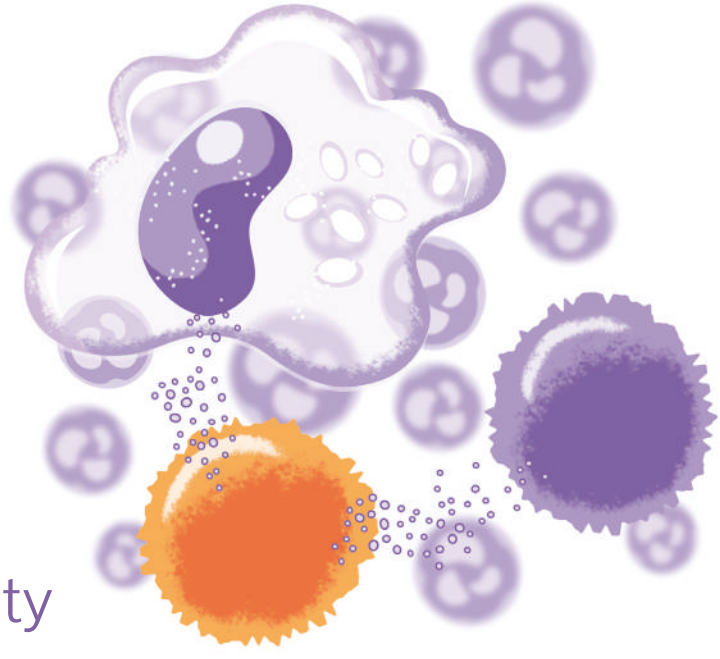
IBL INTERNATIONAL

Immunology / Cytokines | Method ▽ | here you GO!

- Immunology (HMGB1, Neopterin)
- Human Cytokines
- Mouse Cytokines
- Rat Cytokines
- Monkey Cytokines
- Swine Cytokines



Markers involved in immunity and inflammation

A comprehensive product line for human and veterinary use

Immunology is defined as the branch of biomedical science which covers all aspects of the immune system in all organisms. Among other things, it deals with the physiological functioning of the immune system in health and disease.

Cytokines and immune-modulators

ELISA technology is a widely used and ideal tool for protein quantification in immunology research. IBL International helps to address the challenges in immunology research with a very comprehensive product line for the detection of cytokines and immune-modulators. One example is HMGB1, a biomolecule released upon activation of our innate immune response; another is Neopterin, which is released in response to any outside stimulus to the immune system.

Furthermore immunoassays are available for measuring a variety of human and animal parameters, including:

- Cytokines including Chemokines and growth factors
- Interferons
- Apoptosis markers
- Cell adhesion molecules
- Matrix metalloproteinases (MMPs)
- and many others

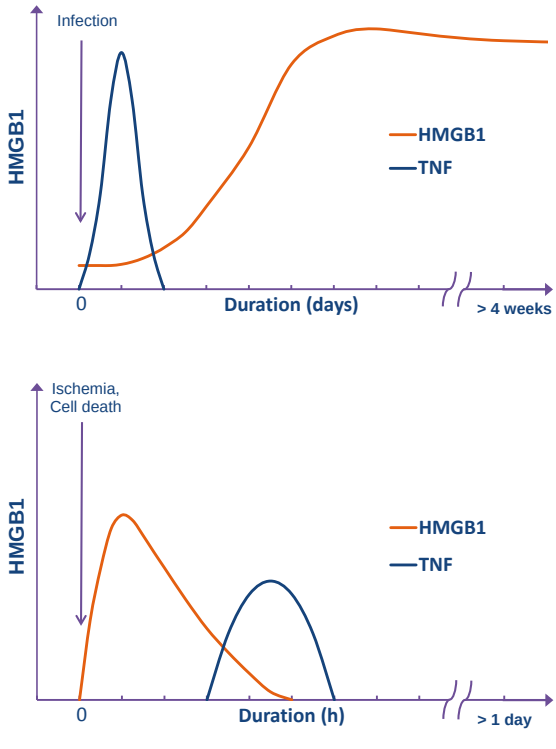
HMGB1

A two-sided protein involved in many diseases

HMGB1 was originally identified in the 1970s as one of the non-histone chromatin-binding proteins known as "high mobility group proteins". In more recent research from the 1990s onwards it has been shown that HMGB1 is released when infection activates innate immunity, and also as a passive phenomenon in sterile injury.

In activation of the innate immune response HMGB1 is translocated to the cytosol, where it accumulates before secretion. This is a process that can take up to eight hours to complete. Passive release as a consequence of necrotic cell death is much faster, because HMGB1 is only loosely bound to DNA.

HMGB1 has a dual nature: on the one hand it has healing effects in the organism, yet on the other it acts as a proinflammatory cytokine mediating many effects like cytokine release, inflammation and epithelial barrier failure. Only in 2011 it has been shown that specific post-translational modifications of the protein can explain this dual nature to some extent.



According to Andersson U, Tracey K, Ann Rev Immunol 2011;29: 139 - 162

Diseases

Sepsis; Endotoxemia

Pancreatitis

Respiratory disorders; Arthritis

Hemorrhagic Shock

Mycardial Infarction; Stroke

Transplantation

Ischemia-reperfusion injury

Products

HMGB1 ELISA

Anti-HMGB1 antibodies

Chemokine-HMGB1 protein, HMGB2 protein

Cytokine-HMGB1 protein

BoxA, BoxB from HMGB1

Neopterin

A general marker for cellular immune system activation

Neopterin is an early and valuable biochemical marker of cellular immunity. Increased amounts of neopterin are produced by human monocytes/macrophages upon stimulation with the cytokine interferon-gamma (other cytokines may act as a cofactor). Neopterin and interferon-gamma correlate well in case of infection. However Neopterin has a higher stability in body fluids which makes sample handling and measurement easier than using interferon-gamma.

Therefore, measurement of neopterin concentrations in body fluids such as serum, cerebrospinal fluid or urine reflects the state of activation of the cellular immune system during initial and subsequent stages of various diseases.

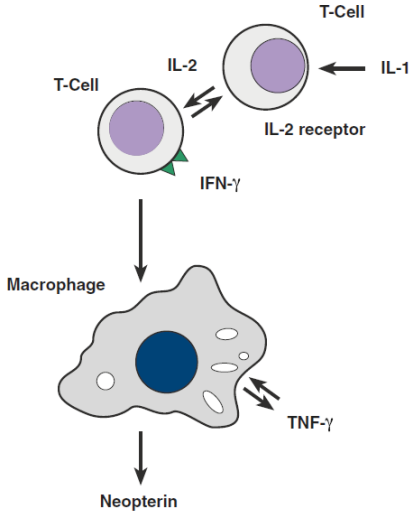
Neopterin is used in a variety of clinical applications:

- Screening blood donations
- Early detection of associated infections in allograft recipients, such as Cytomegalovirus
- Monitoring of rejection mechanisms after organ transplants and following bone marrow donation
- Prognosis for cardiovascular diseases
- Activity and therapy control of autoimmune diseases
- Pre-clinical animal modelling
- Differential diagnoses of acute viral and bacterial infections

Products

Neopterin ELISA (scientific version)

Neopterin ELISA (automated version)



Release of Neopterin during cellular immune reaction

Cell Adhesion Molecules (CAMs)

Communication between cells is maintained by soluble factors, such as cytokines. A second mechanism is interaction via direct cell-to-cell contact, facilitated by an array of cell surface molecules (adhesion molecules), which interact via ligand-receptor binding. Adhesion molecules are essential for leukocyte migration, and also seem to play a role in T-cell activation. Soluble cell adhesion molecules (sCAMs) may be important biomarkers for inflammatory processes involving activation or damage to cells, such as platelets and endothelium. They are formed as the result of shedding due to cell stimulation and by *de novo* synthesis of truncated soluble forms.

There are four major families of proteins that mediate cell-to-cell interactions:

- Immunoglobulin superfamily (IgSF) cell adhesion molecules
- Integrins
- Cadherins
- Selectins

Our CAM ELISA product line includes:

- Immunoglobulin superfamily (IgSF) cell adhesion molecules
- Cadherins
- Selectins / Ligands

Synonym	Products
Endothelial cell adhesion molecule (soluble)	sE-selectin ELISA [1, 2]
Leukocyte cell adhesion molecule (soluble)	sL-selectin ELISA [1, 2]
Platelet endothelial cell adhesion molecule (soluble)	sP-selectin ELISA [1, 2]
Intercellular adhesion molecule-1 (soluble)	sICAM-1 ELISA [1]
Intercellular adhesion molecule-1 (soluble, high sensitivity)	sICAM-1 high sensitive ELISA
Intercellular adhesion molecule-2 (soluble)	sICAM-2 ELISA
Intercellular adhesion molecule-3 (soluble)	sICAM-3 ELISA
Vascular endothelial cadherin (soluble)	sVE-Cadherin ELISA [2]
Platelet endothelial cell adhesion molecule-1 (soluble)	sPECAM-1 ELISA [2]
Vascular cell adhesion molecule-1 (soluble)	sVCAM-1 ELISA [1]
Cytotoxic T lymphocyte associated gene-4 (soluble)	sCTLA-4 ELISA
Vascular adhesion protein-1 (soluble)	sVAP-1 ELISA

[1] CE, [2] other species available

Interleukins

The subject of interleukins is highly complex. These compounds are cytokines (proteins) and act as cellular communicators. They regulate cell growth, differentiation, and motility. They are particularly important in stimulating immune responses such as inflammation. Like other cytokines, interleukins are not stored within cells but are instead secreted rapidly, and briefly, in response to a stimulus such as an infectious agent. Once an interleukin has been produced, it travels to its target cell and binds to it via a receptor molecule on the cell's surface. This interaction triggers a cascade of signals within the target cell that ultimately alter the cell's behaviour.

The IBL ELISA line for interleukins comprises assays for human and veterinary use, soluble interleukin receptors as well as highly sensitive versions.

Interleukin-6

Products

Interleukin-1alpha (IL-1α) ELISA [1, 2]

Interleukin-1beta (IL-1β) ELISA [1, 2]

Interleukin-1beta (IL-1β) high sensitive ELISA

Interleukin-1 receptor antagonist (IL-1ra) ELISA

Interleukin-2 (IL-2) ELISA [1, 2]

Interleukin-2 (IL-2) high sensitive ELISA

sInterleukin-2 receptor (sIL-2R, CD25) ELISA [1]

Interleukin-4 (IL-4) ELISA [1, 2]

Interleukin-4 (IL-4) high sensitive ELISA

Interleukin-5 (IL-5) ELISA [1, 2]

Interleukin-6 (IL-6) ELISA [1, 2]

Interleukin-6 (IL-6) high sensitive ELISA

sInterleukin-6 receptor (sIL-6R) ELISA

Interleukin-8 (IL-8) ELISA [1, 2]

Interleukin-10 (IL-10) ELISA [1, 2]

Interleukin-10 (IL-10) high sensitive ELISA

Interleukin-12p70 (IL-12p70) ELISA [1, 2]

Interleukin-12p70 (IL-12p70) high sensitive ELISA

Interleukin-13 (IL-13) ELISA [1, 2]

Interleukin-17A (IL-17A) ELISA [2]

Interleukin-17F (IL-17F) ELISA [2]

Interleukin-17AF (IL-17AF) ELISA [2]

Interleukin-21 (IL-21) ELISA [2]

Interleukin-22 (IL-22) ELISA [2]

Interleukin-23 (IL-23) ELISA [2]

Interleukin-27 (IL-27) ELISA

Interleukin-29 (IL-29) ELISA

Interleukin-31 (IL-31) ELISA

Interleukin-33 (IL-33) ELISA

[1] CE, [2] other species available

Apoptosis Markers

Apoptosis is a physiological form of programmed cell death, and continues to be one of the hottest topics in biomedical research today. Apoptosis is an integral part of the natural life cycle and plays a pathogenic role in diseases such as cancer, viral infections, and autoimmunity, among others.

Apoptosis can be initiated in either of two ways:

- the death-receptor (extrinsic) pathway, or
- the mitochondrial (intrinsic) pathway

Our apoptosis ELISA product line includes:

- Specialized cell-surface receptors called "death receptors"
- Death-inducing ligands
- Caspases (the executioners of apoptosis)
- Granzymes

Synonym	Products
Cysteinyl aspartate-specific protease-8	Caspase-8 ELISA
Cysteinyl aspartate-specific protease-9	Caspase-9 ELISA
APO-1 cell surface antigen / Fas receptor	APO-1 / FAS ELISA [1]
Cluster of differentiation 30 (soluble)	sCD30 ELISA [1, 2]
Cluster of differentiation 40 (soluble)	sCD40 ELISA
Cluster of differentiation 134 (soluble)	sCD134 (OX40) ELISA
Cluster of differentiation 137 (soluble)	sCD137 (4-1BB) ELISA
B cell lymphoma-2	Bcl-2 ELISA
Copper / Zinc superoxide dismutases	Cu / Zn SOD ELISA [1]
-	Cytochrome c ELISA
A proliferation-inducing ligand	APRIL ELISA
Cluster of differentiation 40 ligand (soluble)	sCD40L ELISA [1, 2]
Cluster of differentiation 40 ligand (soluble, high sensitive)	sCD40L high sensitive ELISA
Fas ligand (soluble)	sFasL ELISA [1]
Tumor necrosis factor-alpha	TNF-α ELISA [1, 2]
Tumor necrosis factor-beta	TNF-β ELISA
Tumor necrosis factor-alpha (high sensitive)	TNF-α high sensitive ELISA
Tumor necrosis factor-receptor 1 (soluble)	sTNF-R1 (60 kDa) ELISA [1]
Tumor necrosis factor-receptor 2 (soluble)	sTNF-R2 (80 kDa) ELISA [1]
Tumor necrosis factor-related apoptosis-inducing ligand	TRAIL ELISA
-	Granzyme A ELISA
-	Granzyme B ELISA
-	Annexin V ELISA

[1] CE, [2] other species available

Interferons

Interferons are classified as type I or type II. Type I interferons are known primarily for their ability to make cells resistant to viral infections. The group comprises alpha-, beta-, tau-, and omega interferons. Interferon-gamma is the only type II interferon, due to its unique amino acid sequence. This interferon is known for its ability to regulate overall immune system functioning. Type I interferons are produced by almost every cell in the body while type II interferon-gamma is produced only by specialized cells in the immune system known as T lymphocytes and natural killer cells.

Products
Interferon-alpha (IFN-α) ELISA [1, 2]
Interferon-beta (IFN-β) ELISA
Interferon-gamma (IFN-γ) ELISA [1, 2]
Interferon-gamma (IFN-γ) high sensitive ELISA
Interferon-omega (IFN-ω) ELISA [1]

[1] CE, [2] other species available

Miscellaneous

Synonym	Products
Monocyte chemoattractant protein-1	MCP-1 (CCL2) ELISA [1, 2]
Interleukin-2 receptor (soluble)	sIL-2R ELISA [1]
Interleukin-6 receptor (soluble)	sIL-6R ELISA
Matrix metalloproteinase-9	MMP-9 ELISA [1]
Matrix metalloproteinase-13	MMP-13 ELISA
Vascular endothelial cell growth factor-A	VEGF-A ELISA [1, 2]
Vascular endothelial cell growth factor-C	VEGF-C ELISA
Vascular endothelial cell growth factor-receptor 1 (soluble)	sVEGF-R1 ELISA
Transforming growth factor-beta1	TGF- β1 ELISA [1, 2]
Leukemia inhibitor factor	LIF ELISA
Leukemia inhibitory factor-receptor / gp190	LIF-R (gp190) ELISA
Human epidermal growth factor receptor-2, p185	sHER-2 ELISA
Macrophage-associated lectin binding protein	s90K / Mac-2BP ELISA
Tissue-type plasminogen activator	tPA ELISA
Plasminogen activator inhibitor-1	PAI-1 ELISA
C-reactive protein	CRP ELISA [1, 2], CRP high sensitive ELISA [1]
-	Haptoglobin ELISA [2]
Serum Amyloid A	SAA ELISA [2]

[1] CE, [2] other species available

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