SANTA CRUZ BIOTECHNOLOGY, INC.

Thrombin (GMA-020): sc-65961

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Hemostasis following tissue injury involves the deployment of essential plasma procoagulants (Prothrombin and Factors X, IX, V and VIII), which are involved in a blood coagulation cascade that leads to the formation of insoluble Fibrin clots and the promotion of platelet aggregation. Coagulation Factor 2, also designated Prothrombin or Factor 2, is proteolytically cleaved to form Thrombin in the first step of the coagulation cascade. Thrombin is a serine protease that influences cellular mitogenesis, tumor growth and metastasis, and can initiate platelet aggregation and secretion. Thrombin also influences vascular integrity during development and postnatal life. During the mechanism of wound healing, Thrombin may coordinate connective tissue proteins by stimulating fibroblast procollagen production.

REFERENCES

1. Davie, E.W. and Fujikawa, K. 1975. Basic mechanisms in blood coagulation. Annu. Rev. Biochem. 44: 799-829.
2. Royle, N., Irwin, D.M., Koschinsky, M.L., MacGillivray, R.T. and Hamerton, J.L. 1987. Human genes encoding Prothrombin and ceruloplasmin map to 11p11-q12 and 3q21-24, respectively. Somat. Cell Mol. Genet.13: 285-292.
3. Davie, E.W., Fujikawa, K. and Kisiel, W. 1991. The coagulation cascade: initiation, maintenance, and regulation. Biochemistry 30: 10363-10370.
4. Chambers, R.C., Dabbagh, K., McAnulty, R.J., Gray, A.J., Blanc-Brude, O.P. and Laurent, G.J. 1998. Thrombin stimulates fibroblast procollagen production via proteolytic activation of protease-activated receptor 1. Biochem. J. 333: 121-127.
5. Huang, Y.Q., Li, J.J. and Karpatkin, S. 2000. Thrombin inhibits tumor cell growth in association with upregulation of p21(WAF/Cip1) and caspases via a p53-independent, Stat1-dependent pathway. J. Biol. Chem. 275: 6462-6468.
6. Chapman, W.C., Singla, N., Genyk, Y., McNeil, J.W., Renkens, K.L., Jr., Reynolds, T.C., Murphy, A. and Weaver, F.A. 2007. A phase 3, randomized, double-blind comparative study of the efficacy and safety of topical recombinant human Thrombin and bovine Thrombin in surgical hemostasis. J. Am. Coll. Surg. 205: 256-265.
7. Wang, X., Zhou, J., Yun, W., Xiao, S., Chang, Z., He, P. and Fang, Y. 2007. Detection of Thrombin using electrogenerated chemiluminescence based on Ru(bpy)32+-doped silica nanoparticle aptasensor via target protein-induced strand displacement. Anal. Chim. Acta 598: 242-248.
8. Bouaziz, A., Amor, N.B., Woodard, G.E., Zibidi, H., Lopez, J.J., Bartegi, A., Salido, G.M. and Rosado, J.A. 2007. Tyrosine phosphorylation/dephosphorylation balance is involved in Thrombin-evoked microtubular reorganisation in human platelets. Thromb. Haemost. 98: 375-384.
9. Wielders, S.J., Ungethum, L., Reutelingsperger, C.P., Bevers, E.M. and Lindhout, T. 2007. Factor Xa-driven Thrombin generation in plasma: dependency on the aminophospholipid density of membranes and inhibition by phospholipid-binding proteins.Thromb. Haemost. 98: 1056-1062.

CHROMOSOMAL LOCATION

Genetic locus: F2 (human) mapping to 11p11; F2 (mouse) mapping to 2 E1.

SOURCE

Thrombin (GMA-020) is a mouse monoclonal antibody raised against Thrombin of human origin, with epitope mapping to α-Thrombin B chain (residues 321-579 of Prothrombin).

PRODUCT

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

APPLICATIONS

Thrombin (GMA-020) is recommended for detection of Thrombin of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000).

Suitable for use as control antibody for Prothrombin siRNA (h): sc-40413, Prothrombin shRNA Plasmid (h): sc-40413-SH and Prothrombin shRNA (h) Lentiviral Particles: sc-40413-V.

Molecular Weight of Thrombin: 74 kDa.

Positive Conrols: human platelet extract: sc-363773.

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.

CONJUGATES

See **Thrombin (F-1): sc-271449** for Thrombin antibody conjugates, including AC, HRP, FITC, PE, and Alexa Fluor® 488, 546, 594, 647, 680 and 790.