

Human MMP1 Protein (His Tag)

Catalog Number: 10532-H08H



Sino Biological
Biological Solution Specialist

General Information

Gene Name Synonym:

CLG; CLGN

Protein Construction:

A DNA sequence encoding the pro form of human MMP1 enzyme (NP_002412.1) precursor (Met 1-Asn 469) was expressed with a C-terminal polyhistidine tag.

Source: Human

Expression Host: HEK293 Cells

QC Testing

Purity: > 95 % as determined by SDS-PAGE

Bio Activity:

Measured by its ability to cleave the fluorogenic peptide substrate, Mca-PLGL-Dpa-AR-NH₂, R&D System, Cat#ES010. The specific activity is >400 pmoles/min/μg (Activation description: The proenzyme needs to be activated by APMA for an activated form)

Endotoxin:

< 1.0 EU per μg of the protein as determined by the LAL method

Stability:

Samples are stable for up to twelve months from date of receipt at -70 °C

Predicted N terminal: Phe 20

Molecular Mass:

The secreted recombinant human MMP1 comprises 461 amino acids migrates as an approximately 50-55 kDa band as estimated in SDS-PAGE under reducing conditions.

Formulation:

Lyophilized from sterile 25mM MES, 10mM CaCl₂, 150mM NaCl, 0.05% Brij 35, pH 5.5

Normally 5 % - 8 % trehalose, mannitol and 0.01% Tween80 are added as protectants before lyophilization. Specific concentrations are included in the hardcopy of COA. Please contact us for any concerns or special requirements.

Usage Guide

Storage:

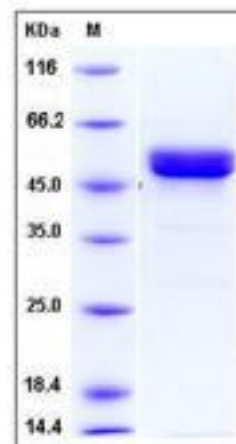
Store it under sterile conditions at -20°C to -80°C upon receiving. Recommend to aliquot the protein into smaller quantities for optimal storage.

Avoid repeated freeze-thaw cycles.

Reconstitution:

Detailed reconstitution instructions are sent along with the products.

SDS-PAGE:



Protein Description

MMP1, also known as MMP-1, contains 4 hemopexin-like domains and is a member of the matrix metalloproteinase (MMP) family. Matrix metalloproteinases, also called matrixins, are zinc-dependent endopeptidases that are the major proteases involved in ECM degradation. MMPs are capable of degrading a wide range of extracellular molecules and a number of bioactive molecules. MMP activity is regulated by two major endogenous inhibitors: alpha2-macroglobulin and tissue inhibitors of metalloproteinases (TIMPs). MMPs play a central role in cell proliferation, migration, differentiation, angiogenesis, apoptosis and host defences. Dysregulation of MMPs has been implicated in many diseases including arthritis, chronic ulcers, encephalomyelitis and cancer. Tumour metastasis is a multistep process involving the dissemination of tumor cells from the primary tumor to secondaries at a distant organ or tissue. One of the first steps in metastasis is the degradation of the basement membrane, a process in which MMPs have been implicated. MMPs are secreted by tumor cells themselves or by surrounding stromal cells stimulated by the nearby tumor. Numerous studies have linked altered MMP expression in different human cancers with poor disease prognosis. MMP-1, -2, -3, -7, -9, -13 and -14 all have elevated expression in primary tumors and/or metastases. MMP-1 cleaves collagens of types I, II, and III at one site in the helical domain. It also cleaves collagens of types VII and X. In case of HIV infection, MMP1 interacts and cleaves the secreted viral Tat protein, leading to a decrease in neuronal Tat's mediated neurotoxicity.

References

1. Gross J, *et al.* (1962) Collagenolytic Activity in Amphibian Tissues: A Tissue Culture Assay. Proceedings of the National Academy of Sciences. 48(6):1014-22.
2. Pendas, *et al.* (1996) Fine Physical Mapping of the Human Matrix Metalloproteinase Genes Clustered on Chromosome 11q22.3. Genomics. 37(2):266-8.
3. Brinckerhoff C E, *et al.* (1987) Molecular cloning of human synovial cell collagenase and selection of a single gene from genomic DNA. Journal of Clinical Investigation. 79(2):542-6.

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