

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

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

## SPECIFICATION

|                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
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| <b>Product Overview</b> | Recombinant Human matrix metalloproteinase-12 (MMP-12, metalloelastase, macrophage elastase) cloned from human cDNA was expressed in <i>E.coli</i> . 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.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Species</b>          | Human                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Source</b>           | E.coli                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>ProteinLength</b>    | 106-263 a.a.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Description</b>      | 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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| <b>Purity</b>            | >95% by SDS-PAGE. The enzyme was observed as a single band migrating at a molecular weight of < 20kDa.                                                                                                                                                                                                                                                 |
| <b>Specific Activity</b> | Not detected. Activity described as U=100pmol/min at 25°C using a colorimetric assay with thiopeptolide Ac-Pro-Leu-Gly-[2-mercapto-4-methyl-pentanoyl]-Leu-Gly-OC <sub>2</sub> H <sub>5</sub> (Biomol) as substrate.                                                                                                                                   |
| <b>Usage</b>             | Enzyme kinetic studies, cleavage of target substrates and screening of inhibitors.                                                                                                                                                                                                                                                                     |
| <b>Supplied As</b>       | 0.2mg/ml in 20mM Tris, pH7.2, 10mM CaCl <sub>2</sub> , 0.1mM ZnCl <sub>2</sub> , 0.3M NaCl, 0.2M Acetohydroxamic Acid (AHA). The concentration is calculated from the absorbance at 280nm (e <sub>280</sub> =26030M <sup>-1</sup> cm <sup>-1</sup> ).                                                                                                  |
| <b>Note</b>              | Under the above described conditions, to avoid precipitation or protein dimerization, the product can be concentrated to a maximum of 1mM.                                                                                                                                                                                                             |
| <b>Storage</b>           | -80°C. The enzyme is stable at 4°C for at least 2 weeks and at 25°C 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 -80°C. Avoid repeated freeze/defrost cycles. |

## GENE INFORMATION

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| <b>Gene Name</b> | MMP12 matrix metalloproteinase 12 (macrophage elastase) [ Homo sapiens ]                                                                                                                                                                                                                   |
| <b>Synonyms</b>  | MMP12; matrix metalloproteinase 12 (macrophage elastase); HME; MME; MGC138506; MMP-12; ME; macrophage elastase; macrophage metalloelastase; EC 3.4.24.65; Matrix metalloproteinase-12; matrix metalloproteinase 12; Macrophage elastase; matrix metalloproteinase 12 (macrophage elastase) |

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| <b>Gene ID</b>             | 4321                                                                                     |
| <b>mRNA Refseq</b>         | NM_002426                                                                                |
| <b>Protein Refseq</b>      | NP_002417                                                                                |
| <b>MIM</b>                 | 601046                                                                                   |
| <b>UniProt ID</b>          | P39900                                                                                   |
| <b>Chromosome Location</b> | 11q22.3                                                                                  |
| <b>Function</b>            | calcium ion binding; metalloendopeptidase activity; peptidase activity; zinc ion binding |

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