Recombinant Human MMP12(Macrophage Elastase), Inactive, Catalytic Domain

Cat. No. MMP12-164H **Lot. No.** (See product label)

SPECIFICATION

Product Overview	Recombinant Human matrix metalloproteinase-12 (MMP-12, metalloelastase, macrophage elastase) cloned from human cDNA was expressed in*E.coli*. The enzyme consists of the catalytic domain of human MMP-12 (residues 106-263 swissprot accession P39900). It has been inactivated by mutagenesis (E219A). MW=17.6kDa.
Species	Human
Source	E.coli
ProteinLength	106-263 a.a.
Description	Macrophage metalloelastase is an enzyme that in humans is encoded by the MMP12 gene. Proteins of the matrix metalloproteinase (MMP) family are involved in the breakdown of extracellular matrix in normal physiological processes, such as embryonic development, reproduction, and tissue remodeling, as well as in disease processes, such as arthritis and metastasis. Most MMP"s are secreted as inactive proproteins which are activated when cleaved by extracellular proteinases. It is thought that the protein encoded by this gene is cleaved at both ends to yield the active enzyme, but this processing has not been fully described. The enzyme degrades soluble and insoluble elastin. It may play a role in aneurysm formation and studies in mice suggest a role in the development of emphysema.

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Purity	>95% by SDS-PAGE. The enzyme was observed as a single band migrating at a molecular weight of < 20kDa.
Specific Activity	Not detected. Activity described as U=100pmol/min at 25ºC using a colorimetric assay with thiopeptolide Ac-Pro-Leu-Gly-[2-mercapto-4-methyl-pentanoyl]-Leu-Gly-OC_2H_5 (Biomol) as substrate.
Usage	Enzyme kinetic studies, cleavage of target substrates and screening of inhibitors.
Supplied As	0.2mg/ml in 20mM Tris, pH7.2, 10mM $CaCl_2$, 0.1mM $ZnCl_2$, 0.3M NaCl, 0.2M Acetohydroxamic Acid (AHA). The concentration is calculated from the absorbance at 280nm (e280=26030M-1cm-1).
Note	Under the above described conditions, to avoid precipitation or protein dimerization, the product can be concentrated to a maximum of 1mM.
Storage	-80ºC. The enzyme is stable at 4ºC for at least 2 weeks and at 25ºC for at least several hours. However, it is recommended that thawing and dilution of the enzyme be done within a short time before the start of the assay. After initial defrost, aliquot enzyme into individual tubes and refreeze at -80ºC. Avoid repeated freeze/defrost cycles.

GENE INFORMATION

Gene Name	MMP12 matrix metallopeptidase 12 (macrophage elastase) [Homo sapiens]
Synonyms	MMP12; matrix metallopeptidase 12 (macrophage elastase); HME; MME; MGC138506; MMP-12; ME; macrophage elastase; macrophage metalloelastase; EC 3.4.24.65; Matrix metalloproteinase-12; matrix etalloproteinase 12; Macrophage elastase; matrix metalloproteinase 12 (macrophage elastase)

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Gene ID	4321
mRNA Refseq	NM_002426
Protein Refseq	NP_002417
MIM	601046
UniProt ID	P39900
Chromosome Location	11q22.3
Function	calcium ion binding; metalloendopeptidase activity; peptidase activity; zinc ion binding
PDBrendering based on 1jiz.	

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