Data Sheet (Cat.No.TMPY-01248)

TargetMol

MMP-9 Protein, Human, Recombinant

General Information

Synonyms:	MANDP2;MMP-9;GELB;matrix metallopeptidase 9;CLG4B
Protein Construction:	A DNA sequence encoding the human MMP9 zymogen (NP_004985.2) (Met 1-Asp 707) was expressed. Predicted N terminal: Ala 20
Species:	Human
Expression Host:	HEK293 Cells
Accession:	P14780
Molecular Weight:	76.3 kDa (predicted); 80-95 kDa (reducing condition, due to glycosylation)

QC Testing

Biological Activity:	Measured by its ability to cleave the fluorogenic peptide substrate, Mca-PLGL-Dpa-AR-NH2. The specific activity is >600 pmoles/min/μg. (Activation description: The proenzyme needs to be activated by APMA for an activated form)
Purity:	≥ 90 % as determined by SDS-PAGE. ≥ 95 % as determined by SEC-HPLC.
Endotoxin:	< 1.0 EU/μg of the protein as determined by the LAL method.
Formulation:	Lyophilized from a solution filtered through a 0.22 μm filter, containing 50 mM Tris, 0.15M NaCl, 0.01MCaCl2, 0.05% Brig-35, pH 7.5. Typically, a mixture containing 5% to 8% trehalose, mannitol, and 0.01% Tween 80 is incorporated as a protective agent before lyophilization.

Preparation and Storage

Reconstitution:

A Certificate of Analysis (CoA) containing reconstitution instructions is included with the products. Please refer to the CoA for detailed information.

Stability & Storage:

It is recommended to store recombinant proteins at -20°C to -80°C for future use. Lyophilized powders can be stably stored for over 12 months, while liquid products can be stored for 6-12 months at -80°C. For reconstituted protein solutions, the solution can be stored at -20°C to -80°C for at least 3 months. Please avoid multiple freeze-thaw cycles and store products in aliquots.

Shipping:

In general, Lyophilized powders are shipping with blue ice.

Protein Background

Matrix metalloproteinases (MMPs) are neutral proteinases that are involved in the breakdown and remodeling of the extracellular matrix (ECM) under a variety of physiological and pathological conditions, such as morphogenesis, differentiation, angiogenesis, and tissue remodeling, as well as pathological processes including inflammation, arthritis, cardiovascular diseases, pulmonary diseases, and tumor invasion. MMP9, also known as

92-kDa gelatinase B/type IV collagenase, is secreted from neutrophils, macrophages, and some transformed cells, and is the most complex family member in terms of domain structure and regulation of its activity. It plays an important role in tissue remodeling in normal and pathological inflammatory processes. MMP-9 is a major secretion product of macrophages and a component of cytoplasmic granules of neutrophils and is particularly important in the pathogenesis of inflammatory, infectious, and neoplastic diseases in many organs including the lung. This enzyme is also secreted by lymphocytes and stromal cells upon stimulation by inflammatory cytokines, or upon delivery of bi-directional activation signals following integrin-mediated cell-cell or cell-extracellular matrix (ECM) contacts. Since the integrity of the tissue architecture is closely dependent on the delicate balance between MMPs and their inhibitors, excessive production of MMP-9 is linked to tissue damage and degenerative inflammatory disorders. As a consequence, regulation of gene transcription and tissue-specific expression of MMP-9 in normal and diseased states are being actively investigated to pave the way for new therapeutic targets. Besides, the dramatic overexpression of MMP-9 in cancer and various inflammatory conditions points to the molecular mechanisms controlling its expression as a potential target for eventual rational therapeutic intervention.

Reference

St-Pierre Y,et al.(2003) Emerging features in the regulation of MMP-9 gene expression for the development of novel molecular targets and therapeutic strategies. Curr Drug Targets Inflamm Allergy. 2(3): 206-15.

St-Pierre Y,et al.(2004) Regulation of MMP-9 gene expression for the development of novel molecular targets against cancer and inflammatory diseases. Expert Opin Ther Targets. 8(5): 473-89.

Chakrabarti S,et al.(2005) Matrix metalloproteinase-2 (MMP-2) and MMP-9 in pulmonary pathology. Exp Lung Res. 31(6): 599-621.

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