COA CHROM
DIAGNOSTICA

Sheep anti-human Protein S (PS)

Affinity-Purified IgG
0.5 mg

Product #: SAPS-AP
Lot #: XXXX
Expiry date: XXXX

Store at –10 to -20°C

For Research Use Only.
Not for use in diagnostic procedures.

Description of Protein S (PS)

Protein S (PS) is a vitamin K-dependent glycoprotein produced in the liver, endothelium and megakaryocytes. The concentration of PS in plasma is ~25 µg/ml (~325 nM) where it acts as a cofactor in the anticoagulant activity of activated Protein C. A deficiency of Protein S (quantitative or qualitative) is a risk factor for vascular thrombosis. Protein S is expressed as a single chain molecule with a molecular weight of 77 kDa. The structure of PS is similar to many other vitamin-K dependent coagulation proteins, consisting of an N-terminal calcium binding domain of 10 γ-carboxyglutamic acid (gla) residues, followed by a thrombin-sensitive loop region and 4 EGF-like domains. The C-terminal domain does not contain the usual catalytic triad of a proenzyme, but seems instead to be involved in the binding of PS to C4b-binding protein (C4bp). Protein S binds to activated Protein C (APC) in the presence of calcium and negatively charged phospholipid surface to allow APC to proteolytically inactivate coagulation cofactors Va and VIIIa. Enzymatic regulation of PS cofactor activity is through cleavage of PS in the thrombin-sensitive loop region by thrombin or other enzymes, resulting in the loss of calcium binding properties and APC cofactor activity. Another regulatory mechanism is to reduce the availability of PS by the binding of PS to C4bp. In plasma, approximately 60% of Protein S circulates in non-covalent complex with C4bp, making it unavailable for APC cofactor activity. The binding of PS to C4bp may be important in localizing C4bp to damaged cell membranes where it may control activation of complement by the classical pathway[1-3].

REFERENCES and REVIEWS

1. Broze GJ, Miletich JP; Biochemistry and Physiology of Protein C, Protein S and Thrombomodulin; in Hemostasis and Thrombosis, 3rd Edition, eds. RW Colman, J Hirsh, VJ Marder and EW Salzman, pp 259-276, J.B. Lippincott Co., Philadelphia PA, USA, 1994.

2. Comp PC, Doray D, Patton D, Esmon CT; An Abnormal Plasma Distribution of Protein S Occurs in Functional Protein S Deficiency. Blood 67, pp 504-508, 1986.

3. Schwalbe RA, Dahlback B, Nelsestuen GL; Independent Association of Serum Amyloid P Component, Protein S and Complement C4b with C4b-binding Protein and Subsequent Association of the Complex with Membranes; JBC 265, pp 21749-21757, 1990.

Product Specifications

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

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

Host Animal:
Sheep

Immunogen:
Human Protein S 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 Protein S as demonstrated by immunoelectrophoresis and ELISA.

Applications:
Suitable as a source of enriched antibodies to Protein S.

Neutralizing activity:
Not determined.

Species Cross Reactivity: (immunodiffusion vs. citrated plasma)

Human:	XXXX	Mouse:	XXXX	Rat:	XXXX
Rabbit:	XXXX	Pig:	XXXX	Dog:	XXXX