SANTA CRUZ BIOTECHNOLOGY, INC.

HS3ST1 (L-13): sc-104315

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Heparan sulfate structures, which are responsible for executing multiple biologic activities, are generated and regulated by heparan sulfate biosynthetic enzymes. HS3ST1 (heparan sulfate (glucosamine) 3-O-sulfotransferase 1), also known as 3OST or 3OST1, is a 307 amino acid protein that localizes to the lumen of the Golgi apparatus and belongs to the heparan sulfate biosynthetic enzyme family. Expressed at high levels in kidney and brain, and present at lower levels in lung, heart and placenta, HS3ST1 exhibits both anticoagulant heparan sulfate conversion activity and heparan sulfate glucosaminyl 3-O-sulfotransferase activity and specifically catalyzes the rate-limiting step in the synthesis of anticoagulant heparan. The gene encoding HS3ST1 maps to human chromosome 4, which encodes nearly 6% of the human genome and has the largest gene deserts (regions of the genome with no protein encoding genes) of all of the human chromosomes.

REFERENCES

1. Razi, N. and Lindahl, U. 1995. Biosynthesis of heparin/heparan sulfate. The D-glucosaminyl 3-O-sulfotransferase reaction: target and inhibitor saccharides. J. Biol. Chem. 270: 11267-11275.
2. Liu, J., Shworak, N.W., Fritze, L.M., Edelberg, J.M. and Rosenberg, R.D. 1996. Purification of heparan sulfate D-glucosaminyl 3-O-sulfotransferase. J. Biol. Chem. 271: 27072-27082.
3. Shworak, N.W., Liu, J., Fritze, L.M., Schwartz, J.J., Zhang, L., Logeart, D. and Rosenberg, R.D. 1997. Molecular cloning and expression of mouse and human cDNAs encoding heparan sulfate D-glucosaminyl 3-O-sulfotransferase. J. Biol. Chem. 272: 28008-28019.
4. Shworak, N.W., Liu, J., Petros, L.M., Zhang, L., Kobayashi, M., Copeland, N.G., Jenkins, N.A. and Rosenberg, R.D. 1999. Multiple isoforms of heparan sulfate D-glucosaminyl 3-O-sulfotransferase. Isolation, characterization, and expression of human cDNAs and identification of distinct genomic loci. J. Biol. Chem. 274: 5170-5184.
5. Liu, J., Shworak, N.W., Sinaÿ, P., Schwartz, J.J., Zhang, L., Fritze, L.M. and Rosenberg, R.D. 1999. Expression of heparan sulfate D-glucosaminyl 3-O-sulfotransferase isoforms reveals novel substrate specificities. J. Biol. Chem. 274: 5185-5192.
6. Hernaiz, M., Liu, J., Rosenberg, R.D. and Linhardt, R.J. 2000. Enzymatic modification of heparan sulfate on a biochip promotes its interaction with antithrombin III. Biochem. Biophys. Res. Commun. 276: 292-297.
7. HajMohammadi, S., Enjyoji, K., Princivalle, M., Christi, P., Lech, M., Beeler, D., Rayburn, H., Schwartz, J.J., Barzegar, S., de Agostini, A.I., Post, M.J., Rosenberg, R.D. and Shworak, N.W. 2003. Normal levels of anticoagulant heparan sulfate are not essential for normal hemostasis. J. Clin. Invest. 111: 989-999.
8. Edavettal, S.C., Carrick, K., Shah, R.R., Pedersen, L.C., Tropsha, A., Pope, R.M. and Liu, J. 2004. A conformational change in heparan sulfate 3-O-sulfotransferase-1 is induced by binding to heparan sulfate. Biochemistry 43: 4680-4688.

CHROMOSOMAL LOCATION

Genetic locus: HS3ST1 (human) mapping to 4p15.33; Hs3st1 (mouse) mapping to 5 B3.

SOURCE

HS3ST1 (L-13) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of HS3ST1 of human origin.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-104315 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

HS3ST1 (L-13) is recommended for detection of HS3ST1 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000); non cross-reactive with other HS3ST family members.

Suitable for use as control antibody for HS3ST1 siRNA (h): sc-88999, HS3ST1 siRNA (m): sc-105541, HS3ST1 shRNA Plasmid (h): sc-88999-SH, HS3ST1 shRNA Plasmid (m): sc-105541-SH, HS3ST1 shRNA (h) Lentiviral Particles: sc-88999-V and HS3ST1 shRNA (m) Lentiviral Particles: sc-105541-V.

Molecular Weight of HS3ST1: 46 kDa.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

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 or our catalog for detailed protocols and support products.