Datasheet for ABIN411328

MMP2 ELISA Kit

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Overview

Quantity:	96 tests
Target:	MMP2
Binding Specificity:	AA 30-660
Reactivity:	Human
Method Type:	Sandwich ELISA
Detection Range:	156-10000 pg/mL
Minimum Detection Limit:	156 pg/mL
Application:	ELISA

Product Details

Purpose:	Sandwich High Sensitivity ELISA kit for Quantitative Detection of Human MMP-2
Brand:	PicoKine™
Sample Type:	Cell Culture Supernatant, Serum, Plasma (heparin)
Analytical Method:	Quantitative
Detection Method:	Colorimetric
Immunogen:	Expression system for standard: NSO Immunogen sequence: A30-C660
Specificity:	Expression system for standard: NSO Immunogen sequence: A30-C660
Cross-Reactivity (Details):	There is no detectable cross-reactivity with other relevant proteins.

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Product Details

Sensitivity:	<10pg/mL
Material not included:	Microplate reader in standard size. Automated plate washer. Adjustable pipettes and pipette tips. Multichannel pipettes are recommended in the condition of large amount of samples in the detection. Clean tubes and Eppendorf tubes. Washing buffer (neutral PBS or TBS). Preparation of 0.01M TBS: Add 1.2g Tris, 8.5g Nacl

Target Details

Target:	MMP2
Alternative Name:	MMP2 (MMP2 Products)
Background:	Protein Function: Ubiquitinous metalloproteinase that is involved in diverse functions such as remodeling of the vasculature, angiogenesis, tissue repair, tumor invasion, inflammation, and atherosclerotic plaque rupture. As well as degrading extracellular matrix proteins, can also act on several nonmatrix proteins such as big endothelial 1 and beta-type CGRP promoting vasoconstriction. Also cleaves KISS at a Gly-|-Leu bond. Appears to have a role in myocardial cell death pathways. Contributes to myocardial oxidative stress by regulating the activity of GSK3beta. Cleaves GSK3beta in vitro. Involved in the formation of the fibrovascular tissues in association with MMP14. Background: Type IV collagenase, 72-kD, is officially designated matrix metalloproteinase-2(MMP2). It is also known as gelatinase, 72-kD. MMP-2 plays an essential role in angiogenesis and arteriogenesis, two processes critical to restoration of tissue perfusion after ischemia. MMP-2 expression is increased in tissue ischemia, but the responsible mechanisms remain unknown. Matrix metalloproteinases(MMPs) catalyze extracellular matrix degradation. Control of their activity is a promising target for therapy of diseases characterized by abnormal connective tissue turnover. MMPs are expressed as latent proenzymes that are activated by proteolytic cleavage that triggers a conformational change in the propeptide(cysteine switch). The structure of proMMP-2 reveals how the propeptide shields the catalytic cleft and that the cysteine switch may operate through cleavage of loops essential for propeptide stability. The gene is localized to 16q21 using somatic cell hybrids and in situ hybridization. The standard product used in this kit is recombinant human MMP-2, consisting of 631 amino acids with the molecular mass of 71KDa. The detected MMP-2 includes zymogen and active enzyme. Synonyms: 72 kDa type IV collagenase,3.4.24.24,72 kDa gelatinase,Gelatinase A,Matrix metalloproteinase-2,MMP-2,TBE-1,PEX,MMP2,CLG4A, Full Gene Name: 72 kDa type IV collagenase Cellular Localisation: Isoform 1: Secreted, extracellular space, extracellular matrix. Membrane.

Target Details

	Nucleus. Colocalizes with integrin alphaV/beta3 at the membrane surface in angiogenic blood vessels and melanomas. Found in mitochondria, along microfibrils, and in nuclei of cardiomyocytes.
Gene ID:	4313
UniProt:	P08253
Pathways:	Activation of Innate immune Response

Application Details

Application Notes:	Before using Kit, spin tubes and bring down all components to bottom of tube. Duplicate well assay was recommended for both standard and sample testing.
Comment:	Sequence similarities: Belongs to the peptidase M10A family. Tissue Specificity: Produced by normal skin fibroblasts. PEX is expressed in a number of tumors including gliomas, breast and prostate. .
Plate:	Pre-coated
Protocol:	human MMP-2 ELISA Kit was based on standard sandwich enzyme-linked immune-sorbent assay technology. A monoclonal antibody from mouse specific for MMP-2 has been precoated onto 96-well plates. Standards(NSO, A30-C660) and test samples are added to the wells, a biotinylated detection polyclonal antibody from goat specific for MMP-2 is added subsequently and then followed by washing with PBS or TBS buffer. Avidin-Biotin-Peroxidase Complex was added and unbound conjugates were washed away with PBS or TBS buffer. HRP substrate TMB was used to visualize HRP enzymatic reaction. TMB was catalyzed by HRP to produce a blue color product that changed into yellow after adding acidic stop solution. The density of yellow is proportional to the human MMP-2 amount of sample captured in plate.
Assay Procedure:	Aliquot 0.1 mL per well of the 10000pg/mL, 5000pg/mL, 2500pg/mL, 1250pg/mL, 625pg/mL, 312pg/mL, 156pg/mL human MMP-2 standard solutions into the precoated 96-well plate. Add 0.1 mL of the sample diluent buffer into the control well (Zero well). Add 0.1 mL of each properly diluted sample of human cell culture supernatants, serum, or plasma (heparin) to each empty well. See "Sample Dilution Guideline" above for details. It is recommended that each human MMP-2 standard solution and each sample be measured in duplicate.
Assay Precision:	• Sample 1: n=16, Mean(pg/ml): 1526, Standard deviation: 74.8, CV(%): 4.9 • Sample 2: n=16, Mean(pg/ml): 3864, Standard deviation: 216.4, CV(%): 5.6 • Sample 3: n=16, Mean(pg/ml): 6733, Standard deviation: 444.4, CV(%): 6.6, • Sample 1: n=24, Mean(pg/ml): 1705, Standard deviation: 97.2, CV(%): 5.7

Application Details

- Sample 2: n=24, Mean(pg/ml): 4012, Standard deviation: 256.8, CV(%): 6.4
- Sample 3: n=24, Mean(pg/ml): 6928, Standard deviation: 512.7, CV(%): 7.4

Restrictions:	For Research Use only

Handling

Handling Advice:	Avoid multiple freeze-thaw cycles.
Storage:	-20 °C,4 °C
Storage Comment:	Store at 4°C for 6 months, at -20°C for 12 months. Avoid multiple freeze-thaw cycles
Expiry Date:	12 months

Publications

Product cited in:

Matin, Nemati, Ghobadi, Alipanah-Moghadam, Rezagholizadeh: "The effect of conjugated linoleic acid on oxidative stress and matrix metalloproteinases 2 and 9 in patients with COPD." in: **International journal of chronic obstructive pulmonary disease**, Vol. 13, pp. 1449-1454, (2018) (PubMed).

Nosratzehi, Alijani, Moodi: "Salivary MMP-1, MMP-2, MMP-3 and MMP-13 Levels in Patients with Oral Lichen Planus and Squamous Cell Carcinoma" in: **Asian Pacific journal of cancer prevention : APJCP**, Vol. 18, Issue 7, pp. 1947-1951, (2017) (PubMed).

Hu, Ni, Cao, Zhang, Wu, Yin, Lang, Lu: "The Angiogenic Effect of microRNA-21 Targeting TIMP3 through the Regulation of MMP2 and MMP9." in: **PLoS ONE**, Vol. 11, Issue 2, pp. e0149537, (2016) (PubMed).

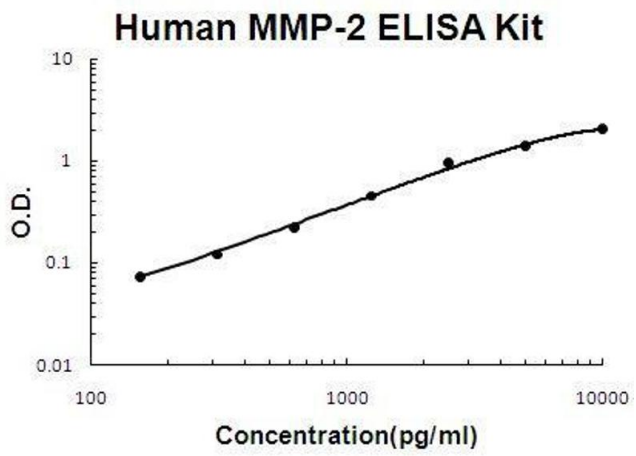
Bi, Zeng, Zhao, Wei, Yu, Wang, Yu, Cao, Shan, Wei: "miR-181a Induces Macrophage Polarized to M2 Phenotype and Promotes M2 Macrophage-mediated Tumor Cell Metastasis by Targeting KLF6 and C/EBPα." in: **Molecular therapy. Nucleic acids**, Vol. 5, Issue 9, pp. e368, (2016) (PubMed).

Simmers, Gishto, Vyavahare, Kothapalli: "Nitric oxide stimulates matrix synthesis and deposition by adult human aortic smooth muscle cells within three-dimensional cocultures." in: **Tissue engineering. Part A**, Vol. 21, Issue 7-8, pp. 1455-70, (2015) (PubMed).

Publications

There are more publications referencing this product on: Product page

Images



ELISA

Image 1. Human MMP-2 PicoKine ELISA Kit standard curve