

## Sheep anti-Factor XIII Subunit A (F.XIII-A)

Peroxidase Conjugated IgG

0.2 mg

**Product #:** SAF13A-HRP

**Lot #:** XXXX

**Expiry date:** XXXX

Store at -10 to -20°C

For Research Use Only.

Not for use in diagnostic procedures.

### Description of Factor XIII (F.XIII)

Factor XIII (F.XIII, fibrin stabilizing factor) is the proenzyme form of a transamidase that is essential for normal haemostasis and fibrinolysis, wound healing, female fertility and foetal development. Extracellular F.XIII consists of A subunits (83 kDa each) which contain the enzyme moiety, and B subunits (76 kDa each) which act as a carrier protein for the A subunit in circulation. Both subunits are produced under separate genetic control. In plasma, F.XIII exists as a non-covalent tetrameric complex (320 kDa) of two A-subunits and two B-subunits (A<sub>2</sub>B<sub>2</sub>). The concentration of F.XIII tetramer in plasma is ~25 µg/ml (~80 nM). An intracellular form of F.XIII is found in platelets, megakaryocytes and monocytes. This form of F.XIII presents as a dimer of two A-subunits only and has a molecular weight of 160 kDa. The importance of these intracellular stores is demonstrated by the observation that platelets can contribute up to half of the F.XIII activity in platelet rich plasma. The activation of F.XIII involves several steps. Thrombin cleaves after Arg<sup>37</sup> of each A-subunit in the A<sub>2</sub>B<sub>2</sub> tetramer, releasing a 4.5 kDa activation peptide. Additional conformational changes induced by the binding of calcium, and by dissociation of the B-subunits from the A-subunit dimer are required to obtain full enzyme activity. F.XIIIa is a cysteine protease that catalyses the formation of γ-glutamyl-ε-lysyl bonds between the γ and α chains of polymerised fibrin molecules. Other proteins found crosslinked into fibrin clots by F.XIIIa include fibrinogen, α<sub>2</sub>antiplasmin, fibronectin, vitronectin and von Willebrand factor <sup>1-3</sup>.

### REFERENCES and REVIEWS

1. McDonagh J; Structure and Function of Factor XIII; in Hemostasis and Thrombosis, 3<sup>rd</sup> Edition, eds. RW Colman, J Hirsh, VJ Marder and EW Salzman, pp 301-313, J.B. Lippincott Co., Philadelphia PA, USA, 1994.
2. Inbal A, Muszbek L; Coagulation Factor Deficiencies and Pregnancy Loss; Seminars in Thrombosis and Haemostasis 29, pp 171-174, 2003.
3. Murdock PJ, Owens DL, Chitolie A, Hutton RA, Lee CA; Development and Evaluation of ELISAs for Factor XIIIa and XIIB Subunits in Plasma; Thrombosis Research 67, pp 73-79, 1992.

### Product Specifications

#### Description:

Vial containing XXXX ml of whole IgG conjugated to horseradish peroxidase (HRP) through carbohydrate groups. Total protein is 0.2 mg.

#### Format:

IgG-HRP conjugate as a clear, slightly red-brown liquid.

#### Host Animal:

Sheep

#### Immunogen:

Human Factor XIII Subunit A (A<sub>2</sub>) purified from plasma.

#### Concentration:

IgG-HRP concentration is XXXX mg/ml, determined by absorbance using an extinction coefficient (E<sub>1%<sup>280</sup></sub>) of 14.

#### Buffer:

A buffered stabilizer solution containing 50% (v/v) glycerol.

#### Storage:

Store between -10 and -20°C. Product will become viscous but will not freeze. Avoid storage in frost-free freezers. Keep vial tightly capped. Allow product to warm to room temperature and gently mix before use. Avoid exposure to sodium azide as this is an inhibitor of peroxidase activity.

#### Specificity:

Prior to conjugation, this antibody was specific for F.XIII subunit A as demonstrated by immunoelectrophoresis and ELISA.

#### Applications:

Suitable as a source of peroxidase labelled antibodies to human Factor XIII subunit A.

#### Rz Ratio (Reinheitzahl, A<sub>403</sub>/A<sub>280</sub>):

XXXX as determined spectrophotometrically.