

MMP-2 Protein, Human, Recombinant

General Information

Synonyms:	TBE-1;MMP-II;matrix metalloproteinase 2;MONA;CLG4;CLG4A;MMP-2
Protein Construction:	A DNA sequence encoding the native human MMP2 (NP_004521.1) (Met 1-Cys 660) was expressed and purified. Predicted N terminal: Ala 30
Species:	Human
Expression Host:	HEK293 Cells
Accession:	P08253
Molecular Weight:	72 kDa (reducing conditions)

QC Testing

Biological Activity:	<ol style="list-style-type: none">1. Measured by its ability to cleave the fluorogenic peptide substrate Mca-PLGL-Dpa-AR-NH₂. The specific activity is > 1,000 pmoles/min/μg. (Activation description: The proenzyme needs to be activated by APMA for an activated form)2. Measured by its binding ability in a functional ELISA. Immobilized Human MMP-2 at 2 μg/ml (100 μl/well) can bind Human TIMP2 hFc, the EC₅₀ of Human TIMP2 hFc is 6.0-30.0 ng/mL.
Purity:	≥ 90 % as determined by SDS-PAGE ≥ 90 % 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 0.05% Brij-35, 150 mM NaCl, 5 mM CaCl ₂ , 50 mM Tris, 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:
Reconstituted with sterile deionized water to 0.25 mg/mL. Reconstitution conditions may vary depending on the lot.

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.

Actual storage temperature shall be subject to the COA.

Shipping:

In general, lyophilized powders are shipped with blue ice, while solutions are shipped with dry ice.

Protein Background

Matrix Metalloproteinase-2 (MMP-2) is an enzyme that degrades components of the extracellular matrix and thus plays a pivotal role in cell migration during physiological and pathological processes. MMP-2 expression is dependent on extracellular matrix metalloproteinase inducer (EMMPRIN), Her2/neu, growth factors, cytokines, and hormones. Pro-MMP-2 activation needs MT1-MMP and TIMP-2 contribution. MMP-2 is changed in distribution and increased in amount in the ventral cochlear nucleus after unilateral cochlear ablation. A low level of MMP-2 is linked to a favorable prognosis in patients with a hormone receptor-negative tumor, usually associated with high risk. As a zymogen requiring proteolytic activation for catalytic activity, MMP-2 has been implicated broadly in the invasion and metastasis of many cancer model systems, including human breast cancer (HBC). Blocking MMP-2 secretion and activation during breast carcinoma development may decrease metastasis. The detection of active MMP-2 alone or the rate of pro-MMP-2 and active MMP-2 is considered a very sensitive indicator of cancer metastasis. Modulation of MMP-2 expression and activation through specific inhibitors and activators may thus provide a new mechanism for breast cancer treatment.

Reference

Jeziarska A, et al. (2009) Matrix metalloproteinase-2 involvement in breast cancer progression: a mini-review. *Med Sci Monit.* 15(2): RA32-40.

Fredrich M, et al. (2010) MMP-2 is involved in synaptic remodeling after cochlear lesion. *Neuroreport.* 21(5): 324-7.

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