TIMP-1 Protein, Human (184a.a, HEK293, His)

Cat. No.:	HY-P71055
Synonyms:	Metalloproteinase Inhibitor 1; Erythroid-Potentiating Activity; EPA; Fibroblast collagenase Inhibitor; Collagenase Inhibitor; Tissue Inhibitor of Metalloproteinases 1; TIMP-1; TIMP1; CLGI; TIMP
Species:	Human
Source:	HEK293
Accession:	P01033 (C24-A207)
Gene ID:	7076
Molecular Weight:	Approximately 27.0 kDa

PROPERTIES

AA Sequence	C T C V P P H P Q T A F C N S D L V I R A K F V G T P E V N Q T T L Y Q R Y E I K M T K M Y K G F Q A L G D A A D I R F V Y T P A M E S V C G Y F H R S H N R S E E F L I A G K L Q D G L L H I T T C S F V A P W N S L S L A Q R R G F T K T Y T V G C E E C T V F P C L S I P C K L Q S G T H C L W T D Q L L Q G S E K G F Q S R H L A C L P R E P G L C T W Q S L R S Q I A
Biological Activity	Measured in a cell proliferation assay using NIH-3T3 mouse fibroblast cells. The ED_{50} this effect is 19.88 ng/mL, corresponding to a specific activity is 5.03×10^4 units/mg.
Appearance	Lyophilized powder.
Formulation	Lyophilized from a 0.2 μm filtered solution of PBS, pH 7.4 or50 mM Tris-HCL, 300 mM NaCl, pH 7.4.
Endotoxin Level	<1 EU/μg, determined by LAL method.
Reconsititution	It is not recommended to reconstitute to a concentration less than 100 μg/mL in ddH_2O. For long term storage it is recommended to add a carrier protein (0.1% BSA, 5% HSA, 10% FBS or 5% Trehalose).
Storage & Stability	Stored at -20°C for 2 years. After reconstitution, it is stable at 4°C for 1 week or -20°C for longer (with carrier protein). It is recommended to freeze aliquots at -20°C or -80°C for extended storage.
Shipping	Room temperature in continental US; may vary elsewhere.

DESCRIPTION

Background	TIMP-1, a metalloproteinase inhibitor, operates through the formation of one-to-one complexes with target metalloproteinases, including collagenases, leading to their irreversible inactivation by binding to the catalytic zinc cofactor. Its inhibitory spectrum encompasses MMP1, MMP2, MMP3, MMP7, MMP8, MMP9, MMP10, MMP11, MMP12, MMP13, and MMP16, excluding MMP14. Beyond its role as an enzyme inhibitor, TIMP-1 functions as a growth factor, orchestrating

cell differentiation, migration, and cell death while activating intricate cellular signaling cascades through interactions with CD63 and ITGB1. This multifaceted protein also plays a crucial role in integrin signaling and, notably, mediates erythropoiesis in vitro, exhibiting species-specific stimulation of human and murine erythroid progenitors, distinct from IL3. Moreover, TIMP-1 engages in protein-protein interactions with MMP1, MMP3, MMP10, and MMP13, demonstrating its regulatory influence on these metalloproteinases. It forms a complex with CD63 and ITGB1, further emphasizing its involvement in complex cellular signaling networks.

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