

Product datasheet

Recombinant human MMP2 protein (Active) ab125181

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Description

Product name Recombinant human MMP2 protein (Active)

Biological activity Recombinant Human MMP-2 protein is a pro form. It needs to be activated with p-aminophenylmercuric acetate (APMA).
The activity was measured by its ability to cleave fluorogenic peptide substrate, Mca-PLGL-DpaAR-NH2.
The specific activity is > 1,000 pmoles/min/µg.

Purity > 95 % SDS-PAGE.
ab125181 is purified by proprietary chromatographic techniques.

Expression system HEK 293 cells

Accession [P08253](#)

Protein length Full length protein

Animal free No

Nature Recombinant

Species Human

Sequence

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APSPILKFPD DVAPKTDKEL AVQYLNTFYG
CPKESCNLFV LKDTLKKMQK FFGLPQTGDL
DQNTIETMRK PRCGNPDVAN YNFFPRPKPW DKNQITYRII
GYTPDLDPET VDDAFARAFQ VWSDVTPLRF
SRIHDGEADI MINFGRWEHG DGYPFDGKDG
LLAHAFAPGT GVGGDSHFDD DELWTLGEGQ
VVRVKYGNAD GEYCKFPFLF NGKEYNSCTD
TGRSDGFLWC STTYNFEKDG KYGFCPHEAL
FTMGGNAEGQ PCKFPFRFQG TSYDSC TTEG
RTDGYRWCGT TEDYDRDKKY GFCPETAMST
VGGNSEGAPC VFPFTFLGNK YESCTSAGRS
DGKMWCATTA NYDDDRKWGF CPDQGYSLFL
VAAHEFGHAM GLEHSQDPGA LMAPITYTK
NFRLSQDDIK GIQELYGASP DIDLGTGPTP TLGPVTPEIC
KQDIVFDGIA QIRGEIFFFK DRFIWRTVTP RDKPMGPLLV
ATFWPELPEK IDAVYEAPQE EKAVFFAGNE
YWIYSASTLE RGYPKPLTSL GLPPDVQRVD
AAFNWSKNKK TYIFAGDKFW RYNEVKKKMD
    
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PGFPKLIADA WNAIPDNLDA VVDLQGGGHS
YFFKGAYYK LENQSLKSVK FGSIKSDWLG C

Predicted molecular weight	71 kDa including tags
Amino acids	30 to 660
Tags	His tag C-Terminus
Additional sequence information	Full length mature protein, minus the signal peptide.

Specifications

Our [Abpromise guarantee](#) covers the use of **ab125181** in the following tested applications.

The application notes include recommended starting dilutions; optimal dilutions/concentrations should be determined by the end user.

Applications	Functional Studies SDS-PAGE
Form	Liquid

Preparation and Storage

Stability and Storage	Shipped at 4°C. Upon delivery aliquot and store at -20°C. Avoid repeated freeze / thaw cycles. pH: 7.40 Constituents: 0.05% Brij, 0.32% Tris HCl, 0.87% Sodium chloride This product is an active protein and may elicit a biological response in vivo, handle with caution.
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General Info

Function	Ubiquitous 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. PEX, the C-terminal non-catalytic fragment of MMP2, possesses anti-angiogenic and anti-tumor properties and inhibits cell migration and cell adhesion to FGF2 and vitronectin. Ligand for integrin/beta3 on the surface of blood vessels.
Tissue specificity	Produced by normal skin fibroblasts. PEX is expressed in a number of tumors including gliomas, breast and prostate.
Involvement in disease	Defects in MMP2 are the cause of Torg-Winchester syndrome (TWS) [MIM:259600]; also known as multicentric osteolysis nodulosis and arthropathy (MONA). TWS is an autosomal recessive osteolysis syndrome. It is severe with generalized osteolysis and osteopenia. Subcutaneous nodules are usually absent. Torg-Winchester syndrome has been associated with a number of additional features including coarse face, corneal opacities, patches of thickened, hyperpigmented skin, hypertrichosis and gum hypertrophy. However, these features are not always present and have occasionally been observed in other osteolysis syndromes.
Sequence similarities	Belongs to the peptidase M10A family. Contains 3 fibronectin type-II domains.

Contains 4 hemopexin-like domains.

Domain

The conserved cysteine present in the cysteine-switch motif binds the catalytic zinc ion, thus inhibiting the enzyme. The dissociation of the cysteine from the zinc ion upon the activation-peptide release activates the enzyme.

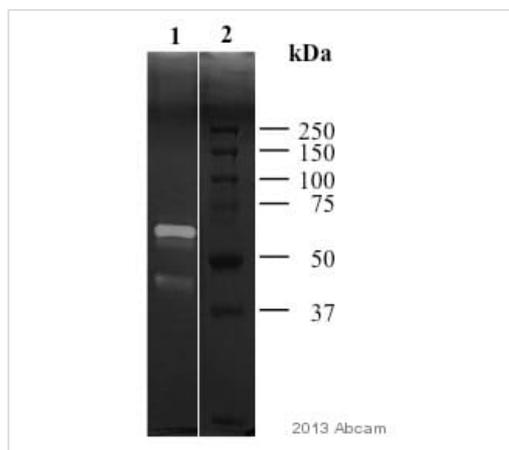
Post-translational modifications

Phosphorylation on multiple sites modulates enzymatic activity. Phosphorylated by PKC in vitro. The propeptide is processed by MMP14 (MT-MMP1) and MMP16 (MT-MMP3). Autocatalytic cleavage in the C-terminal produces the anti-angiogenic peptide, PEX. This processing appears to be facilitated by binding integrin α v/ β 3.

Cellular localization

Secreted > extracellular space > extracellular matrix. Membrane. Nucleus. Colocalizes with integrin α v/ β 3 at the membrane surface in angiogenic blood vessels and melanomas. Found in mitochondria, along microfibrils, and in nuclei of cardiomyocytes.

Images



Functional Studies - Recombinant human MMP2 protein (Active) (ab125181)

This image is courtesy of an Abreview submitted by Mr Pramod Mahajan

Detection of gelatinolytic activity of ab125181 MMP2 protein.

10 ng of ab125181 in 25 μ l of 25 mM Tris-glycine buffer (pH 6.8) was mixed with 2x SDS-sample buffer (without β -mercaptoethanol) and incubated at 37°C for 10 minutes. Samples were loaded on a 10% acrylamide-Tris-glycine gel containing 0.1% gelatin and electrophoresed using Tris-glycine (pH 8.3) with 0.1% SDS. Electrophoresis was performed at 90V for 2 hours. The gel was washed 3 times in 40-50 ml of 2.5% Triton X-100 for 15 minutes. The gel was immersed in 40-50 ml of 50 mM Tris-glycine (pH 7.5), 100 mM NaCl, 4 mM CaCl₂ and 0.02% Triton X-100 and incubated at 37°C for 16 hours. For detection of the gelatinolytic activity, the gel was stained with 0.05% Coomassie Blue.

ab125181 produced a prominent gelatinolytic band corresponding to a molecular mass of ~ 68 kDa.

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