

## Tissue Factor Protein, Human, Recombinant (His)

### General Information

Synonyms:	CD142;coagulation factor III (thromboplastin, tissue factor);coagulation factor 3;coagulation factor III;TF;TFA
Protein Construction:	A DNA sequence encoding the human F3 (P13726) extracellular domain (Met 1-Glu 251) was fused with a polyhistidine tag at the C-terminus. Predicted N terminal: Ser 33
Species:	Human
Expression Host:	HEK293 Cells
Accession:	P13726
Molecular Weight:	26.2 kDa (predicted); 42 kDa (reducing conditions)

### QC Testing

Biological Activity:	1.Measured by its ability to activate Coagulation Factor VII in cleaving a fluorogenic peptide substrate Boc-VPR-AMC. The AC50 is < 5 µg/ml(QC tested). 2.Immobilized Recombinant Human Coagulation Factor III/Tissue Factor Protein (His Tag) (Cat#TMPY-02530) at 1 µg/mL (100 µL/well) can bind Anti-F3 (Tisotumab Biosimilar), the EC50 is 0.9 ng/mL (Routinely tested).
Purity:	≥ 97 % as determined by SDS-PAGE. ≥ 95 % as determined by SEC-HPLC.
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. <small>Actual storage temperature shall be subject to the COA.</small>
Shipping:	In general, lyophilized powders are shipped with blue ice, while solutions are shipped with dry ice.

### Protein Background

Tissue factor (TF), also known as coagulation factor III, F3, and CD142, is a single-pass type I membrane protein

which belongs to the tissue factor family. Tissue factor is one of the proteins that participate in hemostatic and inflammatory processes. Activated monocytes present in the liver increase expression of tissue factor, and while accumulating in the organ they can intensify inflammation. Tissue factor is the protein that activates the blood clotting system by binding to, and activating, the plasma serine protease, factor VIIa, following vascular injury. Tissue factor is not only the main physiological initiator of normal blood coagulation, but is also important in the natural history of solid malignancies in that it potentiates metastasis and angiogenesis and mediates outside-in signalling. Tissue factor is expressed constitutively by many tissues which are not in contact with blood and by other cells upon injury or activation; the latter include endothelial cells, tissue macrophages, and peripheral blood monocytes. Coagulation Factor III is a transmembrane glycoprotein that localizes the coagulation serine protease factor VII/VIIa (FVII/VIIa) to the cell surface. The primary function of TF is to activate the clotting cascade. The TF: FVIIa complex also activates cells by cleavage of a G-protein coupled receptor called protease-activated receptor 2 (PAR2). TF is expressed by tumor cells and contributes to a variety of pathologic processes, such as thrombosis, metastasis, tumor growth, and tumor angiogenesis. As a key regulator of haemostasis and angiogenesis, it is also involved in the pathology of several diseases, including cardiovascular, inflammatory and neoplastic conditions.

### Reference

Morrissey JH. (2004) Tissue factor: a key molecule in hemostatic and nonhemostatic systems. *Int J Hematol.* 79(2): 103-8.

Milsom C, et al. (2008) Tissue factor and cancer. *Pathophysiol Haemost Thromb.* 36(3-4): 160-76.

Kasthuri RS, et al. (2009) Role of tissue factor in cancer. *J Clin Oncol.* 27(29): 4834-8.

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