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Product Information

Anti-Protein C
produced in rabbit, IgG fraction of antiserum

Catalog Number **P4680**

Product Description

Anti-Protein C is produced in rabbit using purified Protein C as the immunogen. Whole antiserum is purified to provide an IgG fraction of antiserum.

Protein C is a vitamin K-dependent plasma zymogen which plays an essential role in the regulation of blood coagulation. The nucleotide sequence of the gene that codes for protein C has been determined.[1] Protein C is synthesized by liver parenchymal cells as a single chain polypeptide,[2] but in plasma, it consists mainly of a heavy chain (41 kDa) linked by a disulfide bond to a light chain (21 kDa).[3] The plasma concentration of protein C is ~4 μg/mL with a half-life of about 15 hours.[4]

Activation of human protein C involves the release of a dodecapeptide from the C-terminal domain of the heavy chain.[1] This is accomplished inefficiently by thrombin which cleaves an Arg-Leu bond, but when thrombin forms a 1:1 high affinity complex with the endothelial membrane protein thrombomodulin, activation of protein C is accelerated ~20,000 fold.[5] Activated protein C cleaves essential peptide bonds in the heavy chains of factors Va and VIIIa which results in their inactivation and inhibition of the coagulation cascade.[6-8]

Free plasma protein S serves as a cofactor for the inhibitory functions of activated protein C probably by enabling the reactions to take place on platelet and endothelial cell membranes.[5] Activated protein C also enhances fibrinolysis by forming a complex with plasminogen activator inhibitor, thus allowing enhanced activity of plasminogen activator.[9] Inactivation of activated protein C in plasma requires at least two "serpin" inhibitors. The activity of one inhibitor is enhanced by heparin[10] while the other (α-1-antitrypsin) is heparin independent.[11]

Hereditary and acquired protein C deficiency states have been recognized to be associated with thrombosis. Homozygous severe protein C deficiency manifests in the newborn by massive thrombosis[12] and purpura fulminans.[13] Heterozygotes for this entity usually do not manifest thrombosis.[14,15] However, patients affected by a different heterozygous (partial) protein C deficiency frequently present a thrombotic tendency during young adulthood.[16] Acquired deficiency has been observed in patients with disseminated intravascular coagulation, liver diseases, complications following surgery and in those taking coumarin drugs.[17]

Reagent

Supplied as a solution in 0.01 M phosphate buffered saline, pH 7.4, containing 15 mM sodium azide as a preservative.

Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

Storage/Stability

For continuous use, store at 2-8 °C. For extended storage, the solution may be frozen in working aliquots. Repeated freezing and thawing, or storage in "frost-free" freezers, is not recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use.

Product Profile

Anti-Protein C may be used for the immunochemical determination of protein C levels in normal and pathogenic human plasma. Determination of protein C levels can be used in the study of regulation of blood coagulation and fibrinolysis.

Protein Concentration: 10-15 mg/mL by absorbance at 280 nm ($E_{280}^{1\%}$ = 14.0)

Indirect Immunoblotting: a minimum working dilution of 1:500 was determined using human plasma.

Note: In order to obtain the best results, it is recommended that each individual user determine their working dilution by titration assay.

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