Data Sheet (Cat.No.TMAB-13557)

TargetMol

Anti-TIMP-4 Polyclonal Antibody

Product Details

Ig Type:	IgG
Reactivity:	Human,Rat (predicted:Mouse,Cow,Horse,Rabbit)
Molecular Weight:	Theoretical: 22 kDa.
Purification:	Protein A purified

Applications

Verified Activity:	1. Tissue/cell: human endometrium carcinoma; 4% Paraformaldehyde-fixed and paraffin-embedded; Antigen retrieval: citrate buffer (0.01 M, pH 6.0), Boiling bathing for 15 min; Block endogenous peroxidase by 3% Hydrogen peroxide for 30 min; Blocking buffer (normal goat serum) at 37°C for 20 min; Incubation: Anti-TIMP-4 Polyclonal Antibody, Unconjugated (TMAB-13557) 1:300, overnight at 4°C, followed by conjugation to the secondary antibody and DAB staining 2. Paraformaldehyde-fixed, paraffin embedded (Rat heart); Antigen retrieval by boiling in sodium citrate buffer (pH6.0) for 15 min; Block endogenous peroxidase by 3% hydrogen peroxide for 20 minutes; Blocking buffer (normal goat serum) at 37°C for 30 min; Antibody incubation with (TIMP-4) Polyclonal Antibody, Unconjugated (TMAB-13557) at 1:500 overnight at 4°C, followed by a conjugated secondary for 20 minutes and DAB staining.
Application:	IHC-P,IHC-Fr,IF
Recommended	IHC-P: 1:100-500; IHC-Fr: 1:100-500; IF: 1:100-500

Properties

Stability & Storage:	Store at 2°C-8°C for 1 month. Store at -20°C or -80°C for 12 months. Avoid repeated freeze-thaw cycles.
Shipping:	Shipping with blue ice.

Antigen Details

Immunogen:	KLH conjugated synthetic peptide: human TIMP-4
Antigen Species:	Human
Gene ID:	7079
Uniprot ID:	Q99727

Research Background

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 tightbinding 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. The TIMP proteins share several structural features including six loops held in place by six disulfide bonds arranged in three knot-like structures. These proteins also contain twelve cysteine residues in conserved regions of the molecule that form six disulfide bonds, essential for the formation of native conformations,

and the N terminal region that is necessary for inhibitory activities. 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 enhances the selectivity of inhibition and binding efficiency. Although the TIMP proteins share high homology, they may either be secreted extracellularly in soluble form (TIMP1, TIMP2 and TIMP4) or bind 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 TNF alpha and IL1 beta. 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 4 (TIMP4) was identified by molecular cloning. TIMP4 shows 37 % amino acid identity with TIMP1 and 51 % homology with TIMP2 and TIMP3. TIMP4 is secreted extracellularly, predominantly in heart and brain tissue. It may function in a tissue specific fashion in extracellular matrix (ECM) homeostasis. TIMP4 has a strong inhibitory effect on the invasion of human breast cancer cells across reconstituted basement membranes suggesting that TIMP4 may have an important role in inhibiting primary tumor growth and progression. The human TIMP4 gene has the chromosomal location of 3p25.

Inhibitor · Natural Compounds · Compound Libraries · Recombinant Proteins

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