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Product Information

Product No. P-7058

Monoclonal Anti-Human Protein C

Purified Mouse Immunoglobulin

Clone HC-4

Product Description

Monoclonal anti-Human Protein C (mouse IgG2a isotype) is derived from the HC-4 hybridoma produced by the fusion of mouse Sp2/0-Ag14 myeloma cells and splenocytes from BALB/c mice immunized with protein C purified from human plasma.^{1,2} The isotype is determined using Sigma ImmunoType Kit (Product Code ISO-1) and by a double diffusion immunoassay using Mouse Monoclonal Antibody Isotyping Reagents (Product Code ISO-2).

Monoclonal Anti-Protein C, a divalent cation-independent antibody, recognizes an epitope on the protein C light chain and binds with equal affinity to protein C zymogen or activated protein C. The antibody inhibits the function of activated protein C.

Protein C is a vitamin K-dependent plasma zymogen which plays an essential role in the regulation of blood coagulation. Human protein C was first purified by Kisiel et. al.,³ with the nucleotide sequence of the gene having been determined.⁴ Protein C is synthesized by liver parenchymal cells as a single chain-polypeptide, 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 about 4 µg/ml with a half life of about 15 hours. Activation of human protein C involves the release of a dodecapeptide from the N-terminal domain of the heavy chain.³ This is accomplished inefficiently by thrombin which cleaves an Arg-Leu bond, however, when thrombin forms a 1:1 high affinity complex with the endothelial membrane protein-thrombomodulin, activation of protein C is accelerated about 20,000 fold. Activated protein C (APC) cleaves essential peptide bonds in the heavy chains of factors Va and VIIIa which result in their inactivation and consequently the inhibition of the coagulation cascade. Free plasma protein S serves as a cofactor for APC's inhibitory functions probably by enabling the reactions to take place on platelet and endothelial cell membranes. Hereditary and acquired protein C deficiency states have been recognized in the last decade to be associated with thrombosis.

Reagents

Monoclonal Anti-Human Protein C is provided as purified antibody in 10 mM HEPES, 140 mM NaCl, pH 7.4, containing 0.05% sodium azide as a preservative.

Precautions and Disclaimer

Due to the sodium azide content a material safety data sheet (MSDS) for this product has been sent to the attention of the safety officer of your institution. Consult the MSDS for information regarding hazardous and safe handling practices.

Storage/Stability

Store at 0-5 °C. For extended storage, freeze in working aliquots. Repeated freezing and thawing is not recommended. Storage in "frost-free" freezers is not recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use.

Product Profile

Assays of plasma protein C levels are useful for the detection of hereditary and acquired deficiency states as well as for studies of the control mechanisms of blood coagulation and fibrinolysis. Clone HC-4 may be used in ELISA^{1,2} and immunoblotting under denaturing conditions.

By immunoblotting the antibody detects a closely spaced doublet at molecular weight of 62 kDa using SDS-denatured, non-reduced, barium citrate adsorbed human plasma.

References

1. Miletich, J. P., et al., N. Engl. J. Med., **317**, 991 (1987).
2. Miletich, J. P., and Broze, G. J. Jr., J. Biol. Chem., **265**, 11397 (1990).
3. Kisiel, W., J. Clin. Invest., **64**, 761 (1979).
4. Foster, D.C., et al., Proc. Natl. Acad. Sci. (USA), **82**, 4673 (1985).

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