COA CHROM
DIAGNOSTICA

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

Affinity-Purified IgG
0.5 mg

Product #: SAF13A-AP
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_2B_2). 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^{37} of each A-subunit in the A_2B_2 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, $\alpha_2$antiplasmin, fibronectin, vitronectin and von Willebrand factor [1-3].

REFERENCES and REVIEWS

1. McDonagh J; Structure and Function of Factor XIII; in Hemostasis and Thrombosis, 3rd 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 XIIIB Subunits in Plasma; Thrombosis Research 67, pp 73-79, 1992.

Product Specifications

Description:
Vial containing XXXX ml of IgG purified by affinity-chromatography on immobilized Factor XIII A subunit. Total protein is 0.5 mg.

Format:
Affinity-purified IgG (APIgG), clear liquid.

Host Animal:
Sheep

Immunogen:
Human Factor XIII Subunit A (A_2) purified from plasma.

Concentration:
APIgG concentration is XXXX mg/ml, determined by absorbance using an extinction coefficient ($E^{1\%}_{280}$) of 13.4.

Buffer:
10 mM HEPES, pH 7.4, 150 mM NaCl, 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.

Specificity:
This antibody is specific for Factor XIII subunit A as demonstrated by immunoelectrophoresis and ELISA.

Applications:
Suitable as a source of enriched antibodies to F.XIII subunit A.

Neutralizing activity:
Not determined.

Species Cross Reactivity:
Not determined.