



Product Information

MONOCLONAL ANTI-HUMAN FACTOR X CLONE HX-1 Purified Mouse Immunoglobulin

Product No. **F8396**
Lot 052H4826

Product Description

Monoclonal anti-Human Factor X (mouse IgG2b isotype) is derived from the HX-1 hybridoma¹ produced by the fusion of mouse Sp2/0-Ag14 myeloma cells and splenocytes from BALB/c mice immunized with factor X purified from human plasma. 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-Factor X, a divalent cation-independent antibody, recognizes an epitope on the light chain of Factor X. The antibody inhibits the activity of Factor X.

Factor X is one of the vitamin K-dependent pro-coagulants (molecular weight = 68,000) that is produced in the liver. It consists of a heavy chain and a light chain that are held together by a disulfide bond.² The primary domain of the light chain (at the N-terminal) consists of 11 γ -carboxy glutamic acid residues by which the molecule can bind to negatively charged phospholipids. The primary domain of the heavy chain (at the C-terminal) is the catalytic domain which is characteristic in its structure for the serine proteases.² Factor X zymogen is activated by cleavage of a peptide bond in the heavy chain thereby clipping off a carbohydrate rich peptide.³ Both tissue Factor-Factor VIIa complex and calcium ions of the extrinsic coagulation pathway, and Factor IXa in the presence of Factor VIII, phospholipid and calcium ions of the intrinsic coagulation pathway, activate Factor X by cleaving the same arginine-isoleucine peptide bond. Factor X can also be activated by a protease from Russell's viper venom.² Once activated, Factor Xa catalyses the conversion of

prothrombin to thrombin after it combines with Factor Va and a phospholipid on cell surfaces in the presence of calcium ions and cleaves 2 peptide bonds of prothrombin. The amino acid sequence of Factor X has been determined by amino acid analysis and cDNA cloning and its gene was characterized and localized on chromosome 13. Hereditary Factor X deficiency is a very heterogenous autosomal recessive disorder. Most affected patients produce malfunctioning Factor X molecules that can be defined by a normal or slightly reduced antigen level, as measured by RIA or ELISA, and low activity as measured by clotting or chromogenic assays.

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 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 2-8 °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

Antibodies to Factor X can be used for characterization of acquired and hereditary deficiency states. They can also be used in the study of the complex roles of Factor X in the blood coagulation process and its natural inhibitors. Moreover, monoclonal antibodies directed at specific domains of Factor X are instrumental for the elucidation of structure-function relationship. The antibody is useful for preparation of Factor X immunodepleted plasma.

Working Dilutions

1. Immunoblotting: A working dilution of 5-10 µg/ml was determined using SDS-denatured, reduced plasma, barium-citrate adsorbed human plasma or purified Factor X.

2. Prothrombin Time (PT): A working dilution of 20 µg/ml inhibits >90% Factor X activity in human plasma.

In order to obtain best results in different techniques or preparations, it is recommended that each individual user determine their optimum working dilution by

References

1. The antibody producing clone was developed by J.P. Miletich and colleagues at Washington University, School of Medicine, St. Louis, MO.
2. Davie, E. W., et al., *Adv. Enzymol. Relat. Areas Mol. Biol.*, **48**, 277 (1979).
3. DiScipio, R. G., et al., *Biochemistry*, **16**, 5253 (1977).

JWM/DAA 3/2004

Sigma brand products are sold through Sigma-Aldrich, Inc.

Sigma-Aldrich, Inc. warrants that its products conform to the information contained in this and other Sigma-Aldrich publications. Purchaser must determine the suitability of the product(s) for their particular use. Additional terms and conditions may apply. Please see reverse side of the invoice or packing slip.