

\*\*REPRESENTATIVE DATASHEET\*\*



## Sheep anti-human Factor X (FX)

Biotinylated Affinity-Purified IgG

0.1 mg

**Product #:** SAF10-APBIO

**Lot #:** XXXX

**Expiry date:** XXXX

Store at 2 °C to 8°C

For Research Use Only.

Not for use in diagnostic procedures.

### Description of Factor X (FX)

Factor X (FX, Stuart Factor) is a vitamin K-dependent glycoprotein produced in the liver. The concentration of FX in plasma is ~10 µg/ml (~170 nM). Factor X is expressed as a two-chain molecule with a molecular weight of 59 kDa. The light chain (17 kDa) of FX contains a calcium-binding domain consisting of one hydroxy-aspartic acid and 11 γ-carboxyglutamic acid (gla) residues. These residues allow FX to bind to membranes that contain acidic phospholipids in a calcium dependent manner. This is followed by two EGF-like domains. The heavy chain of FX (42 kDa) consists of the catalytic domain, carbohydrate and the activation peptide. Activation of FX to the active enzyme (FXa) results from cleavage at residue Arg<sup>52</sup> in the heavy chain of FX by a complex of FIXa, cofactor VIIIa, calcium and negatively charged phospholipid surface (the tenase complex), or by the FVIIa-tissue factor complex. Both activation pathways result in the release of the activation peptide from the N-terminal of the heavy chain. The FXa generated is a serine protease responsible for the activation of prothrombin to thrombin in the presence of a phospholipid membrane, calcium and cofactor Va. The activity of FXa in plasma is inhibited by antithrombin (ATIII), α<sub>1</sub>antitrypsin, α<sub>2</sub>macroglobulin and tissue factor pathway inhibitor (TFPI). The inhibitory activity of ATIII is stimulated approximately 1000-fold by heparin<sup>1-3</sup>.

### REFERENCES and REVIEWS

1. Ichinose A, Davie EW; The Blood Coagulation Factors: Their cDNAs, Genes, and Expression; in Hemostasis and Thrombosis, 3<sup>rd</sup> Edition, eds. RW Colman, J Hirsh, VJ Marder and EW Salzman, pp 19-54, J.B. Lippincott Co., Philadelphia PA, USA, 1994.
2. Steinberg M, Nemerson Y; The Activation of Factor X; in Hemostasis and Thrombosis, eds. RW Colman, J Hirsh, VJ Marder and EW Salzman, pp 91-99, J.B. Lippincott Co., Philadelphia PA, USA, 1982.
3. Ellis V, Scully M, MacGregor I, Kakkar V; Inhibition of Human Factor Xa by Various Plasma Protease Inhibitors; Biochimica et Biophysica Acta 701, pp 24-31, 1982.

### Product Specifications

**Description:**

Vial containing XXXX mL of affinity-purified IgG conjugated to biotin. Total protein is 0.1 mg.

**Format:**

APIgG-biotin conjugate as a clear, colourless liquid.

**Host Animal:**

Sheep

**Immunogen:**

Human Factor X purified from plasma.

**Concentration:**

APIgG-biotin concentration is XXXX mg/mL, determined by absorbance using an extinction coefficient ( $E^{1\%}_{280}$ ) of 14.

**Buffer:**

Phosphate-buffered saline containing 1 mg/mL bovine albumin and 0.1% sodium azide, pH 7.4.

**Storage:**

Store at 2 °C to 8°C.

**Specificity:**

Prior to conjugation, this antibody was specific for Factor X as demonstrated by immunoelectrophoresis and ELISA.

**Applications:**

Suitable as a source of biotinylated antibodies to human FX.

**Incorporation of Biotin:**

XXXX moles biotin per mole IgG as determined by HABA assay.