Data Sheet (Cat.No.TMPY-01030)

TargetMol

TFPI Protein, Human, Recombinant (His)

General Information

Synonyms:	TFPI1;tissue factor pathway inhibitor (lipoprotein-associated coagulation inhibitor);TFI;EPI;LACI
Protein Construction:	A DNA sequence encoding the human TFPI (NP_006278.1) (Met 1-Lys 282) was expressed with a C-terminal polyhistidine tag. Predicted N terminal: Asp 29
Species:	Human
Expression Host:	HEK293 Cells
Accession:	P10646-1
Molecular Weight:	30.6 kDa (predicted); 42-45 kDa (reducing condition, due to glycosylation)

QC Testing

Biological Activity:	Measured by its ability to inhibit trypsin cleavage of a fluorogenic peptide substrate, Mca-RPKPVE-Nval-WRK(Dnp)-NH2. The IC50 value is < 0.4 nM, as measured in 100μL reaction mixture containing 1.25 ng trypsin, 10 μM substrate, 50 mM Tris, 10 mM CaCl2, 0.15 M NaCl, 0.05% Brij-35, pH 7.5 .
Purity:	> 85 % as determined by SDS-PAGE
Endotoxin:	< 1.0 EU/μg of the protein as determined by the LAL method.
Formulation:	Lyophilized from a solution filtered through a 0.22 μm filter, containing PBS, pH 7.4. Typically, a mixture containing 5% to 8% trehalose, mannitol, and 0.01% Tween 80 is incorporated as a protective agent before lyophilization.

Preparation and Storage

Reconstitution:

Reconstituted with sterile deionized water to 0.25 mg/mL. Reconstitution conditions may vary depending on the lot.

Stability & Storage:

It is recommended to store recombinant proteins at -20°C to -80°C for future use. Lyophilized powders can be stably stored for over 12 months, while liquid products can be stored for 6-12 months at -80°C. For reconstituted protein solutions, the solution can be stored at -20°C to -80°C for at least 3 months. Please avoid multiple freeze-thaw cycles and store products in aliquots.

Actual storage temperature shall be subject to the COA.

Shipping:

In general, lyophilized powders are shipped with blue ice, while solutions are shipped with dry ice.

Protein Background

Tissue factor pathway inhibitor (TFPI) is the natural inhibitor of TF coagulant and signaling activities. It is a Kunitz-

type serine proteinase inhibitor that down-regulates tissue factor-initiated blood coagulation. With its Kunitz domains, TFPI exhibits significant homology with human inter-alpha-trypson inhibitor and bovin basic pancreatic trypsin inhibitor. TFPI is the natural inhibitor of TF coagulant and signaling activities. The importance of TFPI in the regulation of blood coagulation is emphasized by how its activity is modulated in human disease. In a factor (F) Xa-dependent feedback system, TFPI binds directly and inhibits the TF-FVII/FVIIa complex. Normally, TFPI exists in plasma both as a full-length molecule and as variably carboxy-terminal truncated forms. TFPI also circulates in complex with plasma lipoproteins. The levels and the dual inhibitor effect of TFPI on FXa and TF-FVII/FVIIa complex offers insight into the mechanisms of various pathological conditions triggered by TF. TFPI may play an important role in modulating TF-induced thrombogenesis and it may also provide a unique therapeutic approach for prophylaxis and/or treatment of various diseases. In addition, studies have shown that TFPI exhibits antiangiogenic and antimetastatic effects in vitro and in vivo. In animal models of experimental metastasis, both circulating and tumor cell-associated TFPI are shown to significantly reduce tumor cell-induced coagulation activation and lung metastasis.

Reference

Lwaleed BA,et al.(2006) Tissue factor pathway inhibitor: structure, biology and involvement in disease. J Pathol. 208(3): 327-39.

Amirkhosravi A,et al.(2007) The role of tissue factor pathway inhibitor in tumor growth and metastasis. Semin Thromb Hemost. 33(7): 643-52.

Maroney SA,et al.(2008) Expression of tissue factor pathway inhibitor by endothelial cells and platelets. Transfus Apher Sci. 38(1): 9-14.