REPRESENTATIVE DATASHEET

Sheep anti-human Factor VII (FVII)

FITC-Conjugated Affinity-Purified IgG
0.1 mg

Product #: SAF7-APFTC
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 VII (FVII)

Factor VII (FVII, also known as Stable Factor and Proconvertin) is a vitamin K-dependent glycoprotein produced in the liver. Plasma concentration of FVII is normally ~0.5 µg/mL (10 nM) in plasma. A deficiency of FVII is associated with bleeding in a clinical pattern similar to haemophilia, but is inherited as an autosomal recessive trait. The deficiency can be characterized by a quantitative (low activity and low antigen) or a qualitative (low activity and normal antigen) defect in FVII function. In its zymogen form FVII is a single chain molecule of ~50 kDa. It contains two EGF-like domains and an amino-terminal domain containing 10 γ-carboxyglutamic acid (Gla) residues. These Gla residues allow FVII to bind divalent metal ions and participate in calcium-dependent binding interactions. FVII and activated FVII (FVIIa) bind to tissue factor exposed at the site of vascular injury. FIXa, FXa or FVIIa rapidly activate tissue factor-bound FVII to FVIIa in the presence of calcium and phospholipid. Thrombin and FXIIa are able to activate FVII in the fluid phase in the absence of cofactors. The activation of the single chain zymogen FVII occurs by proteolysis after residue Arg^{152}, resulting in a two-chain active serine protease consisting of a 30 kDa heavy chain and an 18 kDa light chain. In complex with tissue factor, phospholipid and calcium, FVIIa is able to activate FX and FIX. Free FVIIa in plasma is remarkably stable, but the activity of FVIIa/TF complex is regulated by Tissue Factor Pathway Inhibitor (TFPI) in the presence of FXa, and also by Antithrombin (ATIII) in the presence of heparin[1-3].

REFERENCES and REVIEWS

1. Rao LVM, Bajaj SP, Rapaport SI; Activation of Human Factor VII During Clotting in Vitro; Blood 65, pp 218-226, 1985.
2. Lawson, JH, Butenas S, Ribarik N, Mann KG; Complex-dependent Inhibition of Factor VIIa by Antithrombin III and Heparin; JBC 268 pp 767-770, 1993.
3. Nemerson Y, in Hemostasis and Thrombosis, 3rd Edition, eds. RW Colman, J Hirsh, VJ Marder and EW Salzman, pp. 81-93, J.B. Lippincott Co., Philadelphia PA, USA, 1994.
4. Broze, GJ; Binding of Human Factor V
II and VIIa to Monocytes. J.
Clin. Invest, pp 526-535, 1982.

Product Specifications

Description:
Vial containing **XXXX** mL of affinity-purified IgG conjugated to fluorescein isothiocyanate (FITC). Total protein is 0.1 mg.

Host Animal:
Sheep

Immunogen:
Human FVII purified from plasma.

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

Incorporation of FITC:
XXXX moles fluorescein per mole IgG as determined spectrophotometrically.

Buffer:
Phosphate-buffered saline containing 1 mg/mL bovine albumin and 0.1% sodium azide (w/v), pH 7.4.

Storage:
Store at 2°C to 8°C and protect from light.

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

Applications:
This reagent is suitable for flow cytometric analysis of FVII-binding (Tissue Factor-expressing) cells. Cells are pre-incubated with purified Factor VII, 50ng per 10^6 cells in 0.5 mL for 30 minutes at ambient temperature, followed by a wash step in PBS + 0.1%BSA. Antibody conjugate SAFVII-APFTC is added to 1ug per 0.5 mL containing 10^6 cells (see ref 4). Individual results may vary; reagents should be titrated to determine optimal concentration in each application .

Profile of a Tissue Factor - expressing cell line in the presence ( ) and absence ( ) of 50 ng purified FVII, as analyzed on a FACSCalibur instrument (BD Biosciences, San Jose, CA)