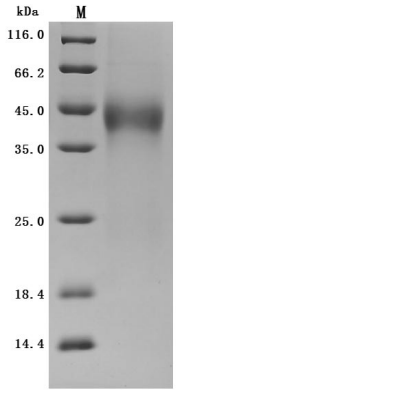
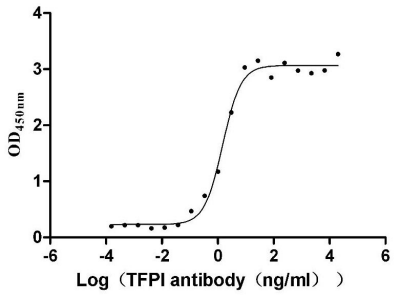
Recombinant Human Tissue factor pathway inhibitor (TFPI), partial (Active)

Product Code	CSB-MP023437HU
Abbreviation	Recombinant Human TFPI protein, partial (Active)
Storage	The shelf life is related to many factors, storage state, buffer ingredients, storage temperature and the stability of the protein itself. Generally, the shelf life of liquid form is 6 months at -20°C/-80°C. The shelf life of lyophilized form is 12 months at -20°C/-80°C.
Uniprot No.	P10646
Form	Lyophilized powder
Storage Buffer	Lyophilized from a 0.2 μm filtered 20 mM Tris-HCl, 0.5 M NaCl, 6% Trehalose, pH 8.0
Product Type	Recombinant Protein
Immunogen Species	Homo sapiens (Human)
Biological Activity	Measured by its binding ability in a functional ELISA. Immobilized Human TFPI at 1 μg/mL can bind Anti-TFPI recombinant antibody (CSB-RA023437MA01HU), the EC_{50} is 1.242-1.788 ng/mL.
Purity	Greater than 95% as determined by SDS-PAGE.
Sequence	DSEEDEEHTIITDTELPPLKLMHSFCAFKADDGPCKAIMKRFFFNIFTRQCEEFI YGGCEGNQNRFESLEECKKMCTRDNANRIIKTTLQQEKPDFCFLEEDPGICRG YITRYFYNNQTKQCERFKYGGCLGNMNNFETLEECKNICEDGPNGFQVDNYG TQLNAVNNSLTPQSTKVPSLFEFHGPSWCLTPADRGLCRANENRFYYNSVIGK CRPFKYSGCGGNENNFTSKQECLRACKKGFIQRISKGGLIK
Source	Mammalian cell
Target Names	TFPI
Expression Region	29-282aa
Notes	Repeated freezing and thawing is not recommended. Store working aliquots at 4°C for up to one week.
Tag Info	C-terminal 10xHis-tagged
Mol. Weight	31.9 kDa
Protein Length	Partial
Image	



(Tris-Glycine gel) Discontinuous SDS-PAGE (reduced) with 5% enrichment gel and 15% separation gel.



Activity
Measured by its binding ability in a functional ELISA. Immobilized Human TFPI at 1 μg/ml can bind Anti-TFPI recombinant antibody (CSB-RA023437MA01HU), the EC_{50} is 1.242-1.788 ng/mL.

Description

This recombinant human TFPI protein (amino acids 29-282) is produced in mammalian cells with a C-terminal 10×His tag, demonstrating high purity (>95% by SDS-PAGE) and low endotoxin levels (<1.0 EU/μg, LAL method). The recombinant TFPI protein exhibits strong biological activity, as evidenced by its specific binding to anti-TFPI antibody (CSB-RA023437MA01HU) in ELISA (EC_{50}: 1.242-1.788 ng/mL at 1 μg/mL immobilization).

The mammalian expression system ensures proper folding and post-translational modifications critical for TFPI's anticoagulant function. The C-terminal 10×His tag facilitates purification while maintaining structural integrity. Presented as lyophilized powder, this preparation offers excellent stability and convenient handling.

The protein's demonstrated binding activity and high purity make it suitable for functional assays exploring TFPI's role in regulating tissue factor-mediated blood coagulation. Its mammalian origin ensures native-like characteristics for reliable experimental results in both basic and translational research applications.

Human TFPI is a critical regulator of the coagulation cascade, primarily functioning to limit the procoagulant activity initiated by the tissue factor (TF) and the factor VIIa (FVIIa) complex. TF is a transmembrane protein that, upon interaction with FVIIa, activates factors IX and X, leading to thrombin generation and subsequent clot formation. TFPI acts as an anticoagulant by binding to the TF-FVIIa complex and inhibiting factor Xa (FXa), thereby preventing further propagation of the coagulation cascade [1][2][3].

TFPI is categorized as a Kunitz-type serine protease inhibitor and exists in two

forms: a membrane-bound variant on endothelial cells and a soluble form found in blood plasma [1][4]. This duality allows TFPI to perform immediate regulatory functions at sites of vascular injury while maintaining anticoagulant activity in circulation. The physiological importance of TFPI arises from its ability to modulate thrombus formation and may impact conditions such as atherosclerosis or acute thrombotic events [5][6].

The structure of TFPI includes three Kunitz-type domains, functioning together to ensure that it efficiently inhibits both the FVIIa-TF complex and FXa, the latter through a feedback mechanism that effectively halts the coagulation process [3][7]. The interaction between TFPI and FXa also leads to the formation of quaternary complexes that enhance the inhibition of the coagulation pathway [8]. Notably, under certain pathological conditions such as disseminated intravascular coagulation (DIC), TFPI levels may decrease, leading to enhanced thrombin generation and a hypercoagulable state [9][10].

Furthermore, TFPI's concentration in plasma can be influenced by several clinical conditions, including critical limb ischemia and various thrombophilic states [6][11][12]. The regulatory role of TFPI in inflammation and disease states further emphasizes its significance, positioning it as a potential therapeutic target in managing thromboembolic disorders [1][10][13].

References:

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Endotoxin	Less than 1.0 EU/ug as determined by LAL method.
Reconstitution	We recommend that this vial be briefly centrifuged prior to opening to bring the contents to the bottom. Please reconstitute protein in deionized sterile water to a concentration of 0.1-1.0 mg/mL.We recommend to add 5-50% of glycerol (final concentration) and aliquot for long-term storage at -20°C/-80°C. Our default final concentration of glycerol is 50%. Customers could use it as reference.
Shelf Life	The shelf life is related to many factors, storage state, buffer ingredients, storage temperature and the stability of the protein itself. Generally, the shelf life of liquid form is 6 months at -20°C/-80°C. The shelf life of lyophilized form is 12 months at -20°C/-80°C.