BioVendor - Laboratorní medicína a.s.
Karásek 1767/1
621 00 Brno

Date of issue: 08.11.2017

PRODUCT DATASHEET

Matrix Metalloproteinase-9 Human HEK293

Cat. No.: RD172439100
Type: Recombinant
Size: 0.1 mg
Source: HEK293
Species: Human

Description

Total 694 AA. MW: 77.2 kDa (calculated). UniProtKB acc. No. P14780 (Ala20–Asp707). C-terminal His-tag (6 AA). Protein identity confirmed by LC-MS/MS.

Other names

Matrix Metalloproteinase-9. MMP9

Introduction to the molecule

Matrix metalloproteinases (MMPs) are a group of enzymes engaged in the degradation and remodeling of extracellular matrix (ECM). Nowadays six groups of these enzymes have been distinguished (collagenases, gelatinases, stromelysins, matrilysins, membrane-type, and a sixth group encompassing several other MMPs not classified in the previous categories), differing in structure, cellular localization, and substrate specificity. Since these enzymes are involved in connective tissue remodeling occurring in the course of morphogenetic processes, therefore, they are a subject of a very strict regulation, which is executed, among others, by the expression of their specific inhibitors—tissue inhibitors of metalloproteinases (TIMPs). MMPs 2 and 9 are named type IV collagenases, or alternatively gelatinase A and B, respectively. Their degrading substrates are gelatine, the denatured form of collagen, and type IV collagen, the main component of the basement membrane. One of the members of the MMP family, MMP-9, is a gelatinase that has been implicated in the pathogenesis of atherosclerosis and chronic obstructive pulmonary disease (COPD) in addition to tumor formation and metastasis. Accordingly, a number of studies have associated elevated serum levels of MMP-9 with many chronic inflammatory conditions including coronary artery disease (CAD), COPD ,arthritis and metabolic syndrome. Notably, high levels of MMP-9 have been associated with plaque progression, destability and rupture. These various effects exaggerate the inflammatory process, promoting atherosclerosis and increasing the risk of atherothrombosis and cardiovascular (CV) events. Thus, MMP-9 has emerged as a novel disease marker as well as a therapeutic target. MMP9, like other MMPs, belongs to a superfamily of zinc containing proteases and has been shown to associate with tumorigenesis. Overexpression of tissue MMPs has been correlated with progression in many tumour types, and overexpression of MMP9 has been found in colorectal adenomas and carcinomas. A significant positive correlation has also been found between tissue MMP9 and the stage of colorectal tumours at diagnosis. Elevated expression of MMP-9, along with MMP-2 is usually seen in invasive and highly tumorigenic cancers such as colorectal tumors, gastric carcinoma, pancreatic carcinoma, breast cancer, oral cancer, melanoma, malignant gliomas, chondrosarcoma, gastrointestinal adenocarcinoma. Levels are also increased in malignant astrocytomas, carcinomatous meningitis, and brain metastases. **Clinical use and areas of investigation:** - Multiple sclerosis - Inflammatory diseases - Cancer

Research topic

Immune Response, Infection and Inflammation, Neural tissue markers, Oncology, Others

Amino Acid sequence

APRQRQSTLV LFPGDLRTNL TDRQLAEEYL YRYGYTRVAE MRGESKSLGP ALLLLQKQLS LPETGELDSA TLKAMRTPRC GVPDLGRFQT FEGDLKWHHH NITYWIQNYS EDLPRAVIDD AFARAFALWS AVTPLTFTRV YSRDADIVIQ FGVAEHGDGY PFDGKDGLLA HAFPPGPGIQ GDAHFDDDEL WSLGKGVVVP TRFGNADGAA CHFPFIFEGR SYSACTTDGR SDGLPWCSTT ANYDTDDRFG FCPSERLYTR DGNADGKPCQ FPFIFQGQSY SACTTDGRSD GYRWCATTAN YDRDKLFGFC PTRADSTVMG GNSAGELCVF PFTFLGKEYS TCTSEGRGDG RLWCATTSNF DSDKKWGFCP DQGYSLFLVA AHEFGHALGL DHSSVPEALM YPMYRFTEGP PLHKDDVNGI RHLYGPRPEP EPRPPTTTTP QPTAPPTVCP TGPPTVHPSE RPTAGPTGPP SAGPTGPPTA GPSTATTVPL SPVDDACNVN IFDAIAEIGN QLYLFKDGKY WRFSEGRGSR PQGPFLIADK WPALPRKLDS VFEERLSKKL FFFSGRQVWV YTGASVLGPR RLDKLGLGAD VAQVTGALRS GRGKMLLFSG RRLWRFDVKA QMVDPRSASE VDRMFPGVPL DTHDVFQYRE KAYFCQDRFY WRVSSRSELN QVDQVGYVTY DILQCPEDHH HHHH

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Purity
Purity as determined by densitometric image analysis: >95%

Endotoxin
< 1.0 EU/µg

Formulation:

Filtered (0.4 µm) and lyophilized from 0.5 mg/ml solution in phosphate buffered saline pH7.5 + 5% (w/v) Threalose.

Reconstituion:
Add deionized water to prepare a working stock solution of approximately 0.5 mg/ml and let the lyophilized pellet dissolve completely.

Shipping
At ambient temperature. Upon receipt, store the product at the temperature recommended below.

Storage, Stability/Shelf Life
Store lyophilized protein at –80°C. Lyophilized protein remains stable until the expiry date when stored at –80°C. Aliquot reconstituted protein to avoid repeated freezing/thawing cycles and store at –80°C for long term storage. Reconstituted protein can be stored at 4°C for a week.

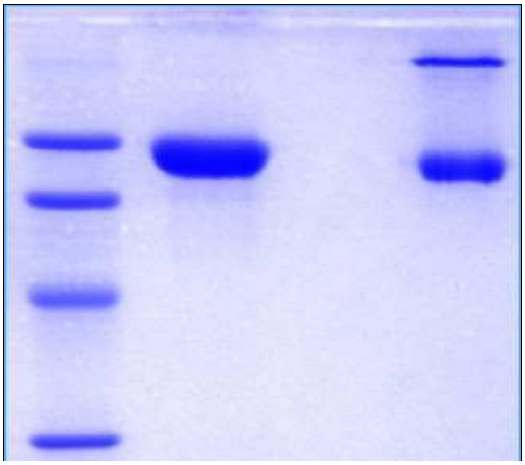
Quality control
BCA to determine quantity of the protein.

SDS PAGE to determine purity of the protein.

LAL to determine quantity of endotoxin.

Applications
ELISA, Western blotting

Note
This product is intended for research use only.



12 % SDS-PAGE separation of Human Matrix Metalloproteinase-9:
1. M.W. marker – 14, 21, 31, 45, 66, 97 kDa
2. Reduced and boiled sample, 2.5 µg/lane
3. Non-reduced and non-boiled sample, 2.5 µg/lane

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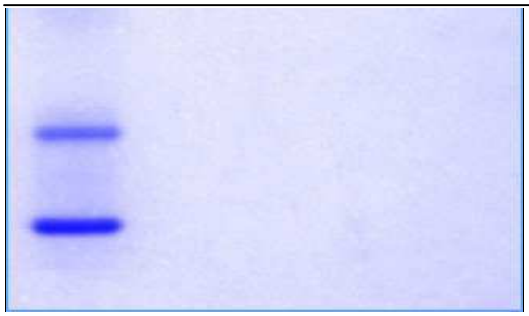

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