthesized, renin exists in both inactive and active forms. Inactive renin (prorenin) which is found in plasma, amniotic fluid and in the kidney, can be activated in different ways (cryoactivation, acidification or partial proteolysis) which expose the active site of the enzyme. Inactive renin can account for up to 90 % of the total renin in the circulation. However, it is the active renin which provides the medium through which biological activity takes place.

Cat#	Size	Type	Clone/Host	Isotype	Format	Application
5115306	1 mg	Mab	244/1 RH12*	IgG1, Kappa	Purified Unconjugated	ELISA/RIA/CLIA Detection
5315366			244/2 OE6			ELISA/RIA/CLIA Capture
5315367					Purified F(ab)'2 Unconjugated	
5315376			257/A5 GC10 AH4*		Purified Unconjugated	

* Matched pair

DIABETES AND METABOLISM

Diabetes mellitus is a disorder of carbohydrate metabolism. It is a disease characterized by persistent hyperglycemia (high blood sugar levels). It is a metabolic disease that requires medical diagnosis, treatment and lifestyle changes. There are three main forms of diabetes: type 1, type 2 and gestational diabetes (or type 3, occurring during pregnancy), although these three "types" of diabetes are more accurately considered patterns of pancreatic failure rather than single diseases.

TYPE 1 IS DUE TO AUTOIMMUNE DESTRUCTION OF THE INSULIN-PRODUCING CELLS

TYPE 2 AND GESTATIONAL DIABETES ARE DUE TO INSULIN RESISTANCE BY TISSUES

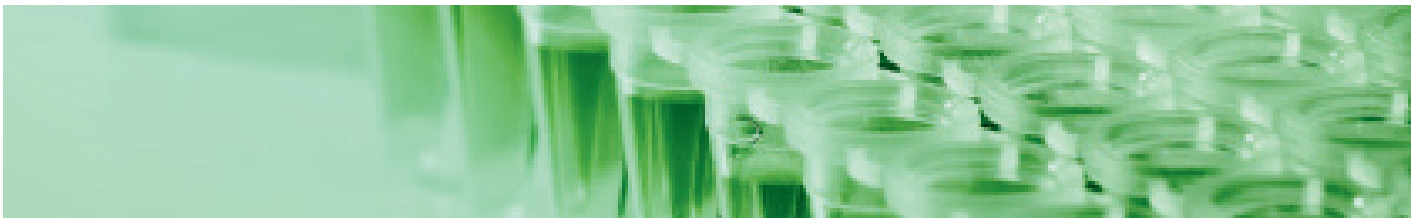
Obesity is a condition in which the natural energy reserve, stored in the fatty tissue of humans and mammals, is increased to a point where it is a risk factor for certain health conditions or increased mortality. Obesity develops from the interaction of individual biology and the environment. Excessive body weight has been shown to correlate with various diseases, particularly cardiovascular disease, diabetes mellitus type 2, sleep apnea, and osteoarthritis. Obesity is both an individual clinical condition and is increasingly viewed as a serious public health problem.

ADIPONECTIN

Adiponectin is a 30kDa protein which percentage in serum proteins is 0.01%. It is mainly synthesized by Adipocytes, but also muscle cells and hepatocytes have the ability to synthesize Adiponectin. Until now, IGF-I is the only known natural inductor of the synthesis. It consists of a Collagen-like N-terminal and a globular C-terminal domain. In vivo Adiponectin appears with different oligomers. Beside the trimer and ditrimer also high molecular multimers exist (1-3). Up to now two different receptors are known, both receptors are ubiquitary expressed, though the distribution in the tissues varies.

The Adiponectin Receptor 1 (AdipoR1) is especially in muscle- and AdipoR2 in liver tissue synthesized. The significance for the human organism is not clear until now. First studies show, that adiponectin correlates negatively with BMI and thus it could have relevance for the energy metabolism for example through the regulation of fatty acid oxidation. Beside the correlation with BMI, Adiponectin level is associated with the Insulin-Resistance and so also linked with Type II Diabetes.

Adiponectin is associated also with glucose- and lipometabolism. Furthermore it is involved in inflammatory processes and therewith it is of importance for appearance of arteriosclerosis and coronaritis, thus the determination of Adiponectin level in plasma could serve to estimate the risk of coronary disease. Beside this Adiponectin influences further physiological processes as for example the angiogenesis.



Cat#	Size	Type	Clone/Host	Isotype	Format	Application
5300726	1 mg	Mab	236/1 DC12	IgG1, Kappa	Purified Unconjugated	ND
5300746		Mab	236/1 GE9	IgG2b, Kappa		

INSULIN

Insulin, a polypeptide hormone with a molecular weight of 5800, is secreted by the beta cells of the islets of Langerhans from the pancreas. Insulin possesses a wide spectrum of biological actions. It stimulates cellular glucose uptake, glucose oxydation, glycogenesis, lipogenesis, proteogenesis and the formation of DNA and RNA. Insulin plays a key role in the regulation of plasma glucose levels (hepatic output inhibition, stimulation of peripheral glucose utilisation).

The resulting hypoglycemic effects of insulin are counterbalanced by hormones with hyperglycemic effects (glucagon, growth hormone, cortisol, epinephrine). Insulin secretion is mainly controlled by the plasma glucose levels: hyperglycemia induces a prompt and important increase in circulating insulin levels.

Neural influences, as well as various metabolic and hormonal factors (amino acids, glucagon, gastrointestinal hormone) also participate to the control of insulin secretion. Type I (insulin dependent: "juvenile") diabetes is due to a destruction of the beta cells, with a consequence of absolute lack of insulin.

In type II (noninsulin-dependent: "maturity onset") diabetes, insulin resistance may play an important role; however after several years of evolution, beta-cells failure may occur, leading to a relative insulinopenia requiring, in some cases, insulin administration. Insulin resistance is associated with high circulation levels of the hormone.

The most common case of insulin resistance is represented by obesity. Various endocrinopathies (acromegaly, Cushing syndrome) as well as rare cases of insulin receptor defects or cases with anti-insulin receptor antibodies are associated with glucose intolerance or even diabetes due to insulin resistance.

The determination of plasma insulin levels is an important parameter in the diagnosis of hypoglycemia. Insulin levels are high in cases of insulinoma (beta-cell tumor).

Functional postprandial hypoglycemia may also be associated with inappropriate insulin release to carbohydrate intake. Insulin levels are determined either in the fasting state or during dynamic test:

- Stimulation test: carbohydrate rich meal, oral glucose tolerance test (OGTT), arginin infusion, tolbutamide or other sulfonylureas administration.
- Inhibition test: fasting, somatostatine infusion

CLINICAL APPLICATION OF INSULIN DETERMINATION:

- Determination of the beta-cell reserve during glucose tolerance test or after a carbohydrate rich meal, as a guide for the instauration of insulin therapy
- Contribution to the diagnosis of insulin and non-insulin-dependent diabete
- Characterisation and follow-up of states of glucose intolerance
- Diagnosis and study of cases of insulin resistance
- Diagnosis of insulinoma and other causes of hypoglycemia

Cat#	Size	Type	Clone/Host	Isotype	Format	Application
5112526	1 mg	Mab	336F 20B11 AF2 BA4*	IgG1, Kappa	Purified Unconjugated	ELISA/RIA/CLIA Detection
5312506			2/5E4*			ELISA/RIA/CLIA Capture
5312508					Purified Biotin Conjugated	

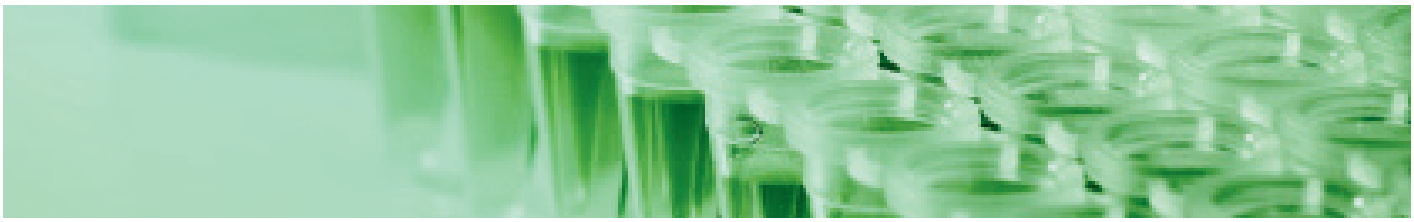
* Matched pair

LEPTIN

Leptin, the product of the ob gene, is a hormone secreted by adipocytes. Animals with mutations in the ob gene are obese, diabetic and have reduced activity. Administration of recombinant leptin to these animals decreases food intake and causes weight loss. In humans, this type of mutation has not been found.Human leptin cDNA encodes a 167 amino acid non-glycosylated protein including a 21 AA signal peptide, which is cleaved to give mature human leptin. The human receptor for leptin (OB-R) has been identified as a 1144 amino acid transmembrane glycoprotein. It is expressed in the choroid plexus and in the hypothalamus. Leptin is implicated in an increasing number of endocrine regulations including adiposity, satiety, energy homeostasis , puberty and fertility).

Cat#	Size	Type	Clone/Host	Isotype	Format	Application
5122816	1 mg	Mab	1E9 1H6*	IgG1, Kappa	Purified Unconjugated	ELISA/RIA/CLIA Detection
5122817					Purified F(ab)'2 Unconjugated	
5322826			1H6 2B9 BE8*	IgG2a , Kappa	Purified Unconjugated	ELISA/RIA/CLIA Capture

* Matched pair



FERTILITY

In order to understand the causes of infertility and the role modern infertility treatment plays in assisting conception, it is useful to look at the natural process - a woman's ovulatory cycle and the production of sperm in the male - and the hormones that play a major role in those processes. The gonadotropins are hormones that primarily affect the ovaries and the testes. They regulate the development and hormonesecreting functions of these organs and contribute to the production of sperm in the male and to the development and maturation of eggs (oocytes) in the female.

Three gonadotropins are essential to reproduction: human follicle stimulating hormone (hFSH), human luteinizing hormone (hLH) and human chorionic gonadotropin (hCG). FSH and LH are secreted by the pituitary gland situated beneath the brain.

Their secretion is controlled by another hormone, the gonadotropin- releasing hormone (GnRH) produced by the hypothalamus. hCG is primarily produced by the placenta following successful mplantation, and plays a role in maintaining pregnancy.

Androgen is the generic term for any natural or synthetic compound, usually a steroid hormone, that stimulates or controls the development and maintenance of masculine characteristics in vertebrates by binding to androgen receptors. This includes the activity of the accessory male sex organs and development of male secondary sex characteristics. Androgens, which were first discovered in 1936, are also called androgenic hormones or testoids. Androgens are also the original anabolic steroids. They are also the precursor of all estrogens, the female sex hormones. The primary and most well-known androgen is testosterone.

A subset of androgens, adrenal androgens, includes any of the 19-carbon steroids synthesized by the adrenal cortex, the outer portion of the adrenal gland (zonula reticularis - innermost region of the adrenal cortex), that function as weak steroids or steroid precursors, including dehydroepiandrosterone (DHEA), dehydroepiandrosterone sulfate (DHEA-S), and androstenedione.

CHRORIONIC GONADOTROPIN (HCG)

hCG is a glycoprotein synthesised by the syncytiotrophoblast of the placenta throughout pregnancy. hCG-molecular weight 37.9 kDa - comprises two subunits. The hCG α subunit -molecular weight 14.9 Kda - is chemically similar to the α subunits of FSH, LH and TSH hormones. The hCG β subunit molecular weight 23.0 kDa - has a structure similar to that of the LH β subunit, differing by only a few epitopes. hCG has biological characteristics imilar to LH.

During pregnancy, hCG stimulates the remaining corpus luteum and the placental tissue to secrete the various steroid hormones.

In addition to its stimulating action on the luteal and placental tissue, hCG, by crossing the placenta, is essential to differentiate the genital tractus of the fetus, which occurs around the 7th week of pregnancy.

CLINICAL APPLICATIONS:

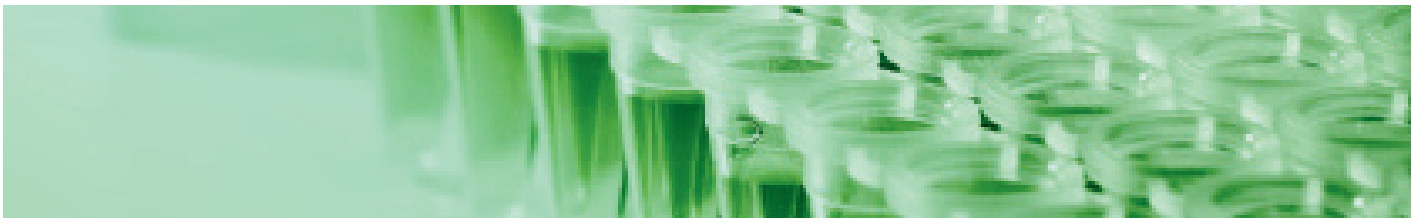
- Diagnostic and monitoring test in pregnancy hCG and its free subunits α and β appear in the serum and urine of pregnant women about 9 days following ovulation. The hCG level then increases rapidly to reach a peak between the 8th and the 12th week.
- Tumour marker test in trophoblastic tumours
- Hydatiform moles and choriocarcinomas may secrete large amounts of native hCG and its two free subunits α and β into the peripheral blood circulation
- Tumour marker test in non-trophoblastic cancers: 10 to 15 % of the breast, lung, and digestive tract cancers release hCG and/or either of its two constitutive subunits α and β

Cat#	Size	Type	Clone/Host	Isotype	Format	Application
5309806	1 mg	Mab	8/2F1 3C6	IgG1, Kappa	Purified Unconjugated	ELISA/RIA/CLIA
5309808					Purified Biotin Conjugate	

ESTRADIOL (E2)

17-beta-estradiol (E2) is a C-18 steroid hormone (molecular weight 272.4 Da) produced mainly by the ovary and placenta, and in small amounts by adrenals and testes. Estradiol is in equilibrium with estrone, which can be converted to estriol by the liver and placenta.

Cat#	Size	Type	Clone/Host	Isotype	Format	Application
5306235	1 ml	Pab	Rabbit	-	Crude	ELISA/RIA/CLIA Capture
5306255						
5306286	1 mg	Mab	294/4 BC7	IgG1	Purified Unconjugated	ELISA/RIA/CLIA Capture
5306296			294/7 RE9			



ESTRIOL (E3)

Estriol (also oestriol or E3) is one of the three main estrogens produced by the human body. Estriol is only produced in significant amounts during pregnancy as it is made by the placenta from 16-hydroxydehydroepiandrosterone sulfate (16-OH DHEAS), an androgen steroid made in the fetal liver and adrenal glands.

The human placenta produces pregnenolone and progesterone from circulating cholesterol. Pregnenolone is converted in the fetal adrenal gland into dehydroepiandrosterone (DHEA), a C19 steroid, then subsequently sulfonated to dehydroepiandrosterone sulfate (DHEAS). DHEAS is converted to 16-OH DHEAS in the fetal liver. The placenta converts 16-OH DHEAS to estriol, and is the predominant site of estriol synthesis.

Cat#	Size	Type	Clone/Host	Isotype	Format	Application
5306406	1 mg	Mab	10/13D11	IgG1, Kappa	Purified Unconjugated	ELISA/RIA/CLIA Capture

FOLLICLE STIMULATING HORMONE (FSH)

The measurement of LH and FSH concentrations in serum is essential for investigating fertility and especially disorders of the hypothalamic/pituitary/gonadal axis. Both LH and FSH are secreted by the basophil cells of the anterior pituitary as a result of gonadotropin releasing hormone (GnRH) secretion from hypothalamic cells.

In adults, LH and FSH hormones control gonadal functions; mainly gametogenesis and steroid secretion. Circulating levels of FSH are controlled by a negative feedback effect on the hypothalamus by steroidal hormones and gonadal peptides.

Cat#	Size	Type	Clone/Host	Isotype	Format	Application
5108406	1 mg	Mab	1D8 4E9 1C10*	IgG1, Kappa	Purified Unconjugated	ELISA/RIA/CLIA Detection
5108417					Purified F(ab)'2 Unconjugated	
5308426			4/5H10 2C5 AF7*		Purified Unconjugated	ELISA/RIA/CLIA Capture

* Matched pair

LUTEINIZING HORMONE (LH)

Both LH and FSH are secreted by the basophil cells of the anterior pituitary as a result of gonadotropin releasing hormone (GnRH) secretion from hypothalamic cells. In adults, LH and FSH hormones control gonadal functions; mainly gametogenesis and steroid secretion.

CLINICAL APPLICATIONS:

The measurement of LH and FSH concentrations in serum is essential for investigating fertility and especially disorders of the hypothalamic/pituitary/gonadal axis.

Cat#	Size	Type	Clone/Host	Isotype	Format	Application
5113146	1 mg	Mab	1/9G7 CA10*	IgG1, Kappa	Purified Unconjugated	ELISA/RIA/CLIA Detection
5113147					Purified F(ab)'2 Unconjugated	
5313146			1/4A11 2D7 AE6*		Purified Unconjugated	ELISA/RIA/CLIA Capture
5113106			1/2D7 1D9	TBD		ELISA/RIA/CLIA Detection
5313106			2/22E2 2H4			ELISA/RIA/CLIA Capture

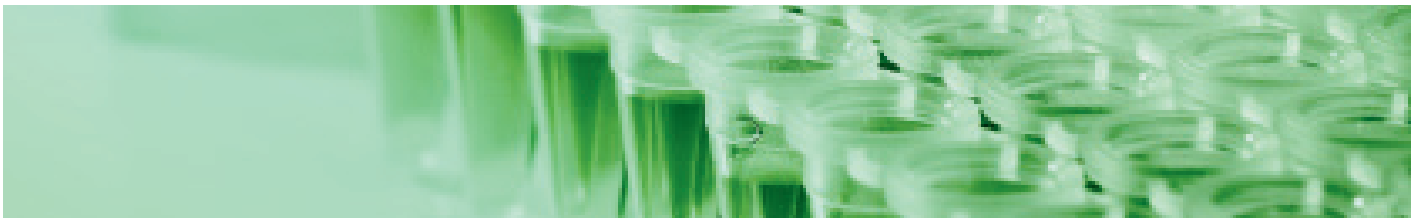
* Matched pair

PLACENTAL LACTOGEN (HPL)

Human Placental Lactogen Protein (hPL) is a dimer of two polypeptide chains of equivalent weight (19.000) with lactogenic, luteotropic and growth activities. hPL, which is produced by trophoblastic cells of the normal placenta or by trophoblastic tumor tissue, has an amino acid composition quite similar to that of hGH, and to a lesser extent to that of prolactin. hPL becomes detectable in serum from about 6th week of pregnancy: later on hPL levels in serum increase progressively throughout pregnancy to reach a plateau of 2-10 µg/ml by the 34th week reflecting directly the growth of the placental tissue. Because of its short plasma half-life (± 20 minutes), hPL becomes undetectable in the serum 4 hours after delivery.

Cat#	Size	Type	Clone/Host	Isotype	Format	Application
5311406	1 mg	Mab	6/4C8#	IgG1, Kappa	Purified Unconjugated	ELISA/RIA/CLIA Capture
5311408			6/4C8#+6/6A3#		Purified Biotin Conjugated	
5311426			6/6A3#		Purified Unconjugated	

Can be used alone or as a 50/50 mixture



PROLACTIN (PRL)

Prolactin (PRL) is a polypeptide hormone (molecular weight 20,000 Da) secreted by the pituitary gland, which plays a key role in the development of the mammary gland, the production and secretion of milk and the control of male and female gonadal functions. Prolactin secretion is under hypothalamic control exerted directly by dopamine, several prolactin releasing factors (PRF) and perhaps VIP (vasoactive intestinal polypeptide) or a closely related peptide.

TRH also acts directly at the pituitary level to stimulate prolactin release but its physiological role in the control of prolactin secretion has not been established yet. Several neuroendocrine factors, involving serotoninergic or noradrenergic pathways are also involved in the control of prolactin secretion.

The plasma concentration of prolactin increases in various physiological situations such as stress, pregnancy and lactation. Physiological levels fluctuate according to a nycthemeral rhythm, a significant rise being observed at night. Drugs with anti-dopamine activity (psychotropic agents) and ovulatory supressants, increase prolactin secretion.

CLINICAL APPLICATIONS:

Prolactinoma:

Circulating prolactin levels are elevated in patients with a prolactin secreting pituitary adenoma. Amenorrhea and impotence are characteristic clinical symptoms in such cases

Other pituitary diseases:

Increased prolactin levels are also observed in 5% to 20% of patients with acromegaly and when pituitary control by the hypothalamus is suppressed (pituitary stalk section). Decreased PRL levels may be observed in cases of complete destruction of the pituitary as in Sheehan's syndrome.

Galactorrhea and amenorrhea:

The measurement of the prolactin levels in serum is a useful test in the differential diagnosis of galactorrhea and amenorrhea.

Cat#	Size	Type	Clone/Host	Isotype	Format	Application
5114426	1 mg	Mab	3G6 1G10 2C10 BA5*	IgG1, Kappa	Purified Unconjugated	ELISA/RIA/CLIA Detection
5314426			1/5C4 2D5 BB10*	IgG2a , Kappa		ELISA/RIA/CLIA Capture

* Matched pair

GROWTH FACTORS

The term growth factor refers to a naturally occurring protein capable of stimulating cellular proliferation and cellular differentiation. Growth factors are important for regulating a variety of cellular processes. Assessment of growth in stature is an essential part of the pediatric examination. Growth is an important index of physical and mental health and of the quality of the child's psychological environment; chronic problems in any of these areas may be reflected in a decreased growth rate.

GROWTH HORMONE (HGH)

hGH is a polypeptide hormone (molecular weight 21,500 Da) produced by the acidophil cells of the anterior pituitary under the control of two main substances from the median eminence : Growth-hormone Releasing Factor (GRF) and an inhibitory agent, somatostatin. Dopaminergic, adrenergic and serotoninergic neuroendocrine pathways also play an important role in the control of hGH secretion.

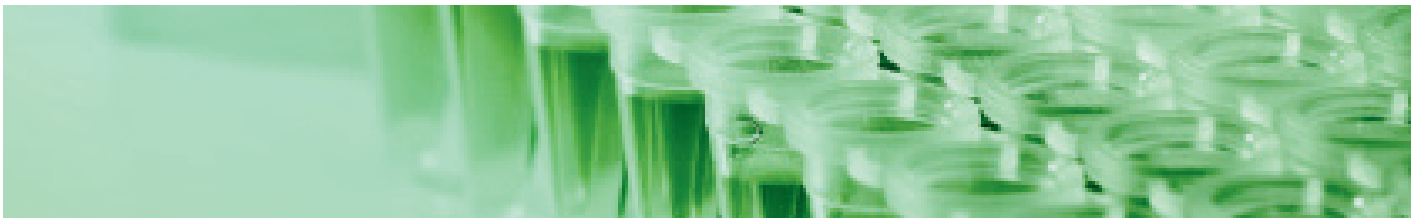
hGH hyposecretion is one of the various causes of small stature in children. Serum hGH measurement with a highly sensitive assay, especially following a provocative stimulus (absence of response), is an important way to establish this diagnosis because this group of patients can be treated by administration of hGH.

Serum hGH measurement is also an index of pituitary function when hypopituitarism (either idiopathic or due to tumour and surgery) is suspected.

Serum hGH measurement, especially following a provocative inhibitory test (absence of response), is an important way to establish the diagnosis of hGH hypersecretion due to acidophilic pituitary tumour. This results in gigantism in children and acromegaly in adults. Both of these disorders may be treated by surgery or radiation.

Cat#	Size	Type	Clone/Host	Isotype	Format	Application
5110806	1 mg	Mab	4/2G7 1C3*	IgG2a , Kappa	Purified Unconjugated	ELISA/RIA/CLIA Detection
5110817					Purified F(ab)'2 Unconjugated	
5310806			4/6H8 1E7*	IgG1, Kappa	Purified Unconjugated	ELISA/RIA/CLIA Capture
5310808					Purified Biotin Conjugated	

* Matched pair



INSULIN GROWTH FACTOR BINDING PROTEIN–3 (IGFBP-3)

IGFBP-3 is the most abundant IGF-binding protein, accounting for as much as 75% or more of the circulating IGF-binding capacity in healthy subjects. IGFBP-3 shares functional properties with IGFBP-5 in that both peptides are able to form high molecular weight ternary complexes of ~150 kilo Dalton with ALS and either IGF-I or –II.

However, IGFBP-5 circulates in much lower concentrations than IGFBP-3, and in healthy subjects the ternary complexes carry as much as 90% of IGFBP-3 but only about 50% of IGFBP-5. Originally, the IGFBPs were thought to serve as IGF-carrier proteins, stabilizing plasma IGF levels and controlling the egress of IGF from the circulation to the extra-vascular compartment.

Furthermore, it was assumed that IGFBP-complexed IGF was biologically more or less inactive, being deprived its ability to interact with the IGF-I receptor.

However, it soon became apparent that in some experimental settings the IGFBPs stimulated rather than inhibited IGF-I mediated actions, and accordingly, the IGFBPs are now often referred to as modulators of IGF-I bioactivity. In addition, the majority of the IGFBPs, and in particular IGFBP-3, exerts IGF-I and IGF-I receptor independent effects, possible involving interactions with specific receptors located at the cell surface and intracellular.

For example, IGFBP-3 is nowadays considered to serve as an anti-cancer molecule, apparently protecting against several common cancers, and effects of IGFBP-3 on insulin signaling in cultured adipocytes have also been suggested. The turnover of the ternary complexes is very slow, and the plasma concentration of IGFBP-3 remains stable throughout the day, being unaffected by short-term nutritional changes.

Thus, the level of IGFBP-3 may be determined by one single measurement. GH is the primary regulator of IGFBP-3 as well as of IGF-I and ALS and therefore, all three peptides increase during the pubertal growth spurt, where after levels gradually decline with increasing age. In children, IGFBP-3 has been shown to correlate with the 24-h integrated GH secretion and in particular in children IGFBP-3 may be helpful in the diagnosis of GH deficiency.

Cat#	Size	Type	Clone/Host	Isotype	Format	Application
5111736	1 mg	Mab	KA7 BF3 BC9 BA11*	IgG1, Kappa	Purified Unconjugated	ELISA/RIA/CLIA Detection
5311726			EF2 BE10*			ELISA/RIA/CLIA Capture

* Matched pair

THYROID FUNCTION

The thyroid gland, or simply the thyroid, is one of the largest endocrine glands in the body, and consists of two connected lobes. It is found in the neck, below the laryngeal prominence (Adam's apple). The thyroid gland controls how quickly the body uses energy, makes proteins, and controls the body's sensitivity to other hormones. It participates in these processes by producing thyroid hormones, the principal ones being thyroxine (T4) and triiodothyronine (T3), which is more active. These hormones regulate the growth and rate of function of many other systems in the body. T3 and T4 are synthesized from iodine and tyrosine. The thyroid also produces calcitonin, which plays a role in calcium homeostasis.

Hormonal output from the thyroid is regulated by thyroid-stimulating hormone (TSH) produced by the anterior pituitary, which itself is regulated by thyrotropin-releasing hormone (TRH) produced by the hypothalamus.

The thyroid may be affected by some frequent thyroid diseases. Hyperthyroidism occurs when the gland produces excessive amounts of thyroid hormones, the most common cause being Graves' disease—an autoimmune disorder. In contrast, hypothyroidism is a state of insufficient thyroid hormone production.

Worldwide, the most common cause is iodine deficiency. Thyroid hormones are important for development, and hypothyroidism secondary to iodine deficiency remains the leading cause of preventable intellectual disability. In iodine-sufficient regions, the most common cause of hypothyroidism is Hashimoto's thyroiditis—also an autoimmune disease. In addition, the thyroid gland may also develop several types of nodules and cancer.

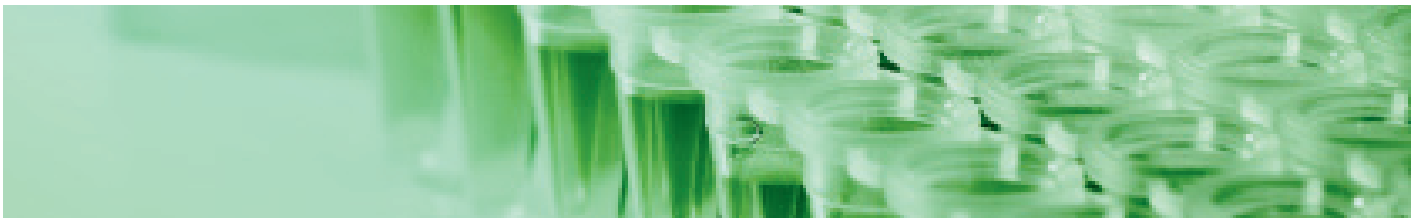
THYROID STIMULATING HORMONE (TSH)

MEASUREMENT OF PITUITARY PRODUCTION OF TSH:

Normally, low levels (less than 5 units) of TSH are sufficient to keep the normal thyroid gland functioning properly. When the thyroid gland becomes inefficient such as in early hypothyroidism, the TSH becomes elevated even though the T4 /FT4 and T3/FT4 may still be within the "normal" range.

This rise in TSH represents the pituitary gland's response to a drop in circulating thyroid hormone; it is usually the first indication of thyroid gland failure. Since TSH is normally low when the thyroid gland is functioning properly, the failure of TSH to rise when circulating thyroid hormones are low is an indication of impaired pituitary function.

The new "sensitive" TSH test will show very low levels of TSH when the thyroid is overactive (as a normal response of the pituitary to try to decrease thyroid stimulation). Interpretations of the TSH level depends upon the level of thyroid hormone; therefore, the TSH is usually used in combination with other thyroid tests such as the T4/FT4 and T3/FT3.



Cat#	Size	Type	Clone/Host	Isotype	Format	Application
5118806	1 mg	Mab	2/7A3 1B7*	IgG1, Kappa	Purified Unconjugated	ELISA/RIA/CLIA Detection
5118817					Purified F(ab)'2 Unconjugated	
5318806			2/2B4 1A8*#		Purified Unconjugated	ELISA/RIA/CLIA Capture
5318817					Purified F(ab)'2 Unconjugated	
5318826			2/3E1 2F12*#		Purified Unconjugated	
5318837					Purified F(ab)'2 Unconjugated	

* Matched pairs
# Can be used alone or as a 50/50 mixture

L-THYROXINE (T4)

Levothyroxine (INN, USAN) or L-thyroxine is a synthetic thyroid hormone that is chemically identical to thyroxine (T4), which is naturally secreted by the follicular cells of the thyroid gland. It is used to treat thyroid hormone deficiency, and occasionally to prevent the recurrence of thyroid cancer. Like its naturally secreted counterpart, levothyroxine is a chiral compound in the L-form.

The related drug dextrothyroxine (D-thyroxine) was used in the past as a treatment for hypercholesterolemia (elevated cholesterol levels) but was withdrawn due to cardiac side effects.

It is on the World Health Organization's List of Essential Medicines, a list of the most important medication needed in a basic health system.

Cat#	Size	Type	Clone/Host	Isotype	Format	Application
5316406	1 mg	Mab	T41	IgG1	Purified Unconjugated	ELISA/RIA/CLIA Capture

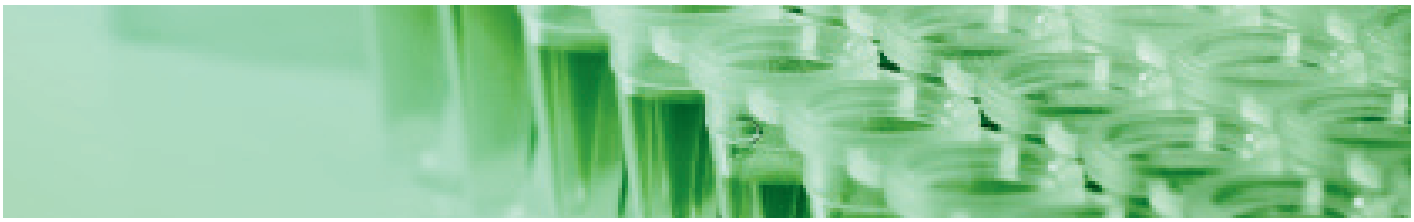
TRIIODOTHYRONINE (T3)

Triiodothyronine, also known as T3, is a thyroid hormone. It affects almost every physiological process in the body, including growth and development, metabolism, body temperature, and heart rate.

Production of T3 and its prohormone thyroxine (T4) is activated by thyroid-stimulating hormone (TSH), which is released from the pituitary gland. This pathway is part of a closed-loop feedback process: Elevated concentrations of T3, and T4 in the blood plasma inhibit the production of TSH in the pituitary gland. As concentrations of these hormones decrease, the pituitary gland increases production of TSH, and by these processes, a feedback control system stabilizes the amount of thyroid hormones that are in the bloodstream.

T3 is the true hormone. Its effects on target tissues are roughly four times more potent than those of T4. Of the thyroid hormone that is produced, just about 20% is T3, whereas 80% is produced as T4. Roughly 85% of the circulating T3 is later formed in the liver and pituitary by removal of the iodine atom from the carbon atom number five of the outer ring of T4. In any case, the concentration of T3 in the human blood plasma is about one-fortieth that of T4. This is observed in fact because of the short half-life of T3, which is only 2.5 days. This compares with the half-life of T4, which is about 6.5 days.

Cat#	Size	Type	Clone/Host	Isotype	Format	Application
5316306	1 mg	Mab	M011	IgG1	Purified Unconjugated	ELISA/RIA/CLIA Capture



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