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Product Information

Anti-Tissue Inhibitor of Metalloproteinase-3, First Loop
produced in rabbit, affinity isolated antibody

Catalog Number **T7687**

Synonym: Anti-TIMP-3

Product Description
Anti-Tissue Inhibitor of Metalloproteinase-3 is produced in rabbit using as immunogen a synthetic peptide corresponding to the first loop of the human TIMP-3 sequence. The antibody is affinity-purified using the immunizing peptide immobilized on agarose.

Anti-TIMP-3 recognizes human TIMP-3. Applications include the detection of TIMP-3 both unglycosylated and glycosylated by immunoblotting (24 kDa and 30 kDa, respectively). It also reacts with non-reduced TIMP-3.

The tissue inhibitors of metalloproteinases (TIMPs) are naturally occurring proteins that specifically inhibit matrix metalloproteinases (MMPs) and regulate extracellular matrix turnover and tissue remodeling by forming tight-binding 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. TIMP proteins share several structural features including six loops help in place by six disulfide bonds arranged in three knot like structures. The N-terminus of each TIMP contains a consensus sequence (VIRAK) and each TIMP is translated with a 29 amino acid leader sequence that is cleaved off to produce the mature protein. The C-terminal regions are divergent, which may enhance the selectivity of inhibition and binding efficiency. Although the TIMP proteins share high homology, following secretion they are localized extracellularly either in soluble form (TIMP1, TIMP2, and TIMP4) or bound to extracellular matrix components (TIMP3).

The MMPs and TIMPs can be divided into two groups with respect to gene expression: the majority exhibit inducible expression and a small number are produced constitutively or are expressed at very low levels and are not inducible. Among agents that induce MMP and TIMP production are the inflammatory cytokines TNFα and IL-1β. A marked cell type specificity is a hallmark of both MMP and TIMP gene expression (i.e., a limited number of cell types can be induced to make these proteins).

Tissue Inhibitor of Metalloproteinases-3 (TIMP-3) was first purified from chicken embryo fibroblasts and identified as CHIMP-3.[1] The human homolog, TIMP-3, was originally detected as serum inducible protein in WI-38 fibroblast.[2] The TIMP3 localization differs from that of the other three TIMPs, and is thought to be primarily deposited into the extracellular matrix (ECM). It is insoluble and binds to the ECM by a variety of cell types and is widely distributed throughout the body.[3,4] TIMP-3 shows 30% amino acid identity with TIMP-1 and 38% homology with TIMP-2.[1] TIMP-3 has been shown to promote the detachment of transformed cells from ECM and to accelerate morphological changes associated with cell transformation.[5] Furthermore, up-regulation of TIMP-3 has been associated with a block in the G1 phase of the cell cycle during differentiation of HL-60 leukemia cells.[2] The human TIMP-3 gene has the chromosomal location of 22q12-22q13.[6]

TIMP3 mRNA is highly expressed in placenta but is also found in the heart, kidney, lung, pancreas, uterus and skeletal muscle with low levels in the brain. In endometrium, TIMP3 is reported to be expressed in luminal epithelium, glands, stroma, endothelial cells and vascular smooth muscle cells. TIMP3 is also reported to be expressed by fibroblast-like cells in ulcerated intestinal wall

Reagent
Supplied as a solution in phosphate buffered saline, pH 7.4, containing 50% glycerol, and 0.05% sodium azide as a preservative.

Antibody concentration: ~1.0 mg/mL

Precautions and Disclaimer
This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

Storage/Stability
For continuous use, store at 2-8 °C for up to one month. For extended storage, freeze in working aliquots. Repeated freezing and thawing, or storage in "frost-free" freezers, is not recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use. Working dilutions should be discarded if not used within 12 hours.

Product Profile
Immunoblotting: a dilution of 1:1000 is recommended using whole cell extract from human fibroblasts.

Note: In order to obtain the best results using various techniques and preparations, we recommend determining the optimal working dilutions by titration.

References

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5. Yang, T.T., and Hawkes, S.P., *Proc. Nat'l Acad. Sci., USA*, 89, 10676 (1992).
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