

TYMP Antibody / Thymidine phosphorylase / PD-ECGF (FY13337)

Catalog No.	Formulation	Size
FY13337	Adding 0.2 ml of distilled water will yield a concentration of 500 ug/ml	100 ug

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Availability	1-2 days
Species Reactivity	Human
Format	Lyophilized
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit IgG
Purity	Immunogen affinity purified
Buffer	Each vial contains 4 mg Trehalose, 0.9 mg NaCl, 0.2 mg Na ₂ HPO ₄ .
UniProt	P19971
Applications	Western Blot : 0.25-0.5ug/ml Immunoprecipitation : 2-4ug/500ug of lysate Flow Cytometry : 1-3ug/million cells ELISA : 0.1-0.5ug/ml
Limitations	This TYMP antibody is available for research use only.

Description

TYMP antibody detects Thymidine phosphorylase, also known as Platelet-derived endothelial cell growth factor (PD-ECGF), an enzyme encoded by the TYMP gene located on chromosome 22q13.33. TYMP is a cytoplasmic enzyme that catalyzes the reversible phosphorolysis of thymidine to thymine and 2-deoxy-D-ribose-1-phosphate, functioning in nucleotide metabolism and angiogenic signaling. It is widely expressed in endothelial cells, macrophages, and platelets, with particularly high levels observed in tumor vasculature and regenerative tissues. TYMP plays a dual role as a metabolic enzyme and a pro-angiogenic factor, linking DNA salvage pathways with vascular growth regulation.

As a key enzyme in pyrimidine salvage metabolism, TYMP maintains nucleotide pool balance for DNA synthesis and repair. Beyond its catalytic role, extracellular TYMP functions as PD-ECGF, promoting endothelial cell migration, angiogenesis, and wound healing. TYMP activity increases during hypoxia and tissue regeneration, facilitating the formation of new capillaries in response to injury or ischemia. Co-localization studies show TYMP associating with endothelial integrins and extracellular matrix components in angiogenic tissues.

Structurally, TYMP forms a homodimer with each subunit containing a thymidine-binding pocket and phosphate-binding

residues essential for catalysis. It belongs to the thymidine phosphorylase family of pyrimidine salvage enzymes. The enzyme's catalytic activity also generates deoxyribose sugars that act as angiogenic mediators, linking metabolism to vascular signaling. TYMP interacts with molecules such as integrin $\alpha v \beta 3$ and extracellular matrix proteins to enhance endothelial cell adhesion and migration.

Functionally, TYMP contributes to multiple biological processes, including angiogenesis, platelet activation, and oxidative stress response. Its expression is regulated by hypoxia-inducible factor 1- α (HIF-1 α), cytokines, and growth factors such as VEGF and TNF- α . In cancer, TYMP expression is upregulated in tumor-associated macrophages and endothelial cells, promoting neovascularization and tumor progression. However, TYMP also exhibits cytotoxic effects in thymidine phosphorylase-deficient conditions by accumulating toxic thymidine metabolites, as seen in mitochondrial neurogastrointestinal encephalopathy (MNGIE).

Dysregulation of TYMP is clinically significant. Loss-of-function mutations cause MNGIE, a rare mitochondrial disorder characterized by gastrointestinal dysmotility, neuropathy, and leukoencephalopathy. Overexpression of TYMP is associated with poor prognosis in several cancers, including colorectal, breast, and gastric carcinoma, where it drives angiogenesis and tumor growth. Pathway involvement includes pyrimidine salvage metabolism, hypoxia response, and VEGF-mediated angiogenic signaling. In regenerative medicine, TYMP serves as a biomarker and target for promoting vascular repair and wound healing.

Immunohistochemical staining using TYMP antibody shows cytoplasmic and extracellular localization in endothelial and stromal cells. The TYMP antibody from NSJ Bioreagents is an excellent reagent for studies on nucleotide metabolism, angiogenesis, and tumor biology.

Application Notes

Optimal dilution of the TYMP antibody should be determined by the researcher.

Immunogen

E.coli-derived human PD-ECGF/TYMP recombinant protein (Position: P13-Q482) was used as the immunogen for the TYMP antibody.

Storage

After reconstitution, the TYMP antibody can be stored for up to one month at 4°C. For long-term, aliquot and store at -20°C. Avoid repeated freezing and thawing.