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Product datasheet

Native human MMP2 protein (Active) ab168864

4 References

Description

Product name	Native human MMP2 protein (Active)
Biological activity	≥850mU/mg protein. One unit is defined as the amount of enzyme that hydrolyzes 1µmol Dnp-Pro-Gln-Gly-Ile-Ala-Gly-Gln-D-Arg-OH per min. at 37°C, pH 7.0. **Activation:** Requires activation by 2mM (final concentration) APMA or 1mM mersalic acid for 60-120 min. at 37°C. We do not recommend to use trypsin for activation! Do not dilute enzyme for activation! Specific activity can be assayed with the synthetic substrate N-(2,4)-dinitrophenyl-Pro-Gln-GlyIle-Ala-Gly-Gln-D-Arg (Dnp-peptide). Substrate concentration should be 0.5mg/ml containing 0.05mg/ml albumine. One unit MMP catalyzes the hydrolysis of 1µmol Dnp-peptide/min. at 37°C and pH 7.0. Alternatively the fluorogenic substrate (7-Methoxycoumarin-4-yl) acetyl-Pro-Leu-GlyLeu-N-β-Dnp-L-(α,β-diaminopropionyl)Ala-Arg-NH2 can be used. Hydrolysis of the Gly-Leu bond separates the highly fluorescent (7-Methoxycoumarin-4-yl)acetyl group from the 2,4-dinitrophenyl resulting in an increase of fluorogenic intensity. K_m: $7.0x10^5 M^{-1}s^{-1}$ Substrate should be kept as a 9.15mM stock solution in DMSO (10mg/ml). In the assay, the substrate concentration should be ~25µM. The assay can be performed in a 96-well microtiter plate (100/200µl per well) suitable for fluorogenic measurements (Ex 328 nm; Em 393 nm).
Purity	> 90 % SDS-PAGE. No other MMP contaminants are detectable.
Expression system	Native
Accession	P08253
Protein length	Full length protein
Animal free	No
Nature	Native
Species	Human
Sequence	APSPIIKFPG DVAPKTDKEL AVQYLNTFYG CPKESCNLFV LKDTLKKMQK FFGLPQTGDL DQNTIETMRK PRCGNPDVAN YNFFPRKPKW DKNQITYRII

GYTPDLDPET VDDAFARAFQ VWSDVTPLRF
SRIHDGEADI MINFGRWEHG DGYPFDGKDG
LLAHAFAPGT GVGGDSHFDD DELWTLGEGQ
VVRVKYGNAD GEYCKFPFLF NGKEYNSCTD
TGRSDGFLWC STTYNFEKDG KYGFCPHEAL
FTMGGNAEGQ PCKFPFRFQG TSYDSCTTEG
RTDGYRWCGT TEDYDRDKKY GFCPETAMST
VGGNSEGAPC VFPFTFLGNK YESCTSAGRS
DGKMWCATTA NYDDDRKWGF CPDQGYSLFL
VAAHEFGHAM GLEHSQDPGA LMAPIYTYTK
NFRLSQDDIK GIQELYGASP DIDLGTGPTP TLGPVTPEIC
KQDIVFDGIA QIRGEIFFFK DRFIWRTVTP RDKPMGPLLV
ATFWPELPEK IDAVYEAPQE EKAVFFAGNE
YWIYSASTLE RGYPKPLTSL GLPPDVQRVD
AAFNWSKNKK TYIFAGDKFW RYNEVKKKMD
PGFPKLIADA WNAIPDNLDA VVDLQGGGHS
YFFKGAYYLK LENQSLKSVK FGSIKSDWLG C

Predicted molecular weight	72 kDa
Amino acids	30 to 660
Additional sequence information	Full length mature protein, without the signal peptide.

Specifications

Our Abpromise guarantee covers the use of **ab168864** in the following tested applications.

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

Applications	Western blot Functional Studies SDS-PAGE
Form	Liquid
Additional notes	Inhibitors: Activated enzyme is inhibited by tissue inhibitors of matrix metalloproteinase-2 (TIMP-2) and by chelators of divalent cations like EDTA or o-phenanthroline.

Preparation and Storage

Stability and Storage	Shipped on Dry Ice. Upon delivery aliquot. Store at -80°C. Avoid freeze / thaw cycle. pH: 7.00 Preservative: 0.05% Sodium azide Constituents: 0.05% Brij, 0.06% Calcium chloride, 0.00001% Zinc chloride, 0.79% Tris HCl, 1.16% Sodium chloride This product is an active protein and may elicit a biological response in vivo, handle with caution.

General Info

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. PEX, the C-terminal non-catalytic fragment of MMP2, posseses anti-angiogenic and anti-tumor properties and inhibits cell migration and cell adhesion to FGF2 and vitronectin. Ligand for integrinv/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 integrinv/beta3.
Cellular localization	Secreted > extracellular space > extracellular matrix. Membrane. 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.

Terms and conditions

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