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PMN Elastase ELISA

one assay – many possibilities!

Immunology

Inflammation



Infertility



Demeditec Diagnostics GmbH is a privately owned company located in northern Germany. Since the foundation in 1987 Demeditec has rapidly grown to become a successful and reliable manufacturer and supplier of in-vitro diagnostic test kits. We are, therefore, proud to present an extensive product panel of non-radioactive (ELISA, PCR) and radioactive (RIA) test systems.

Our top-selling products feature Human and Veterinary Diagnostics, Endocrinology – especially Salivary Diagnostics-, Infectious Diseases, Autoimmunity, Biogenic Amines and Tumor Markers.

Our customers are located worldwide and include private laboratories, hospitals, universities as well as other research institutions and pharmaceutical companies.

To ensure the quality of our products, services and support, Demeditec has been certified according to EN ISO 9001 and EN ISO 13485 since 2003 and according to the GMP standard since 2011. These certifications, along with qualified and creative personnel, enable the development of innovative test kits in our R&D department.

We welcome you to be a part of our network and hope to convince you of the quality of our products and support.



Dr. Arndt Stüber
General Manager



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■ Introduction

3	Dear partner,
4	determination of PMN Elastase is indicated in a very wide spread field of applications.
5	With this product brochure we'd like to introduce our PMN Elastase assay to you! <i>One assay – many possibilities!</i>
6	
6	

PMN Elastase and its possibilities

Polymorphonuclear neutrophil elastase (PMN Elastase), a multi-functional serine protease stored in azurophilic granules of mature neutrophils, is capable of intracellular degradation of proteins during phagocytosis and extracellular degradation of connective tissue during an inflammatory process.

The main inactivating agent in plasma for PMN Elastase is a 1-proteinase inhibitor. PMN Elastase interacts with the inhibitor and forms a complex. The concentration of this complex of PMN Elastase with a 1-proteinase inhibitor is a direct measure for activity of granulocytes during inflammatory diseases.

Indications for the determination of PMN Elastase are very manifold. Please find below the most important applications:

- course of patients after **trauma, shock and sepsis**
- diagnosis of **amnion infections in obstetrics** and early diagnosis of **neonate infections**
- diagnosis of inflammatory **joint diseases**
- effusions of **sport injuries** – helpful for detection of degenerative lesions

- high values of PMN Elastase in seminal plasma refer to acute or chronic inflammation of the male reproductive tract which potentially affects **male fertility**; PMN Elastase has a negative impact on sperm quality by decreasing sperm motility

Based on the last point the determination of PMN Elastase in males in combination with the determination of the fertility marker Anti-Müllerian hormone (AMH) in females is very interesting in reproductive medicine. As involuntary childlessness is a growing and wide-spread problem in industrialized countries these two parameters are becoming more and more worthwhile in laboratory diagnosis.

Related literature on the topic areas listed above is available upon request from Demeditec.



PMN Elastase ELISA

Cat.-No.: DEH3311

The Demeditec PMN Elastase ELISA is an enzyme immunoassay for the quantitative measurement of PMN Elastase in EDTA or citrated plasma, exudate, bronchoalveolar lavage fluid, cerebrospinal fluid and seminal plasma.

Technology	: ELISA
Kit size	: 96
Sample material	: plasma, exudate, BALF, CSF, seminal plasma
Sample preparation	: 1:100 prediluted
Sample volume	: 10 µl
Standard range	: 15.6 - 1000 ng/ml
Incubation	: 1 h, 1 h (RT/shaking), 20 min (RT/dark)
Measuring system	: TMB 450 nm
Sensitivity	: 0.2 ng/ml

The human organism reacts with an inflammatory response to attacks of invading pathogens (micro-organisms and viruses) or damaged tissue (after accidents or surgery). Polymorphonuclear (PMN) granulocytes play an important role as primary defence cells in this inflammatory reaction. Different bloodstream mediators (cytokines, leukotrienes, complement factors, bacterial endotoxins, clotting and fibrinolysis factors) attract and stimulate these cells to phagocytize and destroy not naturally occurring agents.

PMN granulocytes use proteinases to digest these agents and tissue debris. One of these proteinases is PMN Elastase which is



localised in the azurophilic granules of the poly-morphonuclear granulocytes. During phagocytosis of foreign substances these enzymes are also partially excreted into the extracellular surrounding, where the activity of PMN Elastase is regulated by inhibitors (esp. the α 1-proteinase inhibitor, α 1-PI). An overwhelming release of PMN Elastase, however, can exceed the inhibitory potential of the α 1-proteinase inhibitor. Thus, enzymatically active PMN Elastase, together with simultaneously produced oxidants (O_2 -radicals, H_2O_2 , OH-radicals), can cause local tissue injury.

Due to the bloodstream and lymphatic system, however, α 1-PI is delivered subsequently and eventually able to form a complex with all excreted elastase. Therefore, the concentration of the PMN Elastase/ α 1-PI complex correlates with the released PMN Elastase and can be used as a measure for the activity of granulocytes during an inflammatory response.

Linearity

Two sera were diluted with zero calibrator.

Sample	Dilution	Observed (O) (ng/ml)	Expected (E) (ng/ml)	O/E (%)
1	-	250,1	-	-
	1 in 2	145,2	125,1	116
	1 in 4	75,3	62,5	120
	1 in 8	37,1	31,3	119
2	-	465,5	-	-
	1 in 2	209,2	232,8	90
	1 in 4	111,1	116,4	95
	1 in 8	58,7	58,2	101

Related products

The following table shows an overview of other available Immuno-assays from similar fields of diagnostic applications of PMN-Elastase.

Product	Cat.-No.	Method	Incubation time	Standard range	Sensitivity	Sample volume	Sample type
25-OH Vitamin D total	DE1971	ELISA	2 h 45 min	12- 162 ng/ml	1.5 ng/ml	50 µl	serum
AMH Gen II	A79765	ELISA	2 h 30 min	0.16-22.5 ng/ml	0.08 ng/ml	60 µl	serum, plasma
CRP	DE740001	ELISA	1 h 10 min	5- 100 µg/ml	1 µg/ml	10 µl	serum, plasma
hsCRP	DE740011	ELISA	1 h 10 min	0.4- 10 µg/ml	0.02 µg/ml	10 µl	serum, plasma
Inhibin B Gen II	A81303	ELISA	3 h 30 min	10- 1,000 pg/ml	2.6 pg/ml	50 µl	serum, plasma
Interleukin-18 human	DE4437	ELISA	2 h 15 min	24- 1,166 pg/ml	0.35 pg/ml	200 µl	serum, plasma
Interleukin-6 human	DE2132	ELISA	3 h 10 min	1.56- 100 pg/ml	0.92 pg/ml	50 µl	serum, plasma, cell culture supernatant
Interleukin-8 human	DE4700	ELISA	2 h 30 min	40.2- 1,845 pg/ml	1.1 pg/ml	100 µl	plasma
TNF-α human	DE75111	ELISA	3 h 20 min	31- 1,000 pg/ml	7 pg/ml	50 µl	serum, plasma, cell culture supernatant



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