

Factor VIIa, recombinant human

REF 407REC/N

Description

Factor VII is a vitamin K-dependent glycoprotein ($M_r = 50,000$) synthesized *in vivo* by the liver and circulates in the blood as a single chain protein. Factor VII participates in the extrinsic coagulation pathway as a circulating precursor. The concentration in plasma is about 500 ng/mL.

The protein contains 10 gamma carboxy glutamic acid residues all of which are involved in the Ca^{++} dependent interaction of factor VII with phospholipid. By means of tissue factor and Ca^{++} , fVII can be activated to factor VIIa on cell surfaces. Factor VIIa can then activate factor IX or factor X.

The activation of factor VII occurs with cleavage of the Arg₁₅₂-Ile₁₅₃ peptide bond in the single chain precursor, resulting in the formation of a serine protease consisting of two polypeptide chains held together by a disulfide bond. The light chain (about 20,000 Dalton) contains the gamma carboxy glutamic acid domain and the N-terminal residue of the original precursor. The heavy chain (about 30,000 Dalton) contains the catalytic site of the serine protease and the C-terminal residue of the original precursor.

The amino acid sequence for REF 407REC/N has been determined and is found to be identical to that of plasma derived human factor VIIa. Only minor differences in the carbohydrate composition and of gamma-carboxylation on amino acid residue 35 were found.

Preparation

REF 407REC/N is the result of recombinant human factor VII having been expressed by genetically engineered baby hamster kidney (BHK) cells and converted to its active two-chain form by autocatalysis during a chromogenic purification process. Purity has been assessed via size-exclusion and reverse-phase HPLC analysis.

Specific Activity

REF 407REC/N has a specific activity of approximately 44-64 IU/ μ g assayed via a single-stage clotting assay.

Presentation

Screw-capped glass vial containing 1.0 mg of recombinant factor VIIa lyophilized from a 1.0 mL solution of 50 mM NaCl, 10.5 mM $CaCl_2$, 10mM glycylglycine, pH 6.7. Protein content was determined by size-exclusion chromatography.

Reconstitution

Add 1.0 mL of filtered deionized or sterile water to generate a 1.0 mg/mL stock solution.

Storage

Store the lyophilized protein at 2°-8°C. Once reconstituted, aliquot and store at or below -70°C. Avoid repeated freeze-thaw cycles. Reconstituted material is stable for up to 12 hours at 2° - 8°C.

When making dilutions, adding a carrier protein such as 1% BSA (protease-free grade) is advised.

Related Products

IMUBIND® Factor VIIa ELISA, REF 827

Tissue Factor, recombinant human REF 4500

Warnings and Precautions

For Research Use Only.

Definition of Symbols

	Consult instructions for use
	Manufacturer
	Refer to Safety Data Sheet
	Temperature Limitation
	Lot Number
	Expiration Date
	Catalog Number