Data Sheet (Cat.No.TMPY-00932)

TargetMol

TIMP-1 Protein, Human, Recombinant (His)

General Information

Synonyms:	CLGI;EPA;TIMP;TIMP-1;EPO;TIMP metallopeptidase inhibitor 1;HCI
Protein Construction:	A DNA sequence encoding the human TIMP1 (NP_003245.1) (Met 1-Ala 207) with a C-terminal polyhistidine tag was expressed. Predicted N terminal: Cys 24
Species:	Human
Expression Host:	HEK293 Cells
Accession:	P01033
Molecular Weight:	22 kDa (predicted); 30 kDa (reducing condition, due to glycosylation)

QC Testing

Biological Activity:	Measured by its ability to inhibit human MMP-2 cleavage of a fluorogenic peptide substrate MCA-PLGL-DPA-AR-NH2. The IC50 value is < 6 nM.
Purity:	> 97 % as determined by SDS-PAGE
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 PBS, pH 7.4. 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.

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

TIMP metallopeptidase inhibitor 1, also known as TIMP-1/TIMP1, Collagenase inhibitor 16C8 fibroblast Erythroid-potentiating activity, TPA-S1TPA-induced proteinTissue inhibitor of metalloproteinases 1, is a natural inhibitors of the matrix metalloproteinases (MMPs), a group of peptidases involved in degradation of the extracellular matrix. TIMP-1/TIMP1 is found in fetal and adult tissues. Highest levels are found in bone, lung, ovary and uterus. Complexes with metalloproteinases and irreversibly inactivates them by binding to their catalytic zinc cofactor.

TIMP-1/TIMP1 mediates erythropoiesis in vitro; but, unlike IL-3, it is species-specific, stimulating the growth and differentiation of only human and murine erythroid progenitors. In addition to its inhibitory role against most of the known MMPs, the protein is able to promote cell proliferation in a wide range of cell types, and may also have an anti-apoptotic function. Transcription of this protein encoding gene is highly inducible in response to many cytokines and hormones. In addition, the expression from some but not all inactive X chromosomes suggests that this gene inactivation is polymorphic in human females. This encoding gene is located within intron 6 of the synapsin I gene and is transcribed in the opposite direction. Complexes with metalloproteinases and irreversibly inactivates them by binding to their catalytic zinc cofactor. TIMP-1/TIMP1 is Known to act on MMP-1, MMP-2, MMP-3, MMP-7, MMP-8, MMP-9, MMP-10, MMP-11, MMP-12, MMP-13 and MMP-16.

Reference

Hornebeck W (2004). Down-regulation of tissue inhibitor of matrix metalloprotease-1 (TIMP-1) in aged human skin contributes to matrix degradation and impaired cell growth and survival.. Pathol. Biol. 51 (10): 569-73.

Soini Y, et al. (2001) Expression of MMP2, MMP9, MT1-MMP, TIMP-1, and TIMP2 mRNA in valvular lesions of the heart. J Pathol. 194(2):225-31.

Wang X, et al. (1999) Analysis of coding sequences for tissue inhibitor of metalloproteinases 1 (TIMP-1) and 2 (TIMP2) in patients with aneurysms. Matrix Biol. 18(2):121-4.