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ProductInformation

Monoclonal Anti-Human Factor VII
Clone HVII-2
Purified Immunoglobulin

Product Number **F 8271**

Product Description

Monoclonal anti-Human Factor VII (mouse IgG1 isotype) is derived from the HVII-2 hybridoma produced by the fusion of mouse Sp2/0-Ag14 myeloma cells and splenocytes from immunized BALB/c mice. Factor VII purified from human plasma was used as the immunogen.[1] [In this paper the antibody is referred to as MC-1839 (E.C.3.3)]. The isotype is determined using the 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-Factor VII is a calcium-dependent antibody that recognizes an epitope on the light chain of human factor VII. The antibody localizes factor VII, at molecular weight of 50 kDa, in an immunoblotting assay under denaturing and non-reducing conditions.

Human coagulation factor VII is a single-chain glycoprotein (50 kDa) which is synthesized in the liver and secreted into the blood as a zymogen.[2] Similar to other vitamin K-dependent blood clotting factors, it contains 10 gamma-carboxyglutamic acid residues (Gla) located at the N-terminal region of the molecule. Cleavage of an Arg-Ile bond converts the zymogen into activated factor VII. The activated factor VII (factor VIIa) consists of a light chain, containing the Gla-domain and an epidermal growth factor domain, which is linked by a disulfide bond to a heavy chain, containing the serine protease catalytic domain.[2] The activation of factor VII is catalysed by factor XIIa, factor IXa, factor Xa and thrombin. In the presence of tissue factor and calcium ions factor VIIa converts factor X to factor Xa and factor IX to factor IXa. These reactions constitute the initiation of the extrinsic blood coagulation pathway.

Recombinant factor VIIa is now produced for the treatment of hemophilia A patients with inhibitors to factor VIII. The normal plasma concentration of factor VII is about 0.5 µg/ml. Its half life approximately 5 hours, and the half life of factor VIIa is even shorter, approximatley 2.5 hours. The level of factor VII can be determined by a conventional clotting assay, an amidolytic assay, radioimmunoassay, or ELISA. Recent epidemiological studies have shown a significant association between the level of factor VII and the development of ischemic heart disease. Consequently, the level of factor VII is considered an independent risk factor.

Reagents

The product 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 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

For continuous use 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

Monoclonal antibodies against factor VII can be used for:

1. purification of factor VII,
2. evaluation of patients with hereditary factor VII deficiency by an ELISA or RIA,
3. assay of factor VII level in patients with liver disease (a sensitive parameter of liver dysfunction).
4. epidemiological studies of the importance of factor VII level as a risk factor for coronary heart disease, cerebrovascular disease and peripheral vascular diseases.
5. determination of the activity state of factor VII *invivo* or in *invitro* samples in conjunction with a clotting assay.

The antibody, at a concentration of 5-10 µg/ml, specifically recognizes SDS-denatured, non-reduced human factor VII in blot transfers from gels loaded with human plasma following barium citrate adsorption and subsequent elution.

References

1. Broze, G. J., Jr., et al., J. Clin. Invest., **76**, 937 (1985).
2. Broze, G. J., Jr., and Majerus, P. W., J. Biol. Chem., **255**, 1242 (1980).

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