Recombinant Human TIMP-2 Active

Human recombinant protein expressed in *Nicotiana benthamiana*

RF0101
Alternative Names: CSC-21K, Tissue inhibitor of
Molecular Formula:C997H1536N274O292S17
UniProtKB: P16035
p.I: 6,84

Available sizes: 10 µg, 50 µg, 100 µg, 250 µg of active protein
Ext. Coeff. Abs (280nm) 0.1% (=1g/l) =1,47
Purity >95% by SDS-PAGE gel
Serological identification by WB with specific antibody
Endotoxin Level : < 0.04 EU / µg protein (LAL method)

Molecular Weight:

Recombinant human TIMP-2 is a 22.5 kDa protein containing 194 amino acid residues (27 al 220 P16035 TIMP2_HUMAN) with a His tag N-terminal.

Sequence:

HHHHHHCSCSPVHPQQAFCNADVVIRAKAVSEKEVDSGNDIYG
NPIKRIQYEIKQIKMFKGPEKDIEFIYTAPSSAVCGVSLDVGGKKE
YLIAGKAEGDGKMHITLCDFIVPWDTLSTTQKKSLNHRYQMGCE
CKITRCPMIPCYISSPDECLWMDWVTEKNINGHQAKFFACIKRS
DGSCAWYRGAAPPKQEFLDIEDP

Formulation:

Recombinant human TIMP-2 is lyophilized from 10mM Phosphate Potasium buffer pH 8 and 50 mM NaCl.

Description:

The tissue inhibitors of metalloproteinases (TIMPs) are naturally-occurring proteins that specifically inhibit matrix metalloproteinases and regulate extracellular matrix turnover and tissue remodeling by forming tight bound inhibitory complexes with the MMPs. Thus, TIMPs maintain the balance between matrix destruction and formation. An imbalance between MMPs and the associated TIMPs may play a significant role in the invasive phenotype of malignant tumors. MMPs play an important role in wound healing, apoptosis, bone elongation, embryo development, uterine involution, angiogenesis, and tissue remodeling, and in diseases such as multiple sclerosis, Alzheimer's, malignant gliomas, lupus, arthritis, periodontitis, glomerulonephritis, atherosclerosis, tissue ulceration, and in cancer cell invasion and metastasis. Numerous studies have shown that there is a close association between expression of various members of the MMP family by tumors and their proliferative and invasive behavior and metastatic potential.
TIMP-2 can also act through an MMP-independent mechanism inhibiting endothelial cell proliferation in vitro and demonstrates anti angiogenic activities in vivo.

Source:

Human recombinant protein expressed in Nicotiana benthamiana. It is produced by transient expression in nontransgenic plants and is purified by standard protein purification methods. This product contains no animal–derived components or impurities. Animal Free product.

Reconstitution Recommendation:

Lyophilized protein should be reconstituted in water following instructions of batch Quality Control sheet. At higher concentrations the solubility may be reduced and multimers generated. Optimal concentration should be determined for specific application.

Storage and Stability:

This lyophilized preparation is stable at 2-8º C for short term, long storage it should be kept at -20ºC. Reconstituted protein should be stored in working aliquots at –20°C. Repeated freezing and thawing is not recommended.

References:

Chandler, S., et al., 1997.Matrix metalloproteinases, tumor necrosis factor and multiple sclerosis: an overview. J. Neuroimmunol., 72, 155-161.
Yong, V.W., et al., 1998. Matrix metalloproteinases and diseases of the CNS. Tr. Neuro., 21, 75-80.
Birkedal-Hansen, H., et al., 1993. Matrix metalloproteinases: a review. Crit. Rev. Oral. Biol. Med., 4, 197-250.
Vaalamo, A. M. et al., 1999. Differential Expression of Tissue Inhibitors of Metalloproteinases (TIMP-I, -2, -3, and -4) in Normal and Aberrant Wound Healing. Human Pathology. Volume 30, No. 7 pag, 795-802.
Dong-Wan Seo et al., 2003.TIMP-2 Mediated Inhibition of Angiogenesis: An MMP-Independent Mechanism. Cell, Vol. 114, 171–180.
Brewa, K. and H. Nagaseb, 2010. The tissue inhibitors of metalloproteinases (TIMPs): An ancient family with structural and functional diversity. Biochim Biophys Acta. January; 1803(1): 55–71.

Applications:

Functional studies, Cell assay, SDS-PAGE, Western Blot, Antibody Production.

For R+D purposes only. Purchaser must determine the suitability of the product for their particular use.
Upon this protein has not been tested in a particular technique this not necessarily excludes its use in such procedures.

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Product(s) expressed through a transient plant system are intrinsically Animal-free

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Purity Confirmation:

The protein was resolved by SDS polyacrylamide gel electrophoresis and the gel was stained with coomassie blue. Fig. 1.

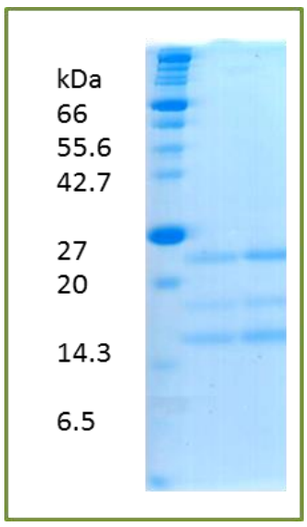

Figure 1.- SDS-PAGE analysis of recombinant TIMP-2. Samples were loaded in 15% SDS-polyacrylamide gel and stained with Coomassie blue. Lane 1: Molecular weight marker (MWM; kDa); Lane 2 and 3 contains 0.1 and 0.2 ug of rhuman TIMP-2. The recombinant protein migrate as a broad band between 14 to 22,5 kDa under reducing conditions. All bands shown in lane 2 have been identify by MALDI-TOFF as human TIMP-2.

Serological Identification:

The protein was electrophoresed under reducing condition on a 15% SDS-polyacrylamide gel, transferred by electro blotting to a NC membrane and visualized by immune-detection with specific TIMP-2 antibody. Fig. 2.

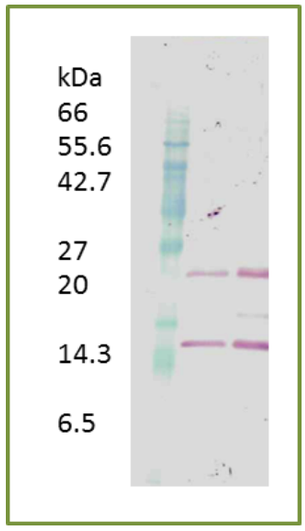

Figure 2.- Analysis of rhuman TIMP-2 with specific antibody by Western Blot; Lane 1: Molecular weight marker (MWM; kDa); Lane 2 and 3 contains 0.1 and 0.2 ug of rhuman TIMP-2.

Bioassay:

1.TIMP-2 activity was measured by its ability to inhibit human MMP-1 induced hydrolysis of a chromogenic peptide substrate at room temperature.

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