

**Selected**

**Immunoassays.**





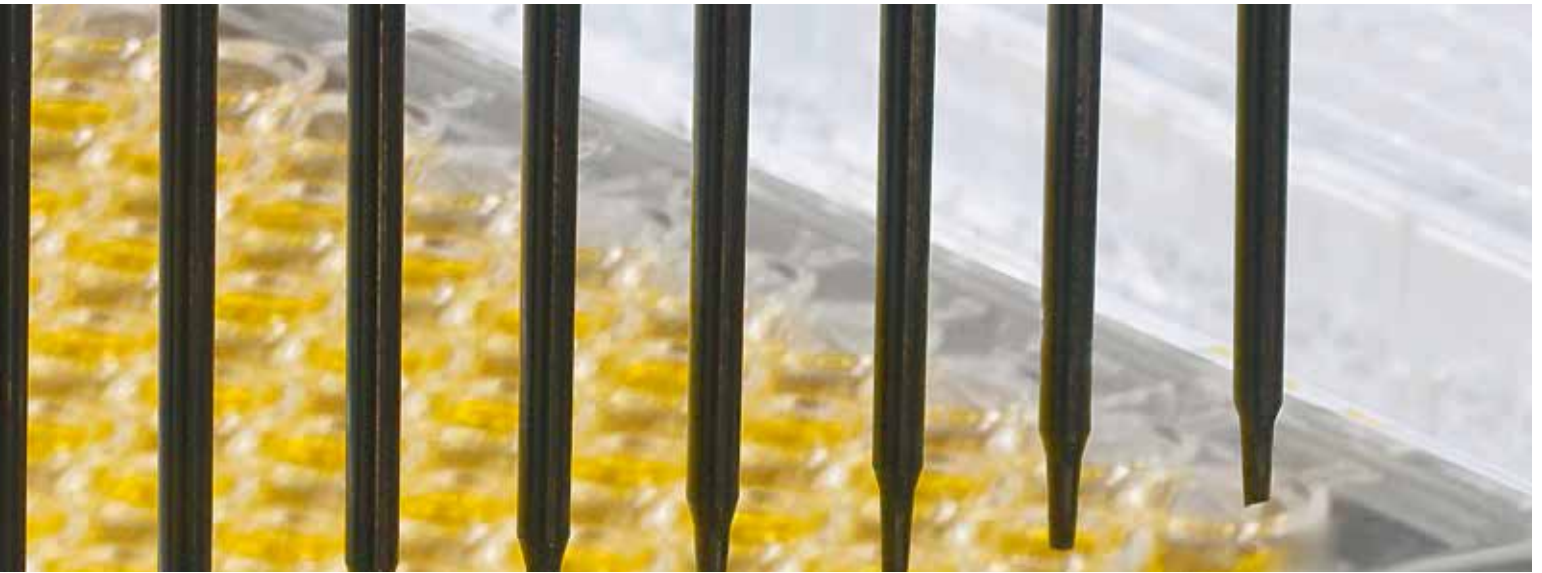
# Expertise in immunoassays.

As part of the Tecan Group, IBL International has a leading market position in diagnostics and research, with over 35 years of experience in the development, manufacture and supply of enzyme-, radiolabel- and luminescence-based immunoassays.

Our range of high quality immunoassays is supported by a diverse portfolio of automated solutions, making us the perfect partner for you and your customers.

For more information about the products, please visit our website.

For publications, please contact us via [IBL@Tecan.com](mailto:IBL@Tecan.com)



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# Endocrine Function.

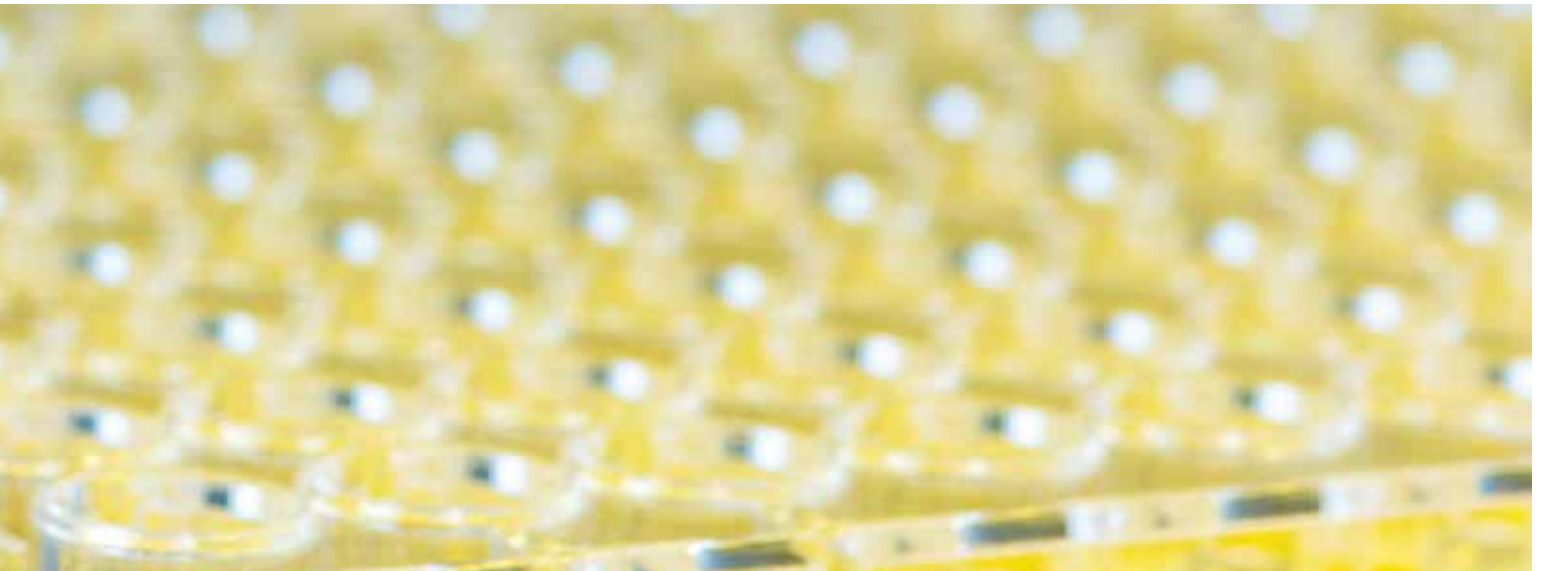
**Endocrinology research addresses hormones and the endocrine glands and tissues that secrete them.**

Tecan provides a comprehensive portfolio of highly sensitive, reliable immunoassays for measuring steroids, peptides, proteins and amino hormones. They can overcome the disadvantages of working with radioactivity without the need for huge investments.

## **GYNECOLOGY, ANDROLOGY, IVF - Complementary assays to random access systems:**

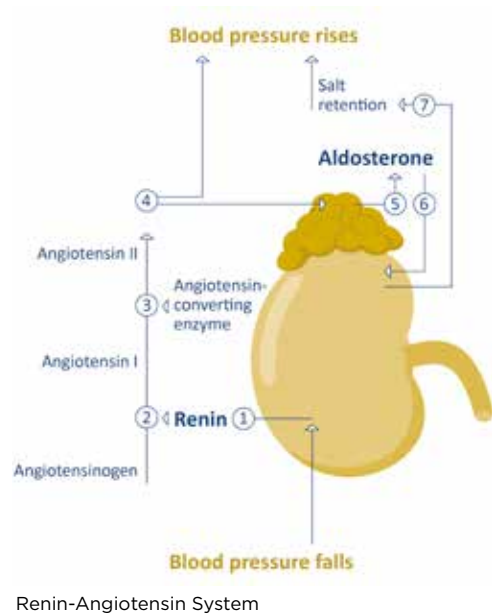
Parameter	Catalog No.	Method	Features	Reg. status
Free Testosterone	DB52181	ELISA	Measures the biologically active form Direct procedure without extraction Total assay time <1.5 hours	RUO*
5 $\alpha$ -Dihydrotestosterone (DHT)	DB52021	ELISA	Direct procedure without extraction and oxidation Total assay time 2 hours Low cross reactivity to testosterone	RUO*
DHEA	RE52221	ELISA	Direct procedure without extraction and oxidation	RUO*

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### HYPERTENSION

Hypertension is a cardiac chronic condition in which systemic arterial blood pressure is elevated. Tecan offers assays for research purposes in the area of Hypertension and its initial reasons.



Parameter	Catalog No.	Method	Features	Reg. status
Aldosterone	RE52301	ELISA	Direct procedure without extraction	RUO*
Renin (active)	RE53321	ELISA	Renin levels are indicative for the activity of the Renin-Angiotensin-Aldosterone System (RAAS)	RUO*
Angiotensin I (Plasma Renin activity)	DB52011	ELISA	Measures PRA and the results are expressed in terms of mass of angiotensin-I (Ang-I) generated per volume of human plasma in unit time (ng/mL.h)	RUO*

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# Complementary

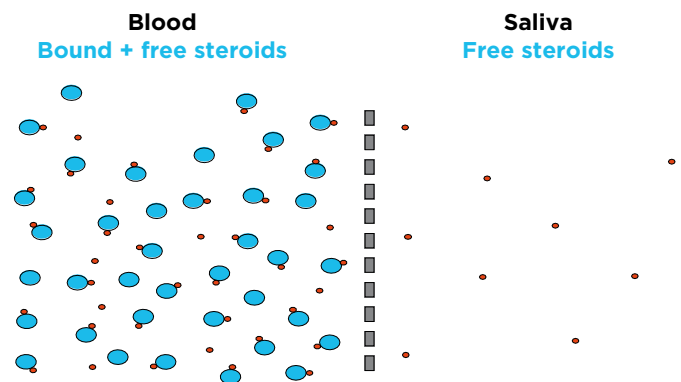
# Medicine.

Tecan Complementary Medicine portfolio combines a number of diverse salivary tests and food intolerance assays.

## SALIVARY TESTING

Importantly, the hormone concentrations measured in saliva, unlike in blood, represent the levels of free, biologically active hormones, which have greater clinical relevance than do measures of total hormone. The easiness and stress free collection makes it very attractive for patients and practitioners.

Mostly all Immunoassays are calibrated to LC-MS/MS. Meaningful reference ranges are stated in the instructions for use of the single parameters.



**Diffusion of free steroid hormones from blood into saliva**  
Free and protein bound steroid hormones in blood (left side) and free hormones in saliva (right side). The concentration of free hormones is the same on both sides of the membrane.

## Salivary diagnostics

Parameter	Catalog No.	Method	Features	Reg. status
Cortisol	RE62111 RE62119	LUM LUM	LUM sensitivity: 0.12 ng/mL Total precision: <5% Linear range: 0.12 - 31.34 ng/mL Easier method than LC-MS/MS	IVD
Progesterone	RE62021	LUM	Only 20 µL sample volume needed Range: 2 - 945 pg/mL	IVD
Testosterone	RE62031 RE62039.	LUM LUM	Correlates to reference methods (RIA) Analytical sensitivity: 1.8 pg/mL High precision: 6.9 - 4.0% at 20.7 - 557 pg/mL Easier method than LC-MS/MS	IVD
17β-Estradiol	30121045	ELISA	Only 50 µL sample volume needed Correlates to reference method LC-MS/MS	IVD

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### Furthermore, Tecan offers following benefits

- Collection tubes SaliCap Set available
- Expertise for saliva diagnostics, high technical support
- Free of charge EQAS for salivary steroids twice per year

## FOOD INTOLERANCE TESTING

Tecan Food Intolerance product line includes assays for assessing individual sensitivity to food allergens. The assays are intended for quantitative determination of specific IgG antibodies in serum or plasma from venous or capillary blood in research use only.

### Examples

Parameter	Catalog No.	Method	Features	Reg. status
IgG Food Screen 24	30202024	ELISA	Screening of IgG Antibodies against 24 allergens Distributed by Tecan, IBL International	RUO*
IgG Food Screen 7	30202025	ELISA	Screening of IgG Antibodies against 7 allergens Distributed by Tecan, IBL International	RUO*

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# Neurodegeneration.

**Neurodegeneration or neurodegenerative diseases are a group of disorders that are characterized by progressive loss of structure respective function of neurons, including their death.**

Most known neurodegenerative diseases are Alzheimer's disease, Parkinson's disease, Multiple sclerosis and Amyotrophic Lateral Sclerosis. Yet, research in the field of neurodegeneration elucidates many more often overlapping diseases that have similar cellular and sub-cellular pathogenic mechanisms.

## Alzheimers research

Alzheimer's disease (AD), a neurodegenerative disease leading to dementia, can be characterized by 3 hallmarks, which are formation of Amyloid-beta plaques, TAU fibrils and loss of neurons and synapses, leading to a significant brain volume reduction. The first 2 hallmarks lead to the fact that measuring these

proteins in CSF is a valuable tool to support the research of Alzheimer's disease.

To assess Amyloid-beta pathology in AD more recent clinical research has shown that the determination of the Amyloid-beta ratio of Amyloid-beta (1-42)/ Amyloid-beta (1-40) significantly improves the understanding of amyloid-beta pathology (Figure 1). Furthermore as fibril formation of TAU proteins is characterized by hyperphosphorylation, the determination of either phosphoTAU or the non-phosphorylated TAU fraction (pTAUrel) might help to confirm the TAU pathology in AD.

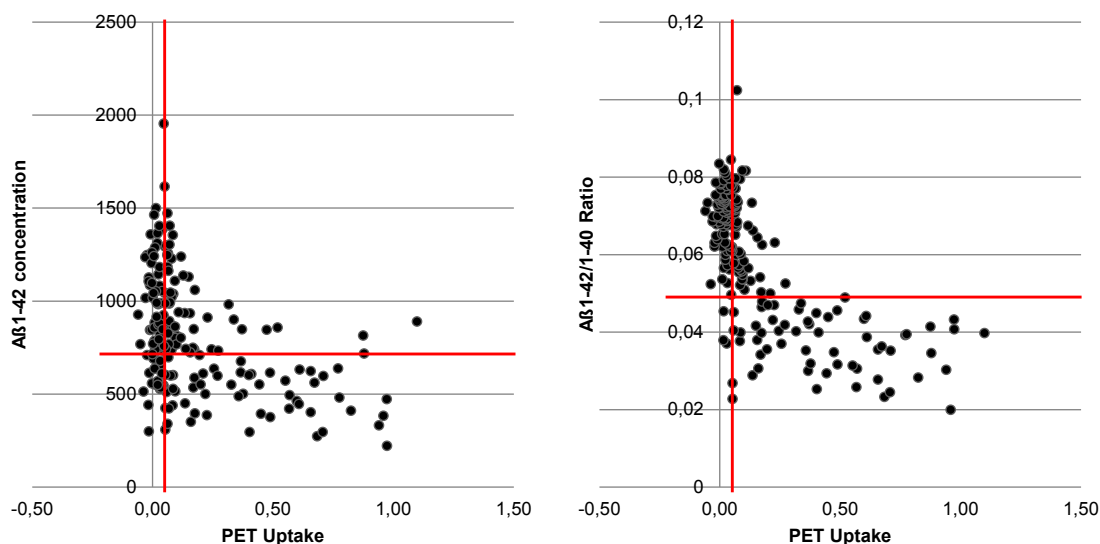


Figure 1 The Amyloid-beta ratio of Amyloid-beta (1-42) to Amyloid-beta (1-40) significantly improves the accuracy of concordant samples in comparison to PiB from 74.9% to 89.4% (Lewczuk et al. J Alzheimers Dis. 2017;55(2):813-822.):



Parameter	Catalog No.	Method	Features	Reg. status
Amyloid-β (1-40)	RE59651	ELISA	6 point standard curve Only 5µL CSF needed Low inter- and intra assay CVs (mean CV <5%) 2 Kit controls included	RUO*
Amyloid-β (1-42)	RE59661	ELISA		RUO*
phosphoTAU	30218778**	ELISA	6 point standard curve Only 25µL CSF needed 2 kit controls included	RUO*
hTAU total	30218780**	ELISA	6 point standard curve Low inter- and intra-assay CVs (mean CV <6%) 2 kit controls included	RUO*

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**Research of axonal destruction**

Neurofilaments are the backbone of the neuronal cytoskeleton. Neurofilament light is found to be elevated in neurodegenerative disorders that are associated with the destruction of white matter (substantia alba). Typically these are:

- Parkinson’s disease (PD)
- Multiple Sclerosis (MS)
- Amyotrophic Lateral Sclerosis (ALS)

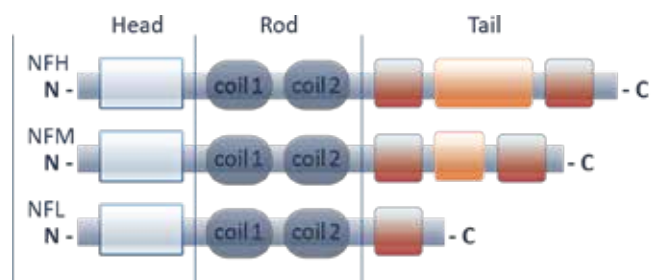


Figure 2: Schematic illustration of neurofilament subunits

Parameter	Catalog No.	Method	Features	Reg. status
Neurofilament light (NF-light')	30112458**	ELISA	Developed for CSF Wide standard range	RUO*
Neurofilament light (NF-light') Serum	30210101**	ELISA	Developed for serum samples Correlates well to the SIMOA NF-light Advantage kit, with an r <sup>2</sup> of 0.90 and a measurement level around 27% higher than the SIMOA kit	RUO*

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# Autoimmunity.

**Autoimmune diseases are chronic inflammatory processes. They can be either organ-specific or systemic in nature. Autoimmune diseases predominantly affect women and correlate with the production of disease-associated autoantibodies. The impact of autoimmune diseases on the cost of healthcare and effective treatment underline the importance of accurate and reliable methods for research, diagnosis, prognosis and monitoring autoimmune diseases.**

## MYASTHENIA GRAVIS

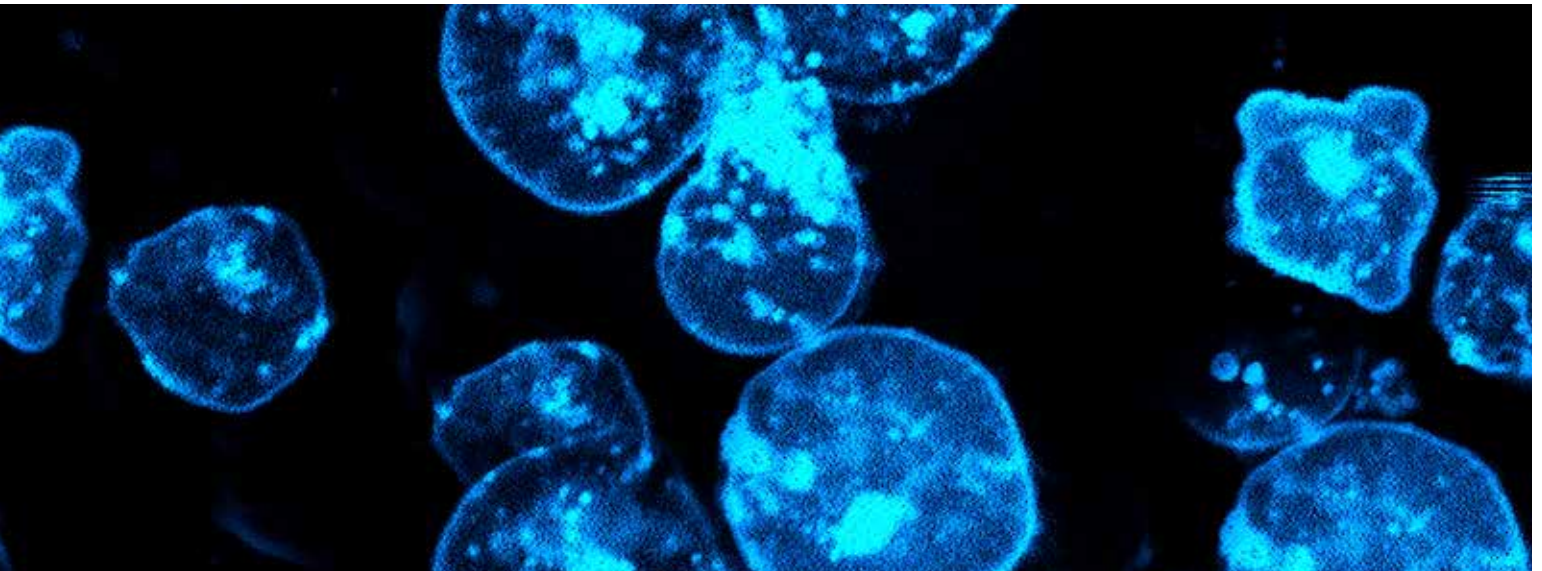
Myasthenia gravis (MG) is caused by the failure of neuromuscular signal transmission. To aid in the diagnosis of MG the determination of acetylcholine receptors (ARAb) autoantibodies is needed. The ARAb Radioimmunoassay is an appropriate diagnosis method for autoantibodies in serum of 80-90 % of patients with generalized myasthenia gravis and in 55-70 % of patients with ocular myasthenia.

In 10-20 % of the patients with generalized MG, and in up to 50 % of the patients with ocular MG these autoantibodies cannot be detected. In these cases the disease is commonly referred to as seronegative MG (SNMG). The antibodies to the muscle-specific receptor tyrosine kinase can be detected and measured for research use only via MuSK-Ab ELISA.

Parameter	Catalog No.	Method	Features	Reg. status
Acetylcholine Receptor Autoantibodies (ARAb)**	RE21023 / RE21021	RIA	Antigen: human muscle acetylcholine receptor Sensitivity: 93% and specificity: 98% Total assay time is only 3 hours Easy to perform assay Cut-off and positive control Very robust assay with excellent between-lot reproducibility Free Quality Assessment Scheme (QAS)	IVD
MuSK-Ab (Muscle-specific Receptor Tyrosine Kinase-Ab)	RE51021	ELISA	Wide measurement range Quantitative results from standard curve	RUO*

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\*\*Twice a year, Tecan provides a free of charge QAS for ARAb binding and blocking.



## COELIAC DISEASE

The immune-mediated inflammatory process following ingestion of wheat, rye, or barley proteins occurs in genetically susceptible individuals. Coeliac disease is associated with a variety of autoantibodies, including

tissue transglutaminase (tTG) and gliadin antibodies. Although the IgA isotype of these antibodies usually predominates in coeliac disease, individuals may also produce IgG isotypes.

Parameter	Catalog No.	Method	Features	Reg. status
tissue Transglutaminase IgA (tTG IgA)	30132293	ELISA	Antigen: recombinant, eukaryotic expressed transglutaminase.	RUO*
tissue Transglutaminase IgG (tTG IgG)	30132295	ELISA		RUO*
Modified Gliadin Peptide IgA (MGP IgA)	RE75741	ELISA	Antigen: synthetic instead of native gliadin	RUO*
Modified Gliadin Peptide IgG (MGP IgG)	RE75751	ELISA		RUO*

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## SYSTEMIC LUPUS ERYTHEMATOSUS

The Systemic lupus erythematosus (SLE) is an episodic/in stages occurring, chronic inflammatory autoimmune disease with numerous organ systems

pressure such as skin, joints, kidneys, blood cells and central nervous system.

Parameter	Catalog No.	Method	Features	Reg. status
dsDNA-Ab	RE19011	RIA	Total assay time only 1.5 hours	RUO*
dsDNA-Ab	RE75201	ELISA	Total assay time is only 1.5 hours	RUO*

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# Immunology.

## Immunology addresses the study of physiological functioning of the immune system in health and disease.

Dysfunctions of the immune system are generally termed “immune disorders”. These types of disorders can be characterized in different ways. First by the component(s) of the immune system affected, second whether the immune system is either overactive or underactive, third whether the condition is congenital

or acquired. The immune system can be divided into the ancient, primitive innate immune system and (in vertebrates) the adaptive immune system. This can be further divided into humoral (antibody response) and cell-mediated components.

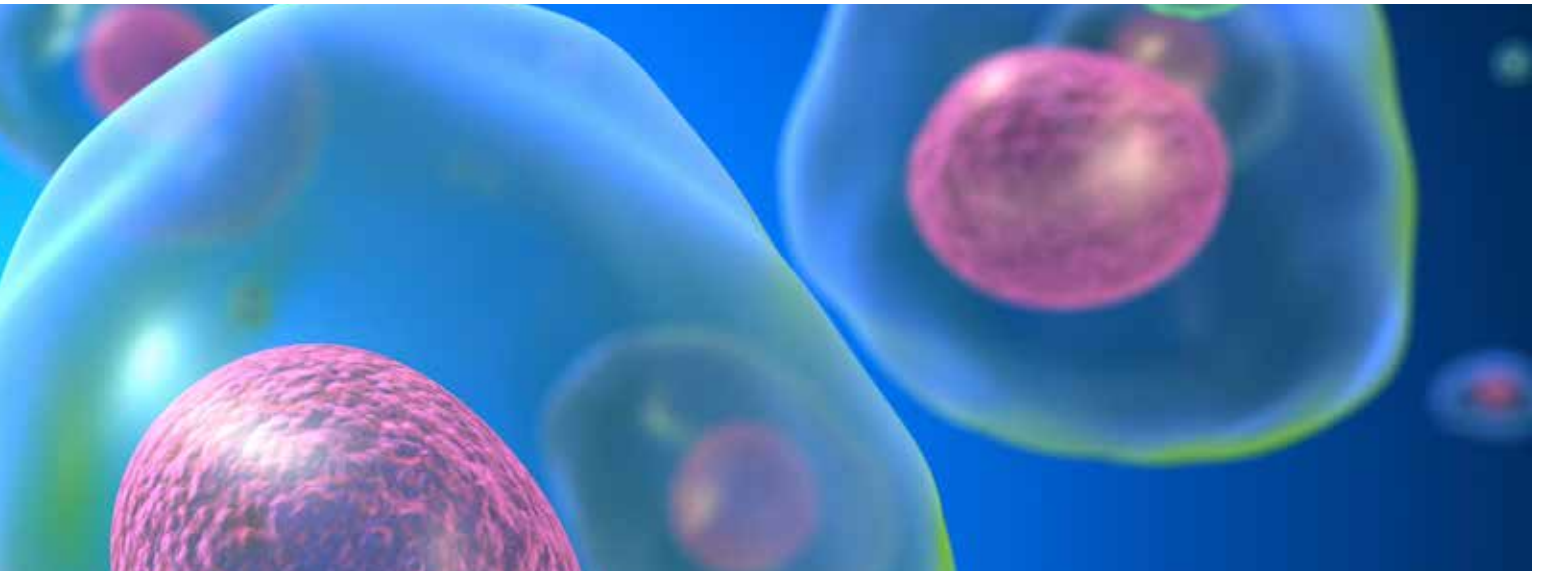
### Neopterin

Neopterin is a low molecular weight molecule belonging to the chemical group known as pteridines. It plays a major role in the adaptive, cell mediated immune response. It is synthesised by cellular immune reaction of macrophages and dendritic cells upon stimulation with the cytokine interferon- $\gamma$  and as a consequence released. Neopterin has a higher stability in body fluids which makes the sample handling and measurement easier compared to other cytokines.

The low molecular weight, let neopterin molecules rapidly pass the intravascular area, where it is released into urine after glomerular filtration. The half-life period in human bodies is only affected by renal excretion. So neopterin values reflect the totality of immunological processes for monocytes/macrophages and dendritic cells and can be seen as a general marker of immune activity.

Parameter	Catalog No.	Method	Features	Reg. status
Neopterin	RE59321	ELISA	Suitable for all vertebrates (validated for human) Developed for serum, plasma, urine	RUO*

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**HMGB1**

**The multi-tasker of the innate immune system!**

Over years, HMGB1 has increasingly attracted the attention of all kinds of researchers. It is one of the most intriguing molecules within the complete arsenal of proteins of the innate immune system as HMGB1 is either actively secreted by immune cells, or passively by injured cells as the cell's immediate cry for help.

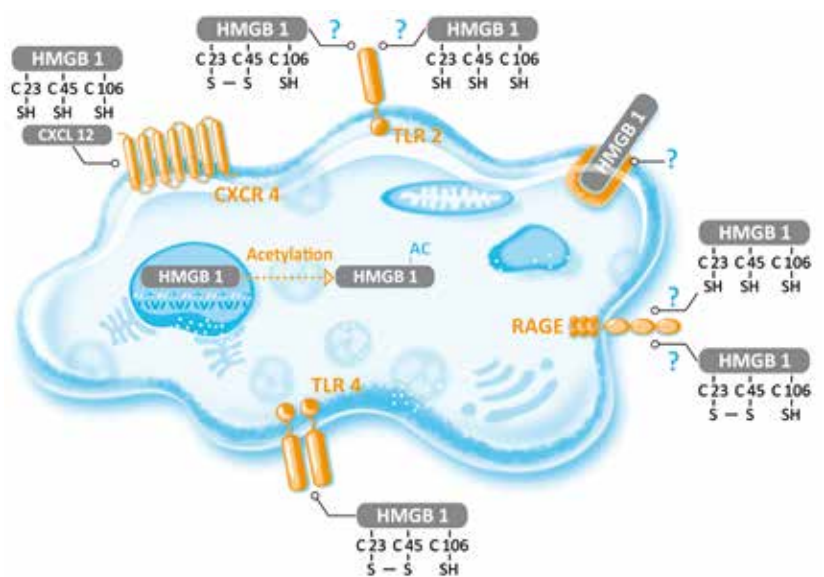
Tecan's HMGB1 ELISA, which has been developed by Shino-Test Corporation, Japan, in cooperation with Prof. Dr. Ikuro Maruyama, Kagoshima University, is regarded by key opinion leaders as the gold standard in the field and has been used in more than 800 publications.

Parameter	Catalog No.	Method	Features	Reg. status
HMGB1 Express	30164033	ELISA	Widely used and cited in multiple publications Developed for Serum, plasma (EDTA, Citrate)	RUO*

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**HMGB1** is a nuclear protein that can bind and bend DNA, but it can also be released to the extracellular environment where it exerts additional functions. The unraveling of the post-translational modifications has led to a better understanding of the mechanism of its translocation and its function within the immune system. It will now also allow more in-depth studies into the role of HMGB1 in numerous pathologies, including

- Autoimmune diseases
- Sepsis
- Cancer
- Diabetes
- Cardial infarction
- Stroke
- ... any inflammatory process



**HMGB1 biology by the current state of scientific knowledge**

**Manufactured or distributed by**

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