

PRODUCT INFORMATION



MMP-1 (human, recombinant)

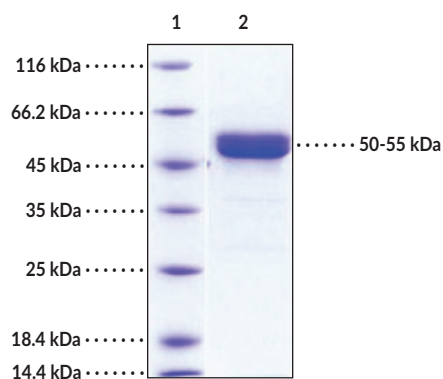
Item No. 35438

Overview and Properties

Synonyms:	Collagenase-1, Fibroblast Collagenase, Interstitial Collagenase, Matrix Metalloproteinase-1
Source:	Active recombinant human C-terminal His-tagged MMP-1 expressed in HEK293 cells
Amino Acids:	20-469
Uniprot No.:	P03956
Molecular Weight:	50-55 kDa
Storage:	-80°C (as supplied)
Stability:	≥1 year
Purity:	≥96% estimated by SDS-PAGE
Supplied in:	Lyophilized from sterile 25 mM MES, pH 5.5, with 10 mM calcium chloride, 150 mM sodium chloride, and 0.05% Brij 35
Endotoxin Testing:	<1.0 EU/μg, determined by the LAL endotoxin assay
Bioactivity:	Measured by its ability to cleave the fluorogenic peptide substrate, McaPLGL-Dpa-AR-NH2

Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Image



Lane 1: MW Markers
Lane 2: MMP-1

SDS-PAGE Analysis of MMP-1. This protein has an apparent molecular weight of approximately 50-55 kDa by SDS-PAGE under reducing conditions.

WARNING
THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA
This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

WARRANTY AND LIMITATION OF REMEDY
Buyer agrees to purchase the material subject to Cayman's Terms and Conditions. Complete Terms and Conditions including Warranty and Limitation of Liability information can be found on our website.

Copyright Cayman Chemical Company, 11/08/2021

CAYMAN CHEMICAL

1180 EAST ELLSWORTH RD

ANN ARBOR, MI 48108 · USA

PHONE: [800] 364-9897

[734] 971-3335

FAX: [734] 971-3640

CUSTSERV@CAYMANCHEM.COM

WWW.CAYMANCHEM.COM

PRODUCT INFORMATION



Description

Matrix metalloproteinase-1 (MMP-1) is an endopeptidase that has a major role in tissue remodeling.^{1,2} It is composed of an N-terminal extracellular signal peptide, a prodomain containing a cysteine switch that interacts with the catalytic domain to regulate the proteolytic activity of MMP-1, a catalytic domain, and a C-terminal domain containing four hemopexin-like repeats which confer specificity for collagen.¹ MMP-1 is ubiquitously expressed at low levels under normal physiological conditions and localizes to the extracellular space.² It is primarily involved in the degradation of the extracellular matrix with type I collagen being its main substrate, but also degrades types II, III, V, IX, and X fibrillar collagens. MMP-1 also cleaves cell surface molecules such as insulin-like growth factor 1 (IGF-1) binding protein 3 (IGFBP3) and TNF- α .¹ Knockdown of *MMP1* inhibits the proliferation, migration, and invasion of colorectal cancer cells.³ *MMP1* transgenic mice exhibit increased alveolar damage following exposure to *M. tuberculosis*.⁴ Polymorphisms of *MMP1* are associated with several diseases, including various cancers, periodontitis, and coronary artery disease.² Cayman's MMP-1 (human, recombinant) protein can be used for enzyme activity applications. This protein consists of 461 amino acids and has a predicted N-terminus of Phe20 after signal peptide cleavage. By SDS-PAGE, under reducing conditions, the apparent molecular mass of the protein is 50-55 kDa.

References

1. Pardo, A. and Selman, M. MMP-1: The elder of the family. *Int. J. Biochem. Cell Biol.* **37(2)**, 283-288 (2005).
2. Arakaki, P.A., Marques, M.R., and Santos, M.C.L.G. MMP-1 polymorphism and its relationship to pathological processes. *J. Biosci.* **34(2)**, 313-320 (2009).
3. Wang, K., Zheng, J., Yu, J., *et al.* Knockdown of MMP-1 inhibits the progression of colorectal cancer by suppressing the PI3K/Akt/c-myc signaling pathway and EMT. *Oncol. Rep.* **43(4)**, 1103-1112 (2020).
4. Elkington, P., Shiomi, T., Breen, R., *et al.* MMP-1 drives immunopathology in human tuberculosis and transgenic mice. *J. Clin. Invest.* **121(5)**, 1827-1833 (2011).

CAYMAN CHEMICAL
1180 EAST ELLSWORTH RD
ANN ARBOR, MI 48108 · USA
PHONE: [800] 364-9897
[734] 971-3335
FAX: [734] 971-3640
CUSTSERV@CAYMANCHEM.COM
WWW.CAYMANCHEM.COM