# Active Recombinant Human MMP12 protein, mutation F171D, No Activation Required

**Cat. No.** MMP12-33H **Lot. No.** (See product label)

## SPECIFICATION

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| **Product Overview** | Recombinant matrix metalloproteinase-12 (MMP-12, metalloelastase, macrophage elastase) cloned from human cDNA, expressed in E. coli. The enzyme consists of the catalytic domain of human MMP-12 (residues 106-263, UniProtKB accession P39900) with the mutation F171D. The protein has been mutated to increase its stability, as the mutation drastically reduces the enzyme's rate of autoproteolysis. The catalytic activity rates are not affected by the mutation. |
| **Species** | Human |
| **Source** | E.coli |
| **ProteinLength** | 106-263 |
| **Description** | This gene encodes a member of the peptidase M10 family of matrix metalloproteinases (MMPs). Proteins in this 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. The encoded preproprotein is proteolytically processed to generate the mature protease. This protease degrades soluble and insoluble elastin. This gene may play a role in aneurysm formation and mutations in this gene are associated with lung function and chronic obstructive pulmonary disease (COPD). This gene is part of a cluster of MMP genes on chromosome 11. |

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| **Bio-activity** | > 40 U/μg. Activity described as U=100 pmol/min at 25 centigrade using a colorimetric assay with thiopeptide Ac-Pro-Leu-Gly-[2-mercapto-4-methyl-pentanoyl]-Leu-Gly-OC2H5 (Biomol) as substrate. |
| **Molecular Mass** | 17.6 kDa |
| **AA Sequence** | M-GPVWRKHYITYRINNYTPDMNREDVDYAIRKAFQVWSNVTPLKFSKINTGMADILVVFARGAHGDDHAFDGKGGILAHAFGPGSGIGGDAHFDEDEFWTTHSGGTNLFLTAVHEIGHSLGLGHSSDPKAVMFPTYKYVDINTFRLSADDIRGIQSLYG |
| **Purity** | > 95% by SDS-PAGE. The protein is observed, in denaturing conditions, as a single band migrating at a molecular weight between 14.4 and 18.4 kDa. |
| **Storage** | At -80 centigrade. After initial defrost, aliquot the product into individual tubes and refreeze at -80 centigrade. Avoid repeated freeze/thaw cycles. |
| **Concentration** | 0.2 mg/mL |
| **Storage Buffer** | Tris 20 mM pH 7.2, CaCl2 10 mM, ZnCl2 0.1 mM, NaCl 0.3 M, acetohydroxamic acid (AHA) 0.2 M. The concentration is calculated by the analysis of the absorbance at 280 nm, (ε280 = 26930 M-1cm-1 calculated). |
| **Shipping** | Dry Ice |
| **References** | 1. I. Bertini, et al. Proc Natl Acad Sci U S A. 2005 Apr 12; 102(15):5334-9.<br>2. S.D. Shapiro. Curr. Opin. Cell Biol. 1998, 10, 602.<br>3. S.D. Shapiro et al. J. Biol. Chem. 1993, 268, 23824.<br>4. A. Belaaouaj et al. J. Biol. Chem. 1995, 270, 14568. |

## GENE INFORMATION

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| **Gene Name** | MMP12 matrix metallopeptidase 12 [ Homo sapiens (human) ] |
| **Official Symbol** | MMP12 |
| **Synonyms** | MMP12; matrix metallopeptidase 12; ME; HME; MME; MMP-12; macrophage metalloelastase; matrix metallopeptidase 12 (macrophage elastase); matrix metalloproteinase 12 (macrophage elastase); EC 3.4.24.65; EC # 3.4.24.65 |
| **Gene ID** | 4321 |
| **mRNA Refseq** | NM_002426 |
| **Protein Refseq** | NP_002417 |
| **MIM** | 601046 |
| **UniProt ID** | P39900 |

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