RIA

PRODUCT OVERVIEW

by DIASource

Diagnostic catalog

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OUR COMPANY

30 YEARS OF EXPERIENCE IN IVD (KITS AND INSTRUMENTATION)

DIAsource ImmunoAssays (formerly BioSource), an international diagnostics company (Belgium), develops, manufactures and markets clinical diagnostic products in the field of endocrinology and infectious diseases. Core products are RIA and ELISA technology and reagents for open ELISA automated analyzers as well as antibodies for use in in-vitro diagnostic assays with specific development and manufacturing programs for Vitamin D, Renin, Calcitonin and many others. We also provide selected instrumentation: we offer ELISA reader, washer and shaker, along with opened and closed fully automated ELISA platforms helping our customers to automate their tests. It is our ambition to use our 30 years of expertise in Antibody and Assay development to become a well-known company of diagnostic immunoassays and instrumentation for the IVD market.

MISSION

Our mission is to develop, manufacture and market a complete panel of quality immunoassays and instrumentation as accurate, reliable, diagnostic tools to detect and monitor endocrine disorders and infectious diseases. We are dedicated to provide highly reliable quality assays and instrumentation to deliver uncompromising support to our customers. We strive for meeting our customers needs through a long-term professional relationship and by representing a real added value. Our company is driven by commitment to quality of products and services.

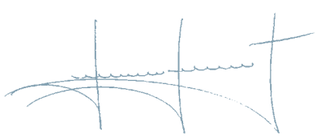
PRODUCT RANGE

During the last 30 years, we have developed manual ELISA and RIA immunoassays for the diagnosis and monitoring of a wide variety of endocrine disorders. We constantly reworked and developed specific antibodies for use in our diagnostic assays and we offer these antibodies also to other diagnostic companies. Constantly looking for new technologies and applications, we put our expertise in the development of new antibodies (patent pending) and assays to measure 25OH Total Vitamin D (D2+D3). We are strengthening our position in the diagnostic market by validating our ELISA assays on our open and closed automates. This innovation marks a turning point for our company, and makes of DIAsource, already renowned in the RIA market, a complete diagnostic provider. The interest in Vitamin D is rising rapidly. Since more than 10 years DIAsource manufactures immunoassays for 25OH Vitamin D3 and 1,25 $(OH)_2$ Vitamin D. In our assay development program we are focusing specifically on new Vitamin D assays. We introduced a new Total Vitamin D (D2 + D3) RIA and ELISA assay, together with a Rat 25OH Vit D ELISA kit for clinical research studies. The ELISA versions will also be made on our instruments.

COMMITMENT TO QUALITY

We believe that the quality of products and services finds its origin in scientific expertise, good organization of all operational activities and in well-structured decision processes. These principles are laid out in our ISO 13485:2003 quality manual. Through an integration of product quality in our development and manufacturing processes and a specific customer-oriented approach, we have directed our quality system to comply with the harmonized standard for quality systems within the context of the European Directive for In Vitro Diagnostics. Our internal quality management system is designed to pursue a continuous improvement of our customer service, our product quality and the efficiency of our operations. All our kits and instruments for in-vitro diagnostics (IVD) carry the CE mark and comply with IVD Directive requirements.

Peter Kerckx
International Sales Director & Business Segment Manager RIA
DIAsource ImmunoAssays S.A.



Dr. Jozef Vangenechten
CEO
DIAsource ImmunoAssays S.A.

TO CONTACT US

Our people, our professional and experienced Customer Service and
Technical Support teams are dedicated to ensure complete customer satisfaction.
We take pride in providing helpful and accurate information in a 24-hour turnaround time.
Ordering: please see below and consult the 'How to order' section for your local contact.

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AUTO-IMMUNITY

Autoimmunity is the failure of an organism to recognize its own constituent parts as self, which results in an immune response against its own cells and tissues. Any disease that results from such an aberrant immune response is termed an autoimmune disease. Prominent examples include Coeliac disease, diabetes mellitus type 1 (IDDM), systemic lupus erythematosus (SLE), Sjögren's syndrome, Churg-Strauss Syndrome, multiple sclerosis (MS), Hashimoto's thyroiditis, Graves' disease, idiopathic thrombocytopenic purpura, and rheumatoid arthritis (RA).

HASHIMOTO'S THYROIDITIS

The body normally produces antibodies against foreign substances such as bacteria; however, some people are found to have antibodies against their own thyroid tissue. A condition known as Hashimoto's Thyroiditis is associated with a high level of these thyroid antibodies in the blood. Whether the antibodies cause the disease or whether the disease causes the antibodies is not known; however, the finding of a high level of thyroid antibodies is a strong evidence of this disease. Occasionally, low levels of thyroid antibodies are found with other types of thyroid disease. When Hashimoto's thyroiditis is present under the form of a thyroid nodule rather than a diffuse goiter, the thyroid antibodies may not be present.

MYASTHENIA GRAVIS (MG)

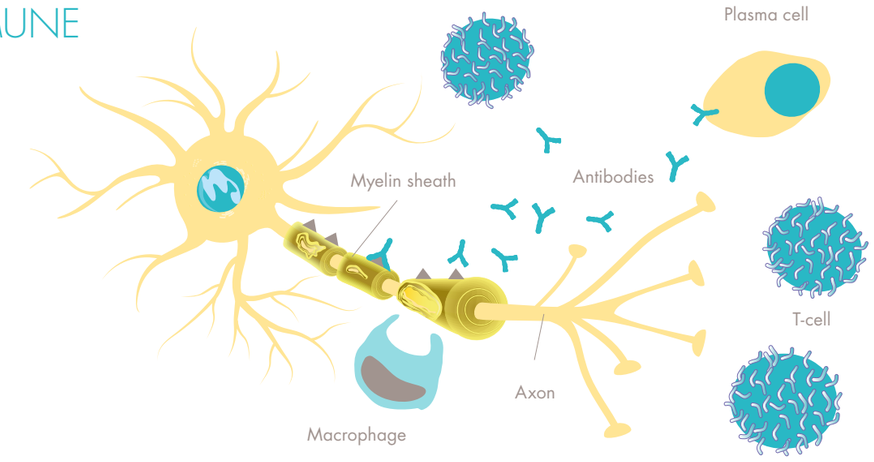
Is a skeletal muscle disorder characterized by muscular weakness. In such cases, muscular weakness is due to anti-acetylcholine receptor (AChR) antibodies. Anti-AChR antibodies are present in approximately 90% of patients with MG.

Anti-AChR antibodies could be:

- binding antibodies (multitudes of wide populations of antibodies directed to hydrophilic domains of receptors)
- blocking antibodies (preventing binding of acetylcholine to receptors)
- modulating antibodies (accelerating endocytosis resulting in loss of receptors).

Thyroid Antibody	Acronym	Present in
Thyroid peroxidase antibody	TPOAb	Hashimoto's thyroiditis; Graves' disease
Thyroglobulin antibody	TgAb	Thyroid cancer; Hashimoto's thyroiditis
Thyroid stimulating receptor antibody	TRAb	Graves' disease

AUTOIMMUNE DISEASE



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Acethylcholine Receptor (AChR)											
RIA	KIPIB21021	^{125}I	100 T	S - P	20	2	0,2-8,0 nmol/L	0,01 nmol/L	3	11	not distributed in Austria, Germany & Netherlands
Anti-Insulin Antibodies (AIA)											
RIA	KIP0091	^{125}I	100 T	S - P	100	2	0-100 %	<8,2%	2,25	8	
Anti-Thyroglobulin AutoAntibodies (Tg Ab)											
RIA CT	RVR-CI-100**	^{125}I	100 T	S	20	2	20-2000 IU/mL	6 IU/mL	1,5	8	not distributed in Belgium & Germany
Anti-Thyroperoxidase AutoAntibodies (TPO Ab)											
RIA CT	RVR-CO-100**	^{125}I	100 T	S	20	2	20-3000 U/mL	1,3 U/mL	1,5	8	not distributed in Belgium & Germany
Anti-TSH Receptors AutoAntibodies (TSH-R Ab)											
RIA CT	RVR-CT-100**	^{125}I	100 T	S	50	2	5-405 U/mL	0,8 U/mL	2,5	5,5	not distributed in Belgium & Germany
Anti-ds DNA											
RIA	KIPIB19011	^{125}I	100 T	S	25	2	0 – 80 IU/ml	2.5 IU/ml	1,25	10	
Anti-GAD$_{65}$											
RIA	KIPM2071	^{125}I	50 T	S	20	2	0 - 120 U/ml	0,7 U/ml	3,5	5,5	
RIA	KIPM2070	^{125}I	100 T	S	20	2	0 - 120 U/ml	0,7 U/ml	3,5	5,5	
Anti-IA2											
RIA	KIPM2050	^{125}I	50 T	S	20	2	0 - 60 U/ml	0,8 U/ml	ON	5,5	
IAA											
RIA	KIPM2035	^{125}I	100 T	S	20	2	0 - 50 U/ml	0,2 U/ml	ON	4,5	
TSH Rec Ab Human (TRAb)											
RIA CT	KIPM2040	^{125}I	100 T	S	100	1	0 - 50 IU/ml	0,23 IU/ml	3	7,5	

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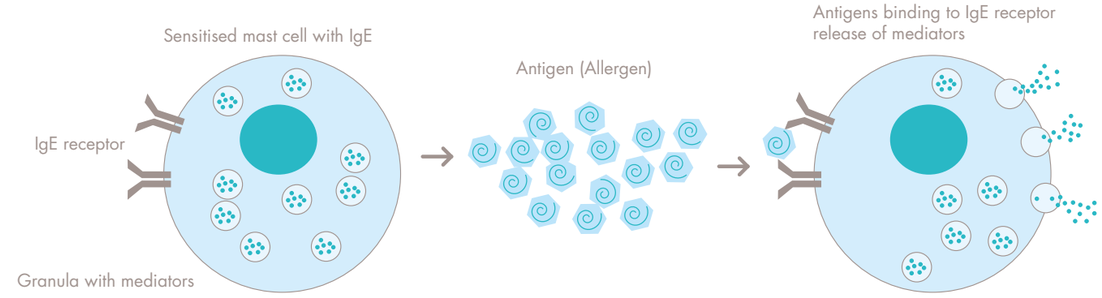
BIOGENIC AMINES

Biogenic amine is a chemically imprecise term, which, by convention, includes the catecholamines: **Epinephrine** (or **Adrenaline**), **Norepinephrine** (or **Noradrenaline**) and **Dopamine**, the indoleamine Serotonin, the imidazolamine Histamine and compounds closely related to each of these. They are produced by decarboxylation of amino acids. These biogenic amines play key roles in neurotransmission and other signalling functions.



CATECHOLAMINES

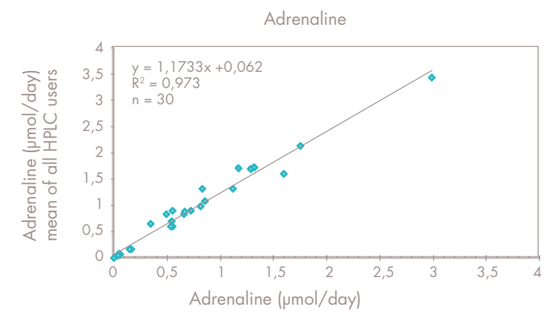
The principal catecholamines are norepinephrine (noradrenaline), epinephrine (adrenaline) and dopamine. These compounds are formed from phenylalanine and tyrosine. Tyrosine is produced in the liver from phenylalanine through the action of phenylalanine hydroxylase. The tyrosine is then transported to catecholamine-secreting neurons where a series of reactions convert it into dopamine, into norepinephrine and finally into epinephrine. The measurement of catecholamines in biological fluids ("biogenic amines") is routinely performed for the diagnosis of biogenic amine-secreting tumors (i.e., pheochromocytoma, neuroblastoma).

Pheochromocytoma, a tumor of the chromafin tissue, is associated with the presence of greatly increased plasma and urinary catecholamine concentrations. Elevated catecholamines have also been found in patients with other tumors of neural tube origin, such as neuroblastomas and ganglioneuroblastomas.

HISTAMINE

Histamine is the most important mediator in human and is mostly found in the initial phase of anaphylaxis ("immediate type" allergy). Histamine acts predominantly on smooth muscles and blood vessels.

Major effects include widespread arteriolar dilation, local increased capillary permeability by contracting endothelial cells, contraction of nonvascular smooth muscles, bronchoconstriction, chemotaxis for eosinophils, blocking T lymphocyte function and gastric acid secretion.



MELATONIN

The major hormone secreted by the pineal gland - is a key modulator of annual and circadian biorhythms. Its circadian profile in body fluids is an excellent marker for the setting of the endogenous clock. Daytime plasma Melatonin levels are low and rise in the evening (onset). Night-time levels peak at around 03.00 hrs. (acrophase) in most healthy humans. As a general modulator of human biorhythm, Melatonin is involved in the timing of functions such as sleep, mood, reproduction and immune system activity.

NEPHRINES

Normetanephrine and metanephrine are physiologically formed from the catecholamines noradrenaline and adrenaline by the enzyme catechol-O-methyltransferase (COMT). Increased levels of normetanephrine and metanephrine can be found in patients suffering from pheochromocytoma, ganglio - neuroma and other neurogenic tumors.

SEROTONIN

Is well established as a neurotransmitter in the central nervous system. Altered concentrations of circulating serotonin have been implicated in several pathologic conditions including chronic tension migraine, schizophrenia, hypertension, Huntington's disease, Duchenne's muscular dystrophy and early acute appendicitis. The determination of serum serotonin levels is of high clinical significance for diagnostic assessment of carcinoid syndrome.

ASSESSMENT OF BIOGENIC AMINES

The concentrations of catecholamines may be determined in serum, plasma, urine, other body fluids and even in cell culture supernatants.The most commonly used methodology is HPLC combined with electrochemical detection. However, this methodology is subject to analytical error, when synthetic sympatho-mimetic therapeutic agents, in comparatively high concentrations, interfere with the quantitative determination of endogenous catecholamines. Peaks arriving from these synthetic agents will mask the biogenic amine peaks, making exact determinations almost impossible.

An alternative and more specific method for the determination of biogenic amines in any type of sample is immuno-assay, whether as radioimmunoassay (RIA) or enzyme immunoassay (ELISA).

These immunoassays correlate very well with the standard HPLC methodology, but have additional advantages:

- No predilution of the sample
- Short assay time
- Easy automation for high sample throughput
- No interference from therapeutic drugs and their metabolites
- High specificity: the only compound measured is the biologically active L-isomer
- Superior sensitivity, even in combination with small sample volume

Format	Cat#	Label	Size	Sample type	Sample size (µL)	Control Levels	Range	Sensitivity	Incubation (hours)	Max shelf life (weeks)	Remarks
2 CAT (Adrenaline and Noradrenaline)											
RIA	KIPL1500	^{125}I	2 x 96 T	U - EP	10/300	2	see Adrenaline RIA and Noradrenaline RIA				
3 CAT (Adrenaline, Noradrenaline and Dopamine)											
RIA	KIPL1600	^{125}I	3 x 96 T	U - EP	10/300	2	see Adrenaline RIA, Noradrenaline RIA and Dopamine RIA				
Adrenaline (Epinephrine)											
RIA	KIPL0100	^{125}I	96 T	U - EP	10/300	2	0,39-200 ng/mL	390/19 pg/mL	4 or ON	14	
Dopamine											
RIA	KIPL0300	^{125}I	96 T	U - EP	10/300	2	3,8-2000 ng/mL	< 600 ug/day / < 100 pg/mL	4 or ON	14	
Melatonin											
RIA (direct)	KIPL3300	^{125}I	100 T	EP S	150	2	2,3-1000 pg/mL	2,3 pg/mL	ON	14	
Melatonin (Saliva)											
RIA (direct)	KIPL3400	^{125}I	100 T	Sa	500	2	1,4-300 pg/mL	1,4 pg/mL	ON	14	
Metanephrine											
RIA (Plasma)	KIPL0700	^{125}I	96 T	EP - HP	200	2	6,4-3600 pg/mL	5,8 pg/mL	ON	14	
RIA (Urine)	KIPL0500	^{125}I	100 T	U	25	2	8-2000 ng/mL	8 pg/mL	3	14	
Nephrines											
RIA (Plasma)	KIPL1400	^{125}I	2 x 96 T	EP	500	2	see Metanephrine Plasma RIA and Normetanephrine Plasma RIA				
RIA (Urine)	KIPL1300	^{125}I	2 x 100 T	U	25	2	see Metanephrine Urine RIA and Normetanephrine Urine RIA				
Noradrenaline (Norepinephrine)											
RIA	KIPL0200	^{125}I	96 T	U - EP	10/300	2	1,1-1000 ng/mL	1100-42 pg/ml	4 or ON	14	
Normetanephrine											
RIA (Plasma)	KIPL0600	^{125}I	96 T	EP - HP	200	2	24,1-7200 pg/mL	21,4 pg/mL	ON	14	
RIA (Urine)	KIPL0400	^{125}I	2 x 50 T	U	25	2	22-3000 ng/mL	22 ng/mL	3	14	
Serotonin											
RIA	KIPL0900	^{125}I	100 T	S - P - U - PI - CSF	25	2	20-2000 ng/mL	0,33 to 6,7 ng/mL	2,5	14	

*For Research Use Only
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BONE METABOLISM

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

As **Osteocalcin**, the major non-collagenous protein of the bone matrix, is manufactured by osteoblasts, it is often used as a biochemical marker, for the bone formation process. A large number of studies indicate that serum-osteocalcin levels reflect very well the rate of bone formation.

The determination of blood levels of Osteocalcin is valuable for:

- The identification of women at risk of developing osteoporosis
- Monitoring bone metabolism in several clinical conditions:
  - during peri- and post menopause
  - during Hormone Replacement Therapy
  - patients with GH deficiency, Renal osteodystrophy

PARATHYROID HORMONE (PTH), OR PARATHORMONE

Is secreted by the parathyroid glands as a polypeptide containing 84 amino acids and is the major physiological regulator of phosphocalcic metabolism. It acts to increase the concentration of calcium (Ca_{2+}) in the blood.

Measurements of PTH is used in:

- Diagnose hyperparathyroidism (elevated levels of intact PTH)
- Differentiation between hypoparathyroidism and hypercalcemia
- It allows documenting the occurrence of secondary hyperparathyroidism in patients with Vitamin D deficiency, intestinal malabsorption, or renal failure.

AGGRECAN (PG)

Is the predominant proteoglycan species in articular cartilage.

The loss of PG and other matrix components from the cartilage leads to destruction of the tissue, causing complete deterioration of the articular surface. PG and PG fragments released in synovial fluid and serum during this degradation process might serve as markers of the metabolic changes in diseased cartilage.

The DIAsource Aggrecan ELISA assay provides and easy , non-invasive methodology for the quantification of cartilage turnover. It can also be used for the monitoring of the effect of drugs on the cartilage turnover.

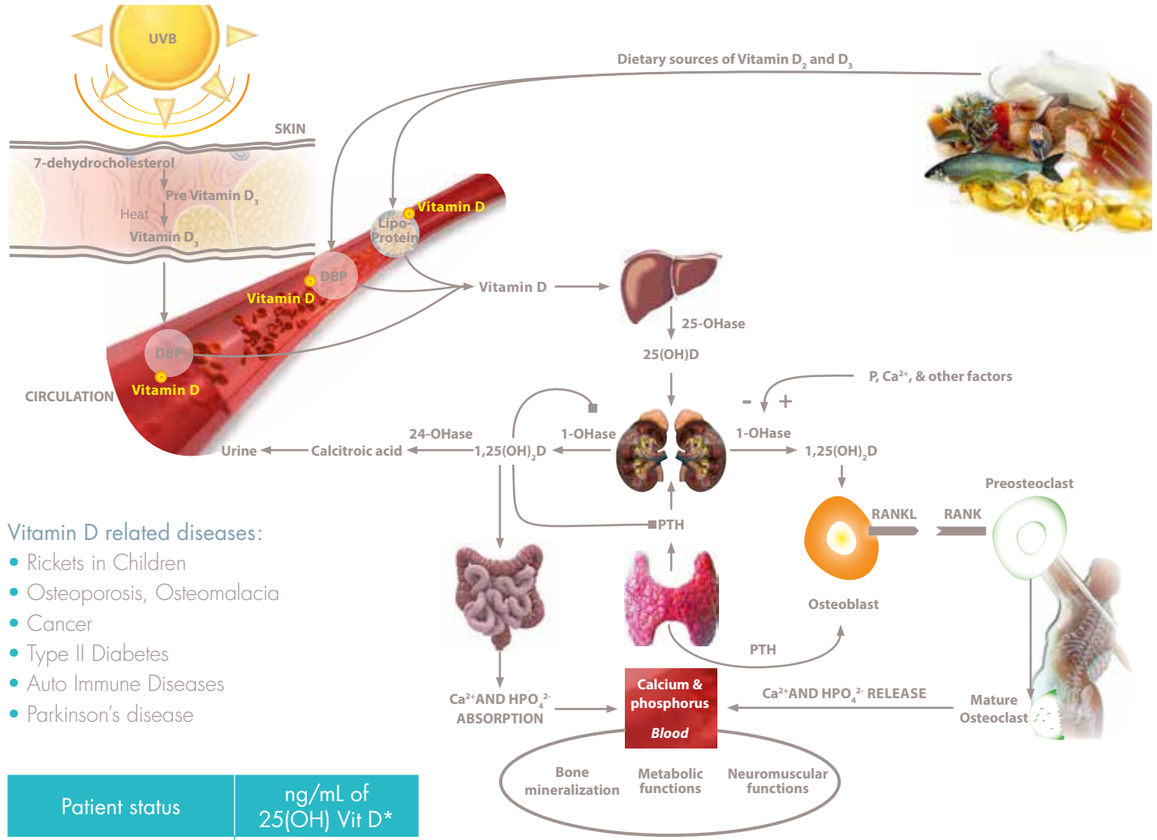
VITAMIN D

Plays an important role in the maintenance of major organ systems: Vitamin D regulates the calcium and phosphorus levels in the blood and inhibits parathyroid hormone secretion from the parathyroid gland. Vitamin D deficiency can result from inadequate intake coupled with inadequate sunlight exposure, conditions that impair conversion of vitamin D into active metabolites, such as liver or kidney disorders, or, rarely, by a number of hereditary disorders. Deficiency results in impaired bone mineralization, and leads to bone softening diseases, rickets in children and osteomalacia in adults, and possibly contributes to osteoporosis. Research has also indicated that vitamin D deficiency is linked to colon cancer and more recently, to breast cancer. Conflicting evidence links vitamin D deficiency to other forms of cancer.

The major form of Vitamin D, 25OH Vitamin D, has a limited biological activity and is converted in the kidney into $1,25(OH)_2$ Vitamin D a more active derivate. The blood levels of $1,25(OH)_2$ D being 100 to 1000 less than 25OH D, extraction and separation steps are required prior to measurement.

Free 25OH Vitamin D represents the tiny fraction that circulates as the free form. It is considered to be a better biomarker than 25OH Vitamin D in some conditions.

PHYSIOLOGY OF VITAMIN D



Vitamin D related diseases:

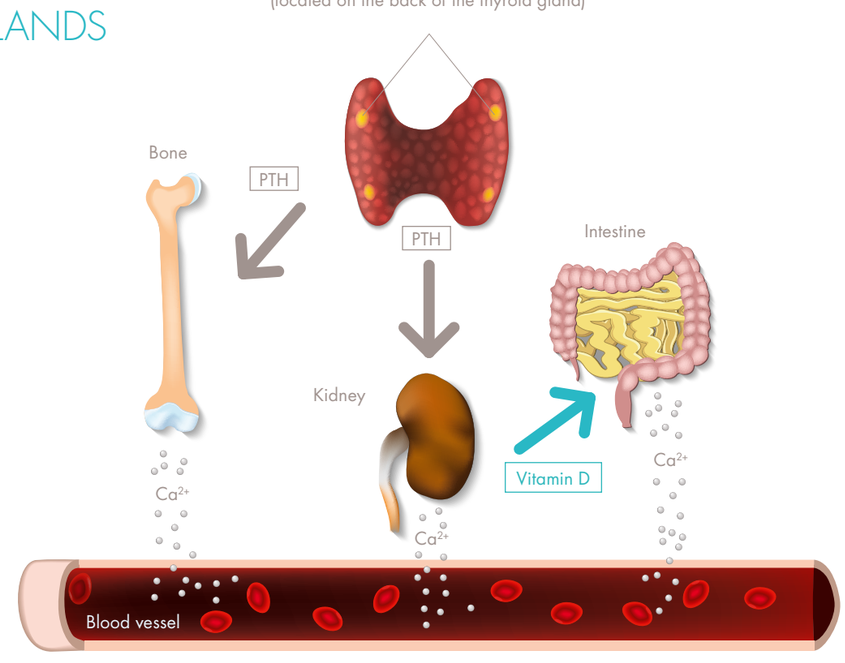
- Rickets in Children
- Osteoporosis, Osteomalacia
- Cancer
- Type II Diabetes
- Auto Immune Diseases
- Parkinson's disease

Patient status	ng/mL of 25(OH) Vit D*
Vit D Deficiency	< 10
Vit D Insufficiency	10 - 30
Vit D Sufficiency	> 30 - 100
Risk for Toxicity	> 100

*Based on a vast majority of clinical studies to define normal circulating 25 OH VIT D levels e.g. US National health and Nutrition Examination Survey (US NHANES-study)

Format	Cat#	Label	Size	Sample type	Sample size (µL)	Control Levels	Range	Sensitivity	Incubation (hours)	Max shelf life (weeks)	Remarks
Osteocalcin											
IRMA	KIP1381	^{125}I	96 T	S - P	50	2	1,9-69 ng/mL	0,22 ng/mL	2	7	
Intact ParaThyroid Hormone (PTH)											
IRMA	KIP1491	^{125}I	96 T	S - P	300	2	7,4-973 pg/mL	4,1 pg/mL	2	7	
1,25(OH)$_2$ Vitamin D											
RIA CT	KIP1929	HRP	48 T	S - P	500	2	0-400 pg/mL	1,4 pg/mL	ON	10	
RIA CT	3019700	set including solvents for 5 kits of 1,25(OH)$_2$ Vitamin D									
RIA CT	4300604	shaker for extraction (IKA Vibrax 1200 RPM)									
RIA CT	4300605	support rack for tubes (to be used with shaker)									
RIA CT	1102496	extra cartridges for extraction in single (1 bag of 20 cartridges)									
25OH Vitamin D3											
RIA CT	KIP1961	^{125}I	96 T	S - HP	100	2	0-130 ng/mL	1,2 ng/mL	2	10	
25OH Vitamin D Total											
RIA CT	KIP1971	^{125}I	96 T	S	25	2	0-100 ng/ml	1.5 ng /ml	3	8	

PARATHYROID GLANDS



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P=Plasma - Pl=Platelets - S=Serum - Sa=Saliva - SF=Synovial Fluid - SP=Seminal Plasma - TH=Tissue Homogenate - U=Urine - UD=Ultra-dialysates

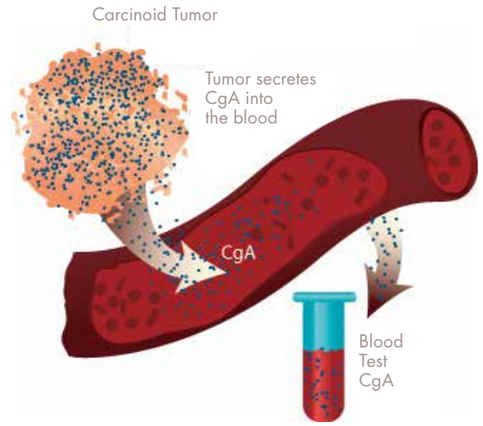
CANCER MARKERS

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.

MEASUREMENTS OF TUMOR MARKER LEVELS BY SERUM MARKERS CAN BE USEFUL IN FOLLOWING CLINICAL SETTINGS

Diagnosis

Serum tumor markers can, when used along with X-rays or other tests, aid in diagnosis of some types of cancer. They also can aid in locating the source of cancers that have metastasized.



Monitoring for recurrence of tumors

After successful treatment of a cancer patient, tumor marker(s) are regularly tested to indicate whether there is a recurrence of the cancer.

Prognosis and staging

Serum tumor markers can be used as aid in the tumor volume estimation, as a helpful tool to indicate tumor progression, or as indicator of metastasis involvement.

Detection of residual disease

After surgery of a specific cancer, serum tumor markers can be used to indicate whether the entire tumor burden has been successfully removed.

Monitoring treatment

Serum tumor markers can be used as tools to assess the outcome of treatment by monitoring a patient's response to a specific or various treatment regimens. In general, serum marker levels will drop if treatment is beneficial and will remain elevated or increased when treatment is not effective. Currently, the main use of tumor markers is to assess a cancer's response to treatment and to check for recurrence.

Cancer marker	Clinical use
AFP (Alpha-Fetoprotein)	Testicular Cancer, Ovarian cancer, Malignant teratoma
CA 125	Ovarian cancer, Endometrial cancer
CA 15-3	Breast cancer
CA 19-9	Pancreatic cancer, Colorectal
CEA (Carcino Embryonic Antigen)	Colorectal, lung and breast cancers
CgA (Chromogranin A)	Small Cell Lung Carcinoma (SCLC) Tumors of neuroendocrine origin
CT us (Calcitonin Ultra sensitive)	Medullary Thyroid carcinoma (MTC)
Gastrin	Gastrin producing tumors
Beta-hCG (Free beta human Chorionic Gonadotropin)	Throphoblastic and testicular cancers
NSE (Neuron Specific Enolase)	Medullary thyroid carcinoma Pancreatic islet cell cancer Small Cell Lung Cancer (SCLC)
Small Cell Lung Cancer (SCLC)	Tg-S (Thyroglobuline) Thyroid cancer

Format	Cat#	Label	Size	Sample type	Sample size (µL)	Control Levels	Range	Sensitivity	Incubation (hours)	Max shelf life (weeks)	Remarks
Alpha-Fetoprotein (AFP)											
IRMA	KIPB1441	^{125}I	96 T	S	50	2	3-400 IU/mL	0,2 IU/mL	<1	10	1 IU= 1IU 1st IRP 72/225
CA 125											
IRMA	KIP0301	^{125}I	96 T	S	100	2	6,4-569 U/mL	0,7 U/mL	3	11	
CA 15-3											
IRMA	KIP0321	^{125}I	96 T	S	20	2	2,86-331 U/mL	0,33 U/mL	3	11	
CA 19-9											
IRMA	KIP0311	^{125}I	96 T	S	25	2	7,8-1061U/mL	0,7 U/mL	1,5	11	
Calcitonin Ultra Sensitive (CT $_{US}$)											
IRMA	KIP0429	^{125}I	96 T	S	200	2	8-674 pg/mL	0,9 pg/mL	ON	5	1pg= 0,19µIU 2nd IS 89/620
Carcino Embryonic Antigen (CEA)											
IRMA	KIP0331	^{125}I	96 T	S	100	2	2-200 ng/mL	0,17 ng/L	2	9	1 IU= 1IU 1st IRP 73/601
Chromogranin A (CgA)											
RIA	KIPERB321	^{125}I	100 T	S - P	50	2	0,156 - 5 nmol/L	0,04 nmol/L	ON	12	
Gastrin											
RIA	KIPEMD302	^{125}I	100 T	S	100	2	15,6-500 pmol/L	5 pmol/L	1,75	11	
β-hCG Free											
IRMA	KIP1001	^{125}I	96 T	S	50	2	0,29-93 mIU/mL	0,03 mIU/mL	1	9	1 IU= 1IU 3rd IRP 75/551
Neuron Specific Enolase (NSE)											
IRMA	KIP2471	^{125}I	96 T	S	50	2	2,5 -270 ng/mL	0,19 ng/mL	2	11	
Prostate Specific Antigen (PSA)											
IRMA	RVRK-10CT	^{125}I	96 T	S	100	1	0,1-80 ng/mL	0,004 ng/mL	2	8	
Free Prostate Specific Antigen (Free PSA)											
IRMA	RVRK-85CT	^{125}I	96 T	S	100	1	0,1-100 ng/mL	0,047 ng/mL	2	8	
Thyroglobulin (Tg- S)											
IRMA Normal	RVR-CM-100	^{125}I	100 T	S	50	1	1,5-600 ng/mL	0,3 ng/mL	20-26	8	not distributed in Belgium and Germany
IRMA Sensitive	RVR-CM-100	^{125}I	100 T	S - P	100	1	0,75-600 ng/mL	0,10 ng/mL	20-26	8	

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CARDIOVASCULAR & SALT BALANCE

THE RENIN-ANGIOTENSIN SYSTEM (RAS) OR THE RENIN-ANGIOTENSIN-ALDOSTERONE SYSTEM (RAAS)

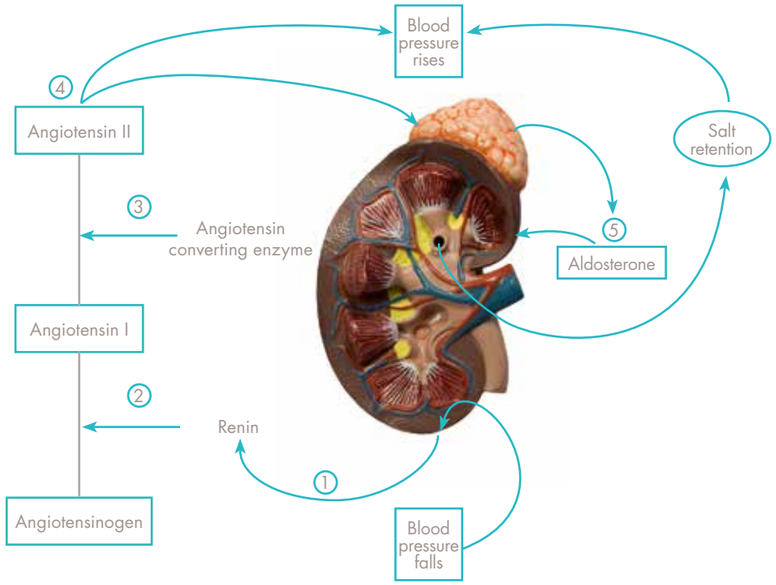
(RAAS) is a hormone system that regulates blood pressure and water (fluid) balance. Renin activates the renin-angiotensin system by cleaving angiotensinogen, produced by the liver, to yield angiotensin I, which is further converted into Angiotensin II by ACE (Angiotension Converting Enzyme). The most important site for Renin release is the kidney.

Angiotensin also stimulates the secretion of the hormone **Aldosterone** from the adrenal cortex. Aldosterone causes the tubules of the kidneys to retain sodium and water. This increases the volume of fluid in the body, which also increases blood pressure. If the renin-angiotensin-aldosterone system is too active, blood pressure will be too high. Angiotensin II also stimulates the release of vasopressin (antidiuretic hormone, ADH) from the pituitary which acts upon the kidneys to increase fluid retention.

VASOPRESSIN (ADH)

Also known as Arginine vasopressin (AVP), vasopressin, argipressin or antidiuretic hormone (ADH), is a cyclic nanopeptide with a molecular weight of 1083 Daltons. Most of it is stored in the posterior pituitary to be released into the blood stream; however, a part of it is also released directly into the brain.

One of the most important roles of Vasopressin is to regulate the body's retention of water: when the body is dehydrated. Vasopressin is released causing the kidneys to conserve water, thus concentrating the urine, and reducing urine volume. It also involved in the blood circulation because it increases the resistance of the peripheral vessels and thus increases arterial blood pressure. Vasopressin released within the brain has many actions. It is suggested that ADH has been implicated in memory formation, including delayed re-flexes, image, short- and long-term memory.



ADRENOCORTICOTROPIC HORMONE (ACTH)

Is released intermittently from the anterior pituitary (adenohypophysis). ACTH circulates in plasma without any obvious binding to transporting peptide and, like other small protein hormones, disappears rapidly from blood with a half-life of 5 to 10 minutes in vivo. The production of ACTH by the pituitary is primarily under the influence of three factors: the level of cortisol-like steroids, a biologic clock, and stress. When the cortisol level increases, the production of ACTH decreases, due to a negative feed-back control.

Associated medical conditions are: Addison's disease, Cushing's syndrome, Congenital Adrenal hyperplasia.

CORTISOL BINDING GLOBULIN (CBG) OR TRANSCORTIN

A plasma α1-glycoprotein with a molecular weight of approximately 52000 Daltons. Since the plasma concentration of transcortin varies between 0.4 and 2.5 10^{-6} M, the major fraction of cortisol in plasma is bound to this protein. This transcortin-bound cortisol is considered to be biologically inactive, whereas the unbound cortisol constitutes the active form of cortisol. Transcortin is produced by the liver and is regulated by estrogens. Therefore, plasma transcortin levels increase during pregnancy, and are decreased in cirrhosis cases.

FETUIN

A glycoprotein present in the circulation and synthesized by hepatocytes. It is the most important and major calcification regulating protein in the circulation. Fetuins are blood proteins, which are made in the liver and transferred into the blood stream. They belong to a large group of binding proteins mediating the transport and availability of a wide variety of cargo substances in the blood stream (e.g. Serum Albumin). The function of inhibiting soft tissue calcification is achieved by forming a soluble colloidal microsphere of fetuin-calcium-phosphate complex in the bloodstream.

11-DESOXYCORTISOL (OR CORTODOXONE)

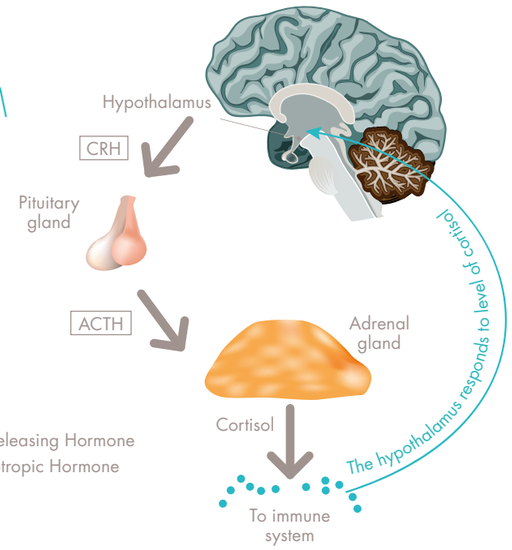
Is a steroid, and an immediate precursor to the production of cortisol. It can be synthesized from 17-hydroxyprogesterone.

Used clinically in:

a) the diagnosis, and monitoring therapeutic response in, congenital adrenal hyperplasia due to 11b-hydroxylase deficiency

b) the assessment of adrenal response to in the metyrapone test.

STRESS REPONSE SYSTEM



CRH: Corticotropin Releasing Hormone
ACTH: Adrenocorticotropic Hormone

Format	Cat#	Label	Size	Sample type	Sample size (µL)	Control Levels	Range	Sensitivity	Incubation (hours)	Max shelf life (weeks)	Remarks
Adrenocorticotropic Hormone (ACTH)											
IRMA	KIP0061	^{125}I	96 T	EP	200	2	9,6-1932 pg/mL	1,16 pg/mL	3	7	1pg=1pg of NIBSC 74/555
Aldosterone											
RIA CT	RVR-CW-100	^{125}I	100 T	S - U	200 - 5	2	25-1500 pg/mL	1,4 pg/mL	ON or 3	8	not distributed in Belgium and Germany
Angiotensin I											
RIA	KIPB3518	^{125}I	100 T	P	100	2	0,30-30.0 ng/mL	0,07 ng/mL	2	8	
Angiotensin II											
RIA	KIPERB320	^{125}I	100 T	P	400	2	4,7-150 pmol/L	2 pmol/L	ON	11	
Corticosteroid Binding Globulin (CBG)											
RIA CT	KIP1809	^{125}I	96 T	S	100	2	0,44-8 µg/mL	0,26 µg/mL	2,5	7	
Cortisol*											
RIA CT	KIPI28000	^{125}I	96 T	S - P - U Sa	25 µL 200 µL	2	17-450 µg/L 0,9-45 µg/L	0,9 µg/L 0,53 µg/L	0,75 2	12	
11-Desoxycortisol											
RIA CT	KIPI20000	^{125}I	96 T	S	25	2	0,3-65 ng/mL	0,04 ng/mL	2,5	12	
Renin (Active)											
IRMA	KIP1531	^{125}I	96 T	EP	300	2	4-520 pg/mL	0,78 pg/mL	3	6	
Renin Plasma Activity											
RIA	RVR-EX-125	^{125}I	125 T	EP	100	2	0,2-25 ng/mL	0,033 ng/mL	ON	7	not distributed in Belgium and Germany
Vasoactive Intestinal Peptide											
RIA	RVRB311	^{125}I	100 T	EP	200	2	3,8-120 pmol/L	3 pmol/L	48	11	not distributed in Italy, France and Germany
Vasopressin											
RIA	KIPERB319	^{125}I	100 T	P - U	1000	2	1,9-60 pmol/L	0,5 pmol/L	48	11	

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DIABETES & METABOLISM

DIABETES MELLITUS

Is a disorder of carbohydrate metabolism. It is a disease characterized by persistent hyper-glycemia (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 as 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

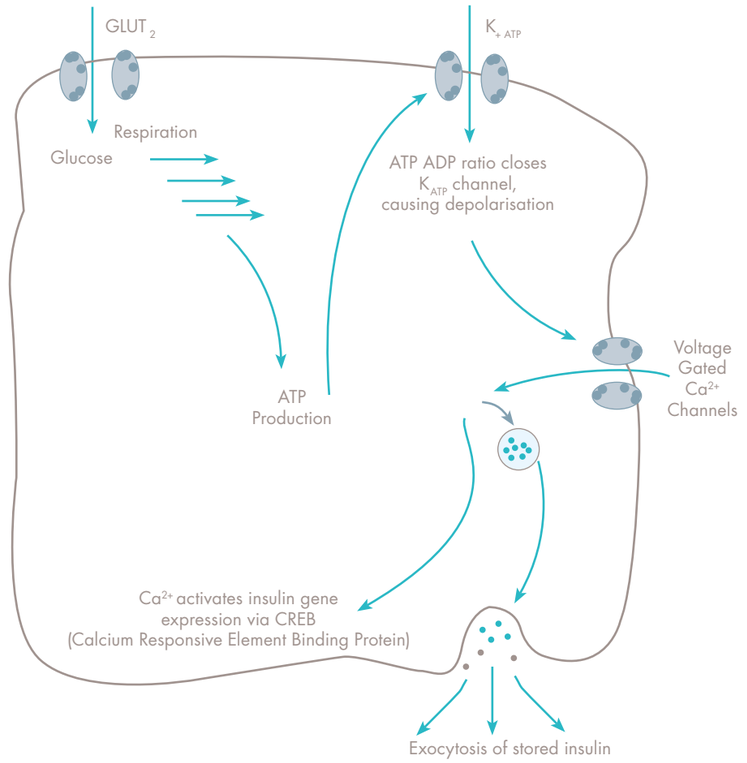
Type 2 may progress to destruction of the insulin producing cells of the pancreas, but is still considered as Type 2, even though insulin administration may be required.

Since insulin is the principal hormone that regulates uptake of glucose into most cells from the blood (primarily muscle and fat cells, but not central nervous system cells), deficiency of insulin or the insensitivity of its receptors play a central role in all forms of diabetes mellitus. Diabetes is a chronic disease, and emphasis is on managing short-term as well as long-term diabetes-related problems. There is an important need for patient education, nutritional support, self glucose monitoring, as well as long-term glycemic control.

OBESITY

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 diseases, diabetes mellitus Type 2, sleep apnea, and osteoarthritis. Obesity is an individual clinical condition that is increasingly viewed as a serious public health problem.



Format	Cat#	Label	Size	Sample type	Sample size (µL)	Control Levels	Range	Sensitivity	Incubation (hours)	Max shelf life (weeks)	Remarks
Anti-GAD$_{65}$											
RIA	KIPM2071	^{125}I	50 T	S	20	2	0 - 120 U/ml	0,7 U/ml	3,5	5,5	
RIA	KIPM2070	^{125}I	100 T	S	20	2	0 - 120 U/ml	0,7 U/ml	3,5	5,5	
Anti-A2											
RIA	KIPM2050	^{125}I	50 T	S	20	2	0 - 60 U/ml	0,8 U/ml	ON	5,5	
Anti Insulin Antibodies (AIA)											
RIA	KIP0091	^{125}I	100 T	S - P	100	3	0-100 %	< 8,2%	2,25	8	
C-Peptide (C-PEP)											
RIA CT	KIP0409	^{125}I	96 T	S	100	2	0,09-9,94 pmol/mL	0,04 pmol/mL	3	8	1ng= 1ng of the NIBSC 84/510
Glucagon											
RIA	RV07-152101	^{125}I	125 T	S	200	2	25-2000 pg/mL	14,5 pg/mL	ON	5	
RIA	RVRB310	^{125}I	100 T	S	200	2	4,7-150 pmol/L	3 pmol/L	48	11	not distributed in Italy, France and Germany
IAA											
RIA	KIPM2035	^{125}I	100 T	S	20	2	0 - 50 U/ml	0,2 U/ml	ON	4,5	
Insulin (INS)											
IRMA	KIP1251*	^{125}I	96 T	P	50	2	5,7-440 µIU/mL	1 µIU/mL	2	10	1 µIU= 1µIU 2nd IRP 66/304
IRMA	KIP1254	^{125}I	384 T	P	50	2	5,7-440 µIU/mL	1 µIU/mL	2	10	1 µIU= 1µIU 2nd IRP 66/304
Leptin											
RIA CT	KIPMR44	^{125}I	125 T	S - P	25	1	1-64 ng/mL	0,1 ng/mL	15	15	
Pancreatic Polypeptide											
RIA CT	RVRB316	^{125}I	100 T	S	100	2	6,25-200 pmol/L	3 pmol/L	48	11	not distributed in Italy, France and Germany
Neuropeptide Y											
RIA CT	RVRB317	^{125}I	100 T	S - P	200	2	9,4-300 pmol/L	3 pmol/L	48	11	not distributed in Italy, France and Germany

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FERTILITY

In order to understand the causes of infertility and the role that 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 implied in those processes.

The gonadotropins are hormones that primarily affect the ovaries and the testes. They regulate the development and hormone-secreting functions of these organs.

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 implantation, 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 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.

DEHYDROEPIANDROSTERONE (DHEA)

A steroid hormone produced in the adrenal cortex from cholesterol. It is the primary precursor of natural estrogens.

ANDROSTENEDIONE

An androgenic steroid produced by the testes, adrenal cortex, and ovaries. While androstenedione is converted metabolically into testosterone and other androgens, they are also the parent structure of estrone.

ANDROSTENEDIOL AND ANDROSTANEDIOLGLUCURONIDE

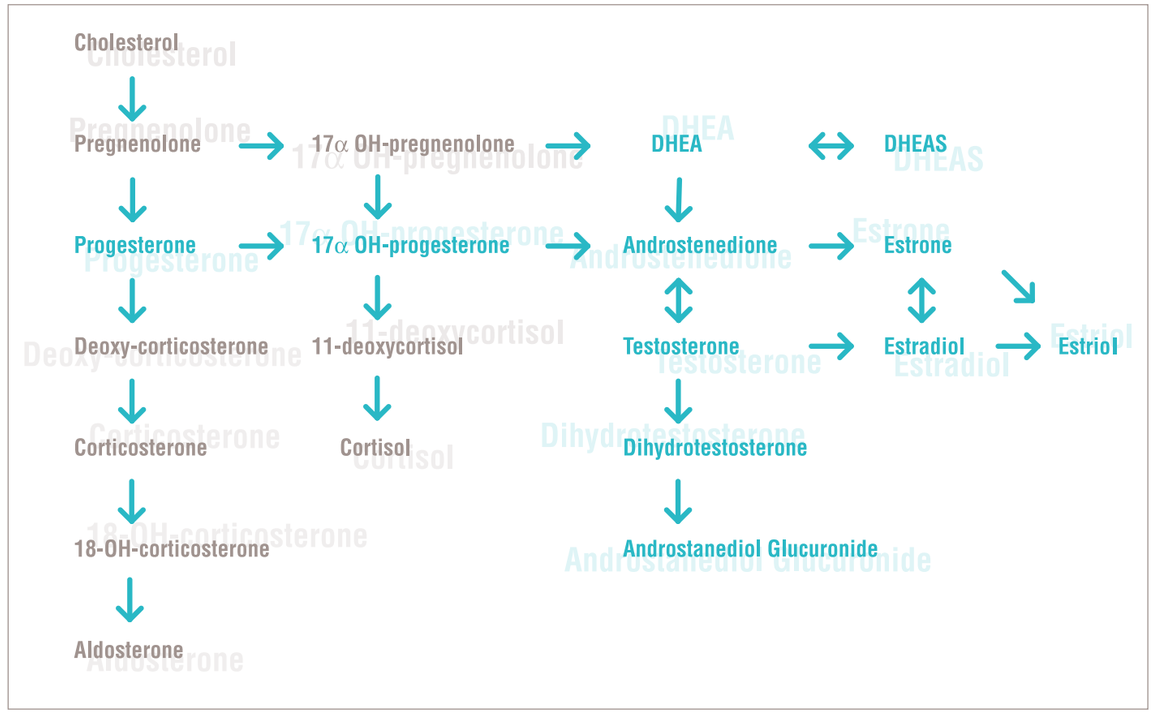
Steroid metabolites that are thought to act as the main regulators of gonadotropin secretion.

ANDROSTERONE

A chemical by-product created during the breakdown of androgens, or derived from progesterone, that also exerts minor masculinising effects, but with one-seventh the intensity of testosterone. It is found in approximately equal amounts in the plasma and urine of both males and females.

DIHYDROTESTOSTERONE (DHT)

A metabolite of testosterone, and a more potent androgen than testosterone that binds more strongly to androgen receptors. It is produced in the adrenal cortex.



Format	Cat#	Label	Size	Sample type	Sample size (µL)	Control Levels	Range	Sensitivity	Incubation (hours)	Max shelf life (weeks)	Remarks
Androstane Diol Glucuronide RIA CT											
RIA CT	KIP0151	^{125}I	96 T	S - P	100	2	0,2-75 ng/mL	0,05 ng/mL	2	10	
Androstenedione*											
RIA CT	KIP0451	^{125}I	96 T	S - P	25	2	0,1-11 ng/mL	0,03 ng/mL	1	10	
Dehydroepiandrosterone- Sulfate (DHEA-S)											
RIA CT	KIP0481	^{125}I	96 T	S	20	2	1,6-800 µg/dL	0,59 µg/dL	1	10	
Dehydroepiandrosterone (DHEA)											
RIA	KIPB1138	^{125}I	100 T	S - P	300		0-35 ng/ml	0.3 ng /ml	1	8	

Format	Cat#	Label	Size	Sample type	Sample size (µL)	Control Levels	Range	Sensitivity	Incubation (hours)	Max shelf life (weeks)	Remarks
Estradiol, 17β (E2)*											
RIA CT	KIP0629	^{125}I	96 T	S	50	2	9-3900 pg/mL	2,7 pg/mL	3	10	
Estrone (E1)											
RIA CT	KIPI9100	^{125}I	96 T	S - P	100	2	12,5-750 pg/mL	3,2 pg/mL	2	12	
Total Estrogens											
RIA	RV07-140202	^{125}I	100 T	S - P	600		5-200 pg/mL		3,5	8	
Follicle Stimulating Hormone (FSH)*											
IRMA	KIP0841	^{125}I	96 T	S - P	100	2	0,7-152 mIU/mL	0,1 mIU/mL	1	9	1 mIU= 1mIU of the 1st IS 92/510
Chorionic Gonadotropin + β (hCG+β)											
IRMA	KIP0981	^{125}I	96 T	S - P	50	2	4,5-570 mIU/mL	1,6 mIU/mL	0,5	7	
Luteinizing Hormone (LH)*											
IRMA	KIP1311	^{125}I	96 T	S	100	2	1,8-194 mIU/mL	0,2 mIU/mL	1	9	1 mIU= 1mIU of the 2nd NIBSC 80/552
Progesterone (PROG)*											
RIA CT	KIP1458	^{125}I	96 T	S	50	2	0,23-40 ng/mL	0,05 ng/mL	2	10	
Progesterone, 17 α Hydroxy- (17-OHP)*											
RIA CT	KIP1409	^{125}I	96 T	S - P	25	2	0,15-11,1 ng/mL	0,03 ng/mL	3	10	
Prolactin (PRL)											
IRMA	KIP1441	^{125}I	96 T	S - P	25	2	2,8-133 ng/mL	0,35 ng/mL	2	9	1 ng=29 µIU of the 3rd NIBSC 84/500
Sex Hormone Binding Globulin (SHBG)											
IRMA	RVR-CC-100	^{125}I	100 T	S	20	1	10-250 nmol/L	0,26 nmol/L	1,5	8	not distributed in Belgium and Germany
Testosterone*											
RIA CT	KIP1709	^{125}I	96 T	S	50	2	0,11-16,4 ng/mL	0,05 ng/mL	3	10	
Testosterone, Free*											
RIA CT	KIPI19000	^{125}I	96 T	S	50	2	0,25-65 pg/mL	0,13 pg/mL	2	11	
Testosterone, 5 α Dihydro (DHT)											
RIA CT	KIPI9900	^{125}I	100 T	S - P	300	2	25-2500 pg/mL	20 pg/mL	1,50	12	

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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 (GH OR SOMATOTROPIN)

Is a polypeptide hormone synthesised and secreted by the anterior pituitary gland which stimulates growth and cell reproduction in humans and other vertebrate animals.

The diseases resulting of GH excess are pituitary tumor, muscle weakness, insulin resistance or even a rare form of Type 2 diabetes, and reduced sexual function. GH deficiency induces growth failure and short stature in children while in adults, it may induce deficiencies of strength, energy, and bone mass, as well as increased cardiovascular risks.

THE INSULIN-LIKE GROWTH FACTORS (IGFs)

Are polypeptides with high sequence similarity to insulin. IGFs are part of a complex system that cells use to communicate with their physiologic environment. This complex system (often referred to as the IGF "axis") consists of two cell-surface receptors (IGF1R and IGF2R), two ligands (IGF-I and IGF-II), a family of six high-affinity IGF binding proteins (IGFBP 1-6), as well as associated IGFBP degrading enzymes, referred collectively as proteases.

IGF-1 and **IGF-II** are regulated by a family of proteins known as the IGF-Binding Proteins.

These proteins help to modulate IGF action in complex ways that involve both inhibiting IGF action by preventing binding to the IGF-1 receptor as well as promoting IGF action possibly through aiding in delivery to the receptor and increasing IGF half-life.

SOMATOSTATIN

Is a hormone comprising two peptides, one of 14 amino acids, the other of 28 amino acids. Somatostatin is secreted not only by cells of the hypothalamus but also by delta cells of stomach, intestine, and pancreas. It binds to somatostatin receptors. It is classified as an inhibitory hormone whose main action is to inhibit the release of growth hormone.

INSULIN-LIKE GROWTH FACTOR BINDING PROTEINS (IGFBP)

Group of vertebrate secreted proteins, which bind to IGF-I and IGF-II with high affinity and modulate the biological actions of IGFs. The IGFBP family has six distinct subgroups, IGFBP-1 to 6, based on conservation of gene (intron-exon) organization, structural similarity, and binding affinity for IGFs.

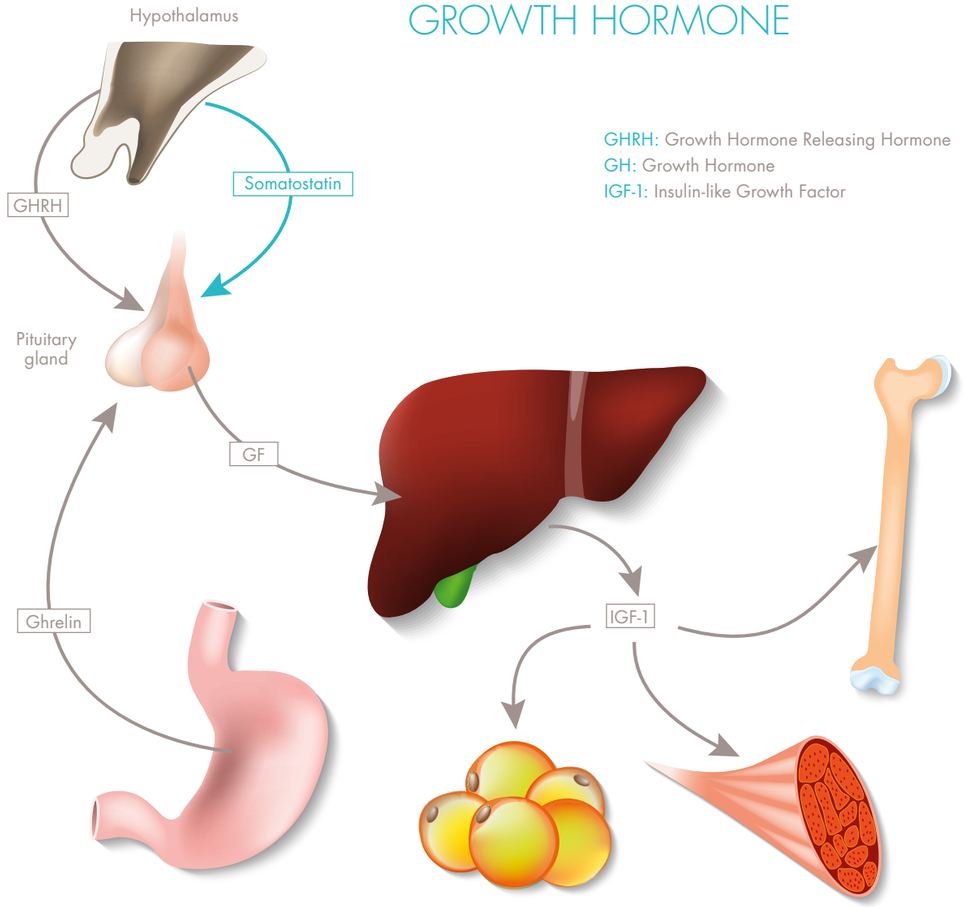
IGFBP-3

Forms a ternary complex with insulin-like growth factor acid-labile subunit (IGFALS) and either insulin-like growth factor (IGF) I or II. In this form, it circulates in the plasma, prolonging the half-life of IGFs and altering their interaction with cell surface receptors. A single IGFBP-3 determination is an excellent screening parameter for GHD. IGFBP-3 is a good parameter for monitoring the therapeutic efficacy in both GHD an acromegaly.

THE IGFBP-2 CONCENTRATION IS AGE-DEPENDENT IN BLOOD

Normal values for healthy individuals (1.5 to > 70 years) were evaluated for this assay. Supplementary parameter to IGFBP-3 in the diagnosis of growth disorders (IGFBP-2/IGFBP-3 ratio), IGFBP-2 is an inhibitor of growth hormone action. Progression-dependent tumor marker in leukaemia, astrocystic CNS tumors, prostate, suprarenal cortex-, hepatocellular and other carcinomas. Anti-aging parameter: IGFBP-2 as a marker of physiological functionality.

GROWTH HORMONE



GHRH: Growth Hormone Releasing Hormone
GH: Growth Hormone
IGF-1: Insulin-like Growth Factor

Format	Cat#	Label	Size	Sample type	Sample size (µL)	Control Levels	Range	Sensitivity	Incubation (hours)	Max shelf life (weeks)	Remarks
Human Growth Hormone (hGH)											
IRMA	KIP1081	^{125}I	96 T	S	50	2	1-120 µIU/mL	0,2 µIU/mL	2	9	1 µIU= 1µIU NIBSC 98/574
IRMA (Urinary)	KIP1131	^{125}I	25 T	U	10 mL	2	1,65-215 ng/L	0,42 ng/L	ON X 2	9	
	43.006.04	Vial shaker (IKA Vibrax 300 rpm)									
	43.006.06	Vial extraction insert for urinary hGH									
Insulin Growth Factor-1 or Somatomedin C (IGF-1 or SM-C)											
RIA CT	KIP1588	^{125}I	96 T	S	50	2	33-1529 ng/mL	3,41 ng/mL	2,5	6	1 ng = 1ng NIBSC 1st IRR 87/518
SMC RIA CT	KIP1589	^{125}I	96 T	S - P	100	2	17,5-1750 ng/mL	8,75 ng/mL	ON	6	1ng= 1mIU NIBSC 91/554
Insulin Growth Factor-2 or Somatomedin A (IGF-2 or SM-A)											
RIA	KIPMR30*	^{125}I	100 T	S - P	100	2	0,4-50 ng/mL	0,1 ng/mL	ON X 2	12	
Insulin Growth Factor Binding Protein-3 (IGFBP-3)											
IRMA	KIP1171	^{125}I	96 T	S	10	2	380-13395 ng/mL	17,3 ng/mL	2	12	
Somatostatin											
RIA	KIPERB306*	^{125}I	100 T	P	1000	2	3,9-125 pmol/L	6 pmol/L	ON X 2	11	

*For Research Use Only
AF=Amiotic Fluid - CP=Citrate Plasma - CSF=Cerebrospinal Fluid - EP=EDTA Plasma - F=Feces - HP=Heparin Plasma - HS=High Sensitive - IVD=In Vitro Diagnostics - ON=Over night
P=Plasma - Pl=Platelets - S=Serum - Sa=Saliva - SF=Synovial Fluid - SP=Seminal Plasma - TH=Tissue Homogenate - U=Urine - UD=Ultra-dialysates

MISCELLANEOUS

Format	Cat#	Label	Size	Sample type	Sample size (µL)	Control Levels	Range	Sensitivity	Incubation (hours)	Max shelf life (weeks)	Remarks
Cyclosporine											
RIA	KIPB3679	^{125}I	100 T	EDTA Whole Blood	20	2	0-2500 ng/mL	1,61 ng/mL	1 RT Shaking	8	
Ferritin IRMA											
RIA CT	KIPB3492	^{125}I	100 T	S - P	20	2	0-884 ng/ml	0.,39 ng/ml	1	7	
Trypsin											
RIA	KIPCE07	^{125}I	100 T	S	100	1	0-1200 ng/ml	8 ng/ml	< 4h RT	7	
α - Melanocyte Stimulating Hormone											
RIA	RVRB303	^{125}I	100 T	EP	100	2	4,7-150 pmol/L	3 pmol/L	48	11	not distributed in Belgium and Germany

THYROID FUNCTION

Measurement of Serum Thyroid Hormones T4/FT4 is the most used thyroid test of all.

The T4 reflects the amount of thyroxine in the blood. If the patient does not take any type of thyroid medication, this test is usually a good measure of thyroid function.

MEASUREMENT OF SERUM THYROID HORMONES T3/FT3

Thyroxine (T4) represents 80% of the thyroid hormone produced by the normal gland and generally represents the overall function of the gland. The body normally produces antibodies to foreign substances such as bacteria; however, some people are found to have antibodies against their own thyroid tissue. The other 20% is triiodothyronine measured as T3. Sometimes the diseased thyroid gland will start producing very high levels of T3 but still produce normal levels of T4. Therefore measurement of both hormones provides an even more accurate evaluation of thyroid function.

THYROID BINDING GLOBULIN (TBG)

Most of the thyroid hormones in the blood are attached to a protein called thyroid binding globulin (TBG). If there is an excess or deficiency of this protein, it alters the T4 or T3 measurement but does not affect the action of the hormone. If a patient appears to have normal thyroid function, but an unexplained high or low T4, or T3, it may be due to an increase or decrease of TBG. Direct measurement of TBG can be done and will explain the abnormal value.

Excess TBG or low levels of TBG are found in some families as an hereditary trait. It causes no problem except falsely elevating or lowering the T4 level. These people are frequently misdiagnosed as being hyperthyroid or hypothyroid, but they have no thyroid problem and need no treatment.

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/FT3 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.

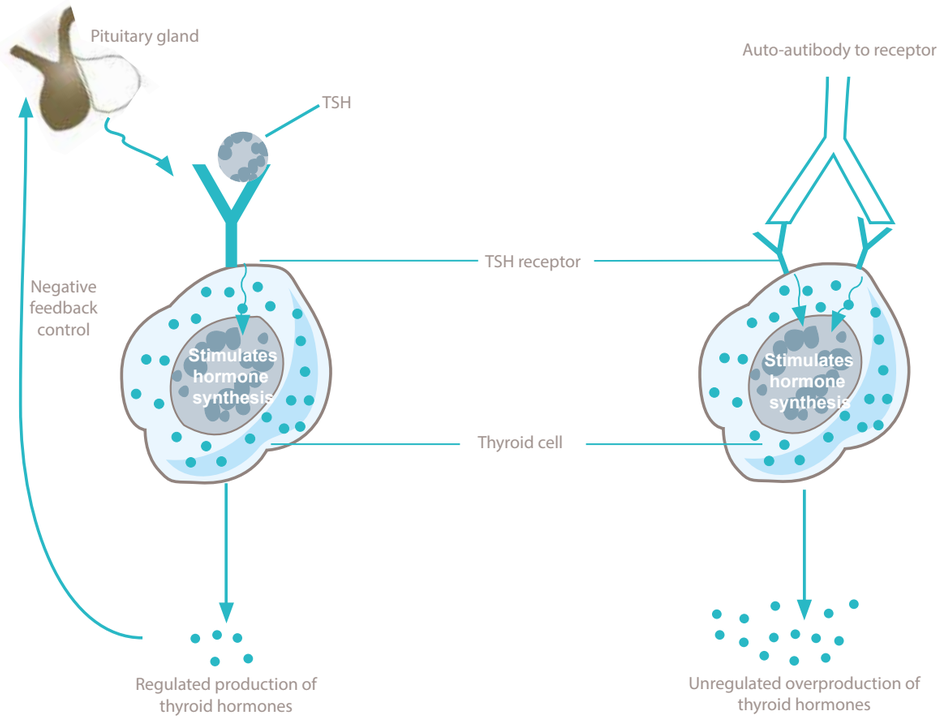
The new "sensitive" TSH test will show very low levels of TSH when the thyroid is overactive (as a normal response of the pituitary to try to decrease thyroid stimulation). Interpretations of the TSH level depends upon the level of thyroid hormone; therefore, the TSH is usually used in combination with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

THYROID ANTIBODIES

The body normally produces antibodies against foreign substances such as bacteria; however, some people are found to have antibodies against their own thyroid tissue.

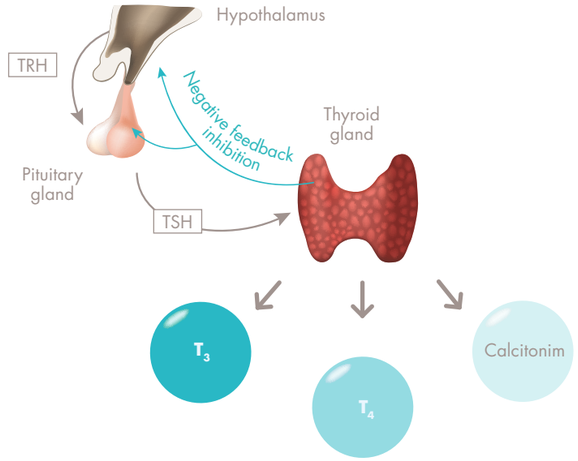
A condition known as Hashimoto's Thyroiditis is associated with a high level of these thyroid antibodies in the blood. Whether the antibodies cause the disease or whether the disease causes the antibodies is not known; however, the finding of a high level of thyroid antibodies is strong evidence of this disease. Occasionally, low levels of thyroid antibodies are found with other types of thyroid disease. When Hashimoto's thyroiditis presents as a thyroid nodule rather than a diffuse goiter, the thyroid antibodies may not be present.

STIMULATING AUTO-ANTIBODIES (GRAVES' DISEASE)



Thyroid Antibody	Acronym	Present in
Thyroid peroxidase antibody	TPOAb	Hashimoto's thyroiditis; Graves' disease
Thyroglobulin antibody	TgAb	Thyroid cancer; Hashimoto's thyroiditis
Thyroid stimulating hormone receptor antibody	TRAb	Graves' disease

THYROID HORMONES



TRH: Thyroid Releasing Hormone
TSH: Thyroid Simulating Hormone
T_3: Triidothyronine hormone
T_4: Thyroxine hormone

Format	Cat#	Label	Size	Sample type	Sample size (µL)	Control Levels	Range	Sensitivity	Incubation (hours)	Max shelf life (weeks)	Remarks
L-Thyroxine (T4)*											
RIA CT	KIP1641	^{125}I	96 T	S	20	2	12,8-500 nmol/L	< 5 nmol/L	1	10	
Free L-Thyroxine (FT4)*											
RIA CT	KIPB1363	^{125}I	100 T	S	25	1	2.8-75 pmol/L	0,5 pmol/L	2	8	
Triiodo-Thyronine (T3)*											
RIA CT	KIP1631	^{125}I	96 T	S	50	2	0,35-14 nmol/L	0,1 nmol/L	1	10	
Reverse Triiodo-Thyronine (Reverse T3)											
RIA CT	RVR-EW-125	^{125}I	125 T	S	100		0,025- 2 ng/mL	0,009 ngl/mL	4	10	not distributed in Belgium, Germany and Italy
Free Triiodo-Thyronine (FT3)*											
RIA CT	KIPB1579	^{125}I	100 T	S	100	2	2,3- 40 pmol/L	0,5 pmol/L	2	8	
Anti-Thyroglobulin AutoAntibodies (Tg Ab)											
RIA CT	RVR-CI-100	^{125}I	100 T	S	20	2	20-2000 IU/mL	6 IU/mL	1,5	8	not distributed in Belgium, Germany and Italy
Anti-Thyroperoxidase AutoAntibodies (TPO Ab)											
RIA CT	RVR-CO-100	^{125}I	100 T	S	20	2	20-3000 U/mL	1,3 U/mL	1,5	8	not distributed in Belgium and Germany
Thyroid Stimulating Hormone (TSH)*											
RIA CT	KIP1891	^{125}I	96 T	S - P	200	2	0,10-90 µIU/mL	0,025 µIU/mL	2	7	1 µIU= 1µIU NIBSC 80/558
RIA CT	KIP1894	^{125}I	384 T	S - P	200	2	0,10-90 µIU/mL	0,025 µIU/mL	2	7	1 µIU= 1µIU NIBSC 80/558
Anti-TSH Receptors AutoAntibodies (TSH-R Ab)											
RIA CT	RVR-CT-100	^{125}I	100 T	S	50	2	5-405 U/mL	0,8 U/mL	2,5	5,5	not distributed in Belgium and Germany
TSH Rec Ab Human (TRAb)											
RIA CT	KIPM2040	^{125}I	100 T	S	100	1	0 - 50 IU/ml	0,23 IU/ml	3	7,5	

*This product can be sold in Canada
AF=Amiotic Fluid - CP=Citrate Plasma - CSF=Cerebrospinal Fluid - EP=EDTA Plasma - F=Feces - HP=Heparin Plasma - HS=High Sensitive - IVD=In Vitro Diagnostics - ON=Over night P=Plasma - Pl=Platelets - S=Serum - Sa=Saliva - SF=Synovial Fluid - SP=Seminal Plasma - TH=Tissue Homogenate - U=Urine - UD=Ultra-dialysates

RADIOACTIVE DECONTAMINANT SOLUTION

THE NEXT GENERATION OF RADIOACTIVE DECONTAMINANTS

Designed to effectively remove radioactive contamination from your skin, safely and gently.

HIGHLY EFFECTIVE ON ALL NUCLEAR MEDICINE ISOTOPES

Bind-It™ is highly effective on Tc99m, I131, I125, I123 and most nuclear medicine isotopes.

THE TOP 7 REASONS TO USE BIND-IT HAND SOAP AND SPRAY

- Geiger tube based hand monitors have low sensitivity. Your hands must have a pretty high level of contamination before the monitor picks it up.
- Bind-It™ Hand Soap removes contamination every time you wash.
- Bind-It™ Hand Soap will not dry your hands like ordinary lab soap.
- Bind-It™ Hand Soap has a fresh, clean scent.
- Bind-It™ Hand Soap is economical and convenient. Our touch-free, wall mount dispenser makes it easy.
- Bind-It™ spray does not damage syringe shield windows, L-blocks or fume hoods as older generation of decontaminants do.
- Bind-It.™ spray will not corrode metal, plastic or any other surface.

Product Description	Part number for 1 unit	Part number for a box of 12 bottles
Bind-It™ Radioactive Decontamination Concentrate (237ml)	RVLTI004EU-01	RVLTI004EU
Bind-It™ Spray Cleaner - Designed for Nuclear Medicine (946ml)	RVLTI030EU-01	RVLTI030EU
Bind-It™ Hand Soap - Designed for Nuclear Medicine (237ml)	RVLTI046EU-01	RVLTI046EU
Bind-It™ Wall Mount Touch-less Automatic Hand Soap Dispenser	RVLTI049	Non applicable
Bind-It™ Hand Soap - Designed for Nuclear Medicine - Dispenser refills (946ml)	RVLTI047EU-01	RVLTI047EU

CUSTOM DIAGNOSTIC LABORATORY SERVICES & SALES CONDITIONS

ISO 9001 : 2008 AND ISO 13485 : 2003 APPROVED

The scientists at DIAsource have extensive experience in the development of antibodies and related enzymatic or radioactive assays. They can help guide you through each step in the process of purifying, fragmenting, coating and labeling antibodies. High level technicians can be consulted at any time to discuss other services like filling and freeze-drying. We can offer specific and flexible suggestions to enhance the performance of your final product. All services are manufactured under strict ISO-9001 guidelines.

SERVICES AVAILABLE

Coating services

- Coating of polystyrene tubes individually capped: batch size from 30,000 up to 100,000 tubes with your antibodies according to your coating procedure
- Coating of microtiter plates in sealed aluminum bags with your antibodies according to your coating procedure: batch size from 150 up to 900 microtiter plates
- Primary coated tubes with anti-rabbit, anti-sheep or avidin-streptavidin for RIA-IRMA applications
- Primary microtiter plates with anti-rabbit, anti-sheep, or avidin-streptavidin for ELISA applications

Filling services

- From solution preparation to filling, capping and labeling.

Freeze-drying services

- Freeze-dry from 0.25ml up to 15ml in glass vials: batch size up to 27,000 vials for 5ml vials.

Tailored ^{125}I labeling

- Iodization and purification of your antigen (hapten, peptide, protein) either by gel filtration or HPLC.

Mabs fragmentation

- From the antibodies you send us we can produce F(ab')2 fragments on a large scale.

Labeling Services

- Labeling of your antibody or antigen (hapten, peptide) with several markers such as peroxidase, biotin, fluorescent tag or other labels.

Antibody Purification

- Whatever antibody you send us we can purify it by protein-A, protein-G or caprilic acid precipitation and even by affinity chromatography.

GENERAL CONDITIONS OF SALES

Article 1 – Application

Unless there is an explicit deviation agreed upon in writing, the present general terms and conditions apply to every DIAsource offer as well as every contract that is formed on the basis of such an offer or an order confirmed by DIAsource. The client waives explicitly and fully the application of its own general terms and conditions by virtue of its relationship with DIAsource. Contracts that have been concluded through the staff or representatives of DIAsource and that do not observe these general terms and conditions do not bind DIAsource.

Article 2 – Conclusion of the contract

An offer from DIAsource is only binding if it is accompanied by a period of acceptance and only if this period has not yet expired. A client's order can only be considered accepted by DIAsource after DIAsource's express written confirmation of that acceptance. As any order has its own specific characteristics and, therefore, the products ordered by one client cannot be redirected to another client, the client cannot cancel an accepted order whether in full or in part. If the client would cancel an accepted order, it will still have to pay the full price of the relevant order. DIAsource reserves the right to (i) refuse requests for customized orders, or requests for modifications of accepted orders; and/or to (ii) charge such modifications or customizations to the client at the then-prevailing actual cost, with a minimum of 25 EUR (excl. VAT). Without prejudice to the third paragraph of this article 2, an administrative fee of 25 EUR (excl. VAT) will be charged by DIAsource for any order with a value of less than 500 EUR (excl. VAT).

Article 3 – Price and related costs

Unless agreed otherwise in writing, all of DIAsource's set prices apply to packaged products that are delivered Ex Works (in the sense of Incoterms 2010) to the registered seat of DIAsource. The following, on top of the stipulated price, are to be paid by the client, unless there is any explicit written deviation from this rule:

(i) All costs of insurance, security, loading, transport, and unpacking of the products.
(ii) All taxes and levies (including VAT and customs duties) related to the delivered products or the items mentioned under (i), including the taxes and levies that are applied or adapted only after the conclusion of the contract.
(iii) All additional costs for DIAsource that have been incurred as a result of differences in the currency exchange rates that are detrimental to DIAsource. Every cost that is charged for execution of payments must always be borne by the client ultimately.

Article 4 – Payment

Unless agreed on otherwise, (i) if DIAsource sends a pro forma invoice to the client, such pro forma invoice must be paid before the confirmed shipment date and (ii) if DIAsource does not send a pro forma invoice to the client, all invoices should be paid upon receipt. The payment of a (pro forma) invoice may not be refused or postponed for any reason whatsoever. Any late payment will make all debts of the client to DIAsource immediately due upon notification to that effect by DIAsource. An interest on late payment will be charged—ex officio and without notice—on the unpaid balance of all debts of the client to DIAsource which are due and payable, and the rate of it will be equal to the interest rate calculated according to Article 5, paragraph 2 of the Act of 2 August 2002 on combating late payments in commercial transactions, increased by 3.5% per year. On top of this, a compensation of 15% of the unpaid balance will be charged to cover the administrative costs associated with late payments, and this at a minimum of EUR 100 per invoice that is paid late. All of this is without prejudice to (i) the possibility for DIAsource to prove the actual damage it suffered and to demand compensation for it, or (ii) the possibility for DIAsource to suspend the further performance of its obligations under this or any other contract with the client, or apply any other common law sanction.

Article 5 – Reservation of ownership – transfer of risk

The ownership of every sold product only passes to the client after the client has fully paid the price and related costs for this product, as well as the late interest and compensation that would be due by virtue of late payment of this price. Before full payment is made, and unless explicitly agreed otherwise in writing, the client may not alienate the product, encumber it with securities, or transform it or attach it to an immovable property in any way; in that time span, the client will conserve the product safely and have it insured; it will also conserve it in a way it can be identified individually, with a legible and visible mark on it, explicitly confirming that it is property of DIAsource. The risk of loss, destruction, or damage to the product (also if caused by force majeure) will nevertheless pass to the client as soon as the product is delivered to the client.

Article 6 – Delivery Period

Every agreed upon delivery term is only (and is to be considered) indicative. Not observing this term does not entitle the client to any remedy, unless the parties agree explicitly in writing that the delivery term is binding (in that event, not observing the delivery term can only give way to indemnification for the damage that is actual, proven, and established in such a way that both parties are able to submit observations, or to the termination of the sale, any of which can only be sought at the earliest 1 month from the date of a notice demanding delivery).

Article 7 – Hardship

If, beyond the will of DIAsource, unforeseen circumstances (e.g., strike, accidents, weather conditions, material defects, etc.) materialize in the procurement-, production-, distribution- or any other necessary type of process that make the delivery or timely delivery or the performance of any other obligation impossible (or strongly impede this), then DIAsource, depending on the nature of the circumstances, has the right to terminate the contract or suspend the performance of its obligations. DIAsource will not incur any liability if this occurs.

Article 8 – Complaints

Complaints regarding visible defects or non-conformity are only admissible if (i) the product has not been used yet, and (ii) the complaint is in writing and is sent to the commercial services department of DIAsource in Louvain-La-Neuve no later than 3 working days from the date of delivery. After that, the products will irrefutably be considered accepted.

Article 9 – Liability/Security

DIAsource will only be liable for hidden defects if the client notifies DIAsource thereof by registered letter within 7 business days after such hidden defects are discovered by the client. This term is to be considered a term unable to be suspended or reset ("délai de déchéance" / "vervaltermijn"). In that event, the client will not be entitled to claim the dissolution of the sale of the relevant product, and DIAsource will only be liable for (i) the decrease in value of the product, and, to the extent DIAsource can be held liable for it, and (ii) the additional damage suffered by the client, it being understood that the client bears the burden of proof. This indemnity (i & ii) will in any event be limited to the price paid by the client for the relevant product. The client must conform strictly with the directives regarding the good distribution practices (GDP) applicable to medical devices marked 'CE'. The client must use the products in a professional way and in accordance with the instructions of DIAsource. The client must inform DIAsource immediately of any dysfunction or any alteration of the properties and/or performances of the product he has bought from DIAsource. If the products are resold by the client to a third party outside of Belgium, the client must provide all documents and necessary instructions to that third party in the language(s) of the country of destination. DIAsource must only accept returned goods to the extent that they are the subject of a complaint which DIAsource has declared admissible and well-founded.

Article 10 – Netting in case of insolvency of the client

In case the client is declared bankrupt, or in case any other insolvency or insolvency-like procedure is initiated in respect of the client, any amounts reciprocally due by and between DIAsource and the client shall be netted automatically and by force of law on the date of the opening of the insolvency procedure, regardless of whether such amounts are already due or determined ("vaststaand"/"liquide") on the date of the opening of the insolvency procedure, and even if they are not entirely certain.

Article 11 – No assignment

The client may not assign its rights and obligations against DIAsource to any third party (through a sale, a capital contribution, a donation or any other transaction, including the sale or contribution of a division ("bedrijfstak"/"branche d'activité") or of a business as a whole ("algemeenheid/ "universalité"), or a merger, spin-off, split-up or other corporate restructuring) without the prior written consent of DIAsource.

Article 12 – Applicable law and competent court

Belgian law applies to all agreements to which the present general terms and conditions apply, but with the exclusion of the application of Belgian private international law and the Convention on the International Sale of Goods of Vienna dated 11 April 1980 (except for the Convention on the Limitation Period in the International Sale of Goods of 14 June 1974, whose application remains). The courts of Walloon Brabant, Belgium are exclusively competent to hear all disputes arising out of or in connection with contracts concluded by DIAsource (including the pre-contractual disputes) to which the present general terms and conditions apply.

Article 13 – Discrepancies between language versions

The present general terms and conditions have been drafted in Dutch, English, French and Spanish. In case of discrepancies between the different language versions, the French version will prevail.

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IMMUNOASSAYS

- Auto-Immunity
- Biogenic Amines
- Bone Metabolism
- Cancer Markers
- Cardiovascular & Salt Balance
- Diabetes & Metabolism
- Fertility
- Gastrointestinal Metabolism
- Growth Factors
- Immunology Markers
- Infectious Diseases
- Thyroid Function

INSTRUMENTS

- Automated System for ELISA & RIA
- Automated Processor for DOT Technology "Auto-Immunity"
- ELISA Instruments

ANTIBODIES

- Bone Metabolism
- Cancer Markers
- Cardiovascular & Salt Balance
- Diabetes & Metabolism
- Fertility
- Growth Factors
- Thyroid Function

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www.diasource-diagnostics.com

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