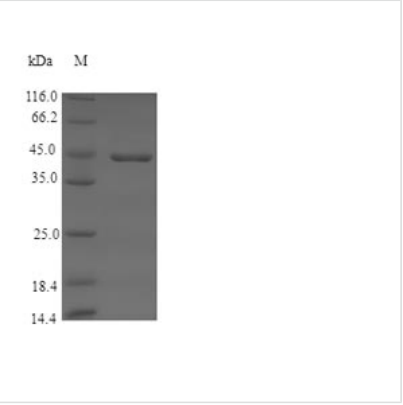
Recombinant Pig Coagulation factor XII (F12), partial

Product Code	CSB-EP007918PI
Relevance	Factor XII is a serum glycoprotein that participates in the initiation of blood coagulation, fibrinolysis, and the generation of bradykinin and angiotensin. Prekallikrein is cleaved by factor XII to form kallikrein, which then cleaves factor XII first to alpha-factor XIIa and then trypsin cleaves it to beta-factor XIIa. Alpha-factor XIIa activates factor XI to factor XIa (By similarity).
Abbreviation	Recombinant Pig F12 protein, partial
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.	O97507
Alias	Hageman factor Short name: HAF
Product Type	Recombinant Protein
Immunogen Species	Sus scrofa (Pig)
Purity	Greater than 90% as determined by SDS-PAGE.
Sequence	IPPWKDPRKHKVMASEHTVVLTVTGEPCHFPFQYYRQLYYKCIQRGQRGPRP WCATTPNFEKDQRWAYCLEPMKVKDHCNKGNPCQKGGTCVNMPNGPHCIC PDHFTGKHCQKEKCFEPQFLQFFQENEIWHRFEPAGVSKCQCKGPKAQCKP VASQVCSTNPCLNGGSCLQTEGHRLCRCPTGYAGRLCDVDLKERCYSDRGL SYRGMAQTTLSGAPCQPWASEATYWNMTAEQALNWGLGDHAFCRNPDNDT RPWCFVWRGDQLSWQYCRLARCQAPIGEAPPILTPTQSPSEHQDSPLLSREP QPTTQTPSQNLTSAWCAPPEQRGPLPSAGLVGCGQRLRKRLSSLNR
Research Area	Cardiovascular
Source	E.coli
Target Names	F12
Protein Names	Recommended name: Coagulation factor XII EC= 3.4.21.38Alternative name(s): Hageman factor Short name= HAFCleaved into the following 2 chains: 1. Coagulation factor XIIa heavy chain 2. Coagulation factor XIIa light chain
Expression Region	20-371aa
Notes	Repeated freezing and thawing is not recommended. Store working aliquots at 4°C for up to one week.
Tag Info	N-terminal 6xHis-tagged
Mol. Weight	43.8kDa
Protein Length	Partial

Image



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

Description

Recombinant Pig Coagulation factor XII (F12) is produced in an E.coli expression system, featuring a partial protein length from amino acids 20 to 371. The protein carries an N-terminal 6xHis tag, which streamlines purification and detection processes. SDS-PAGE analysis confirms the product achieves over 90% purity, making it appropriate for research applications. This product is intended for research use only.

Coagulation factor XII represents a crucial component of the coagulation cascade. It appears to primarily drive the initiation of the intrinsic pathway. This serine protease likely plays a significant role in hemostasis by activating factor XI and prekallikrein. Studying this factor may be important for understanding blood clotting disorders and developing therapeutic interventions. Many researchers turn to factor XII when investigating thrombosis and inflammation.

Potential Applications

Note: The applications listed below are based on what we know about this protein's biological functions, published research, and experience from experts in the field. However, we haven't fully tested all of these applications ourselves yet. We'd recommend running some preliminary tests first to make sure they work for your specific research goals.

1. In Vitro Coagulation Cascade Studies

This recombinant pig Factor XII can be used to investigate the intrinsic coagulation pathway in controlled laboratory settings. Researchers might examine the protein's role in contact activation and its interactions with other coagulation factors through plasma-based assays or purified protein systems. The pig-derived protein offers a valuable model for comparative coagulation studies between species. The partial sequence (20-371aa) appears to retain key functional domains that can be analyzed for their contribution to the coagulation process.

2. Antibody Development and Validation

The N-terminal 6xHis-tagged recombinant protein works well as an antigen for generating specific antibodies against pig Factor XII. High purity (>90%)

suggests minimal cross-reactivity during immunization protocols. These antibodies can find application in Western blotting, immunoprecipitation, or ELISA-based detection systems in porcine research models. The recombinant nature allows for consistent and reproducible antibody production compared to native protein isolation methods.

3. Protein-Protein Interaction Studies

The His-tagged Factor XII can work in pull-down assays to identify and characterize binding partners within the coagulation cascade or contact system. Researchers can immobilize the protein on nickel-affinity matrices to capture interacting proteins from plasma or cell lysates. This approach may enable the study of Factor XII's molecular interactions with kallikrein, high molecular weight kininogen, or other contact system components in the porcine model.

4. Biochemical Characterization and Structural Analysis

The purified recombinant protein provides material for detailed biochemical studies including enzyme kinetics, thermal stability analysis, and structural characterization techniques. The partial sequence spanning amino acids 20-371 can be analyzed using techniques such as circular dichroism spectroscopy, dynamic light scattering, or mass spectrometry. These studies might contribute to understanding the molecular properties and folding characteristics of pig Factor XII compared to human or other mammalian orthologs.

5. Comparative Species Analysis

This pig-derived Factor XII enables cross-species comparative studies to understand evolutionary differences in coagulation mechanisms. Researchers can compare the biochemical properties, stability, and functional characteristics of pig Factor XII with human or other mammalian versions. Such studies may provide insights into species-specific coagulation differences that are relevant for using porcine models in hemostasis research and understanding evolutionary conservation of coagulation factors.

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.