Active Native Bovine Factor X

Cat. No. F10-267B **Lot. No.** (See product label)

SPECIFICATION

Product Overview	
Species	Bovine
Source	Plasma
Description	Factor X is a vitamin K-dependent protein zymogen which is synthesized in the liver and circulates in plasma as a two chain molecule linked by a disulfide bond. Prior to secretion into plasma, post-translational modifications produce 11 gamma-carboxyglutamic acid (gla) residues and a single b-hydroxyaspartic acid residue, which are located within the NH2-terminal light chain. The light chain also contains two epidermal growth factor (EGF) homology domains. The COOH-terminal heavy chain of factor X contains most of the carbohydrate moieties, as well as the latent serine protease domain. The activation of factor X is catalyzed by either the intrinsic factor Xase complex (factor IXa, factor VIIIa, cellular surface and calcium ions) or the extrinsic factor Xase complex (factor VIIa, tissue factor, cellular surface and calcium ions). Activation of human factor X by either complex results in cleavage at Arg52-Ile53 of the COOH-terminal heavy chain and subsequent release of a 52 amino acid activation glycopeptide. Factor Xa then serves as the enzyme component of the prothrombinase complex which is responsible for the rapid conversion of prothrombin to thrombin. The gla residues enable factor X/Xa to bind phospholipid (i.e. cell surfaces) in a calcium dependent manner; a requirement for assembly of the prothrombinase complex. The first EGF homology domain contains a Ca2+ binding site which acts as a hinge to fold the EGF and GLA domains towards each other. This region of the molecule is involved in the recognition of cellular binding domains.

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Form	50% (vol/vol) glycerol/H2O
Bio-activity	Clotting assay
Molecular Mass	55100
Purity	>95% by SDS-PAGE. NOT tissue/cell culture grade. Not tested for endotoxin.
Characteristic	Extinction coefficient:12.4, Plasma concentration:10 µg/ml, Isoelectric point:4.8-5.2, Percent carbohydrate:0.1, Structure:Mr=16,500 and 39,30
Storage	-20°C

GENE INFORMATION

Gene Name	F10 coagulation factor X [Bos taurus]
Official Symbol	F10
Synonyms	coagulation factor X; stuart factor
Gene ID	280787
mRNA Refseq	NM_001080213
Protein Refseq	NP_001073682
UniProt ID	P00743
Chromosome Location	chromosome: 12

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Pathway	Common Pathway, organism-specific biosystem; Complement and coagulation cascades, organism-specific biosystem; Extrinsic Pathway, organism-specific biosystem
Function	calcium ion binding; phospholipid binding; serine-type endopeptidase activity

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