SANTA CRUZ BIOTECHNOLOGY, INC.

Factor XII heavy chain (801): sc-59517

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Hemostasis following tissue injury involves the deployment of essential plasma procoagulants which are involved in a blood coagulation cascade leading to the formation of insoluble fibrin clots and the promotion of platelet aggregation. Factor XII, (FXII) a blood coagulation factor, is a serum glycoprotein that participates in fibrinolysis, as well as the generation of Bradykinin and Angiotensin. An enzyme of the serine protease (or serine endopeptidase) class, it activates both Factor XI and prekallikrein in the coagulation cascade. Factor XII deficiency, a rare hereditary disorder slightly more prevalent among Asians, does not cause excessive hemorrhaging since other coagulation factors compensate for it. Researchers have still reported Factor XII deficiency to be a risk factor for the development of arterial and venous thromboembolism. The gene for human Factor XII maps to the very end of the long arm of the fifth chromosome (5q33-qter). The heavy chain of human Factor XII retains an equilibrium dissociation consant of 9.8nM.

REFERENCES

1. Akiyama, H., Sinha, D., Seaman, F.S., Kirby, E.P. and Walsh, P.N. 1986. Mechanism of activation of coagulation Factor XI by Factor XIIA studied with monoclonal antibodies. J. Clin. Invest. 78: 1631-1637.
2. Pixley, R.A., Stumpo, L.G., Birkmeyer, K., Silver, L. and Colman, R.W. 1987. A monoclonal antibody recognizing an icosapeptide sequence in the heavy chain of human Factor XII inhibits surface-catalyzed activation. J. Biol. Chem. 262: 10140-10145.
3. Naito, K. and Fujikawa, K. 1991. Activation of human blood coagulation Factor XI independent of Factor XII. Factor XI is activated by Thrombin and Factor XIA in the presence of negatively charged surfaces. J. Biol. Chem. 266: 7353-7358.
4. Baglia, F.A., Jameson, B.A. and Walsh, P.N. 1993. Identification and characterization of a binding site for Factor XIIA in the Apple 4 domain of coagulation Factor XI. J. Biol. Chem. 268: 3838-3844.
5. Citarella, F., Ravon, D.M., Pascucci, B., Felici, A., Fantoni, A. and Hack, C.E. 1996. Structure/function analysis of human Factor XII using recombinant deletion mutants. Evidence for an additional region involved in the binding to negatively charged surfaces. Eur. J. Biochem. 238: 240-249.
6. Briseid, K., Hoem, N.O., Johannesen, S., Vangen, A.M. and Westgaard, T. 1996. Significance of IgG for the activity of Factor XII measured in human plasma. Scand. J. Clin. Lab. Invest. 56: 725-734.
7. Bradford, H.N., Pixley, R.A. and Colman, R.W. 2000. Human Factor XII binding to the glycoprotein Ib-IX-V complex inhibits Thrombin-induced platelet aggregation. J. Biol. Chem. 275: 22756-22763.
8. Kaplan, A.P., Joseph, K., Shibayama, Y., Reddigari, S. and Ghebrehiwet, B. 2001. Activation of the plasma kinin forming cascade along cell surfaces. Int. Arch. Allergy Immunol. 124: 339-342.
9. Harris, S.L., Jones, D.W., Gallimore, M.J., Nicholls, P.J. and Winter, M. 2005. The antigenic binding site(s) of antibodies to factor XII associated with the antiphospholipid syndrome. J. Thromb. Haemost. 3: 969-975.

CHROMOSOMAL LOCATION

Genetic locus: F12 (human) mapping to 5q35.3.

SOURCE

Factor XII heavy chain (801) is a mouse monoclonal antibody raised against full length native Factor XII heavy chain of human origin.

PRODUCT

Each vial contains 100 µg IgG_1 in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

Factor XII heavy chain (801) is recommended for detection of Factor XII heavy chain of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)] and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Molecular Weight of Factor XII heavy chain: 50 kDa.

SELECT PRODUCT CITATIONS

1. Healy, L.D., Puy, C., Itakura, A., Chu, T., Robinson, D.K., Bylund, A., Phillips, K.G., Gardiner, E.E. and McCarty, O.J. 2016. Colocalization of neutrophils, extracellular DNA and coagulation factors during NETosis: development and utility of an immunofluorescence-based microscopy platform. J. Immunol. Methods 435: 77-84.

STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.