SANTA CRUZ BIOTECHNOLOGY, INC.

HS2ST1 siRNA (m): sc-105540

BACKGROUND

Heparan sulfate structures, which are responsible for executing multiple biologic activities, are generated and regulated by heparan sulfate biosynthetic enzymes. HS2ST1 (heparan sulfate 2-O-sulfotransferase 1), also known as HS2ST, is a 356 amino acid single-pass type II membrane protein that localizes to the golgi apparatus and belongs to the sulfotransferase 3 family. Expressed as multiple alternatively spliced isoforms, HS2ST1 functions to catalyze the transfer of sulfate groups to hexuronic acid residues within maturing heparan sulfate (HS), an event which is crucial for proper HS-related ligand binding and signaling processes. HS2ST1 is subject to post-translational N-glycosylation and, in addition to its role in HS function, may be involved in proper kidney formation.

REFERENCES

1. Razi, N., et al. 1995. Biosynthesis of heparin/heparan sulfate. The D-glucosaminyl 3-O-sulfotransferase reaction: target and inhibitor saccharides. J. Biol. Chem. 270: 11267-11275.
2. Seki, N., et al. 1997. Characterization of cDNA clones in size-fractionated cDNA libraries from human brain. DNA Res. 4: 345-349.
3. Rong, J., et al. 2000. Expression of heparan sulphate L-iduronyl 2-O-sulphotransferase in human kidney 293 cells results in increased D-glucuronyl 2-O-sulphation. Biochem. J. 346: 463-468.
4. Muramatsu, T. 2000. Essential roles of carbohydrate signals in development, immune response and tissue functions, as revealed by gene targeting. J. Biochem. 127: 171-176.
5. Online Mendelian Inheritance in Man, OMIM™. 2000. Johns Hopkins University, Baltimore, MD. MIM Number: 604844. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
6. Wilson, V.A., et al. 2002. Heparan sulfate 2-O-sulfotransferase (Hs2st) and mouse development. Glycoconj. J. 19: 347-354.
7. Aquino, R.S., et al. 2005. Occurrence of sulfated galactans in marine angiosperms: evolutionary implications. Glycobiology 15: 11-20.
8. Xu, D., et al. 2007. Mutational study of heparan sulfate 2-O-sulfotransferase and chondroitin sulfate 2-O-sulfotransferase. J. Biol. Chem. 282: 8356-8367.

CHROMOSOMAL LOCATION

Genetic locus: Hs2st1 (mouse) mapping to 3 H2.

PRODUCT

HS2ST1 siRNA (m) is a pool of 3 target-specific 19-25 nt siRNAs designed to knock down gene expression. Each vial contains 3.3 nmol of lyophilized siRNA, sufficient for a 10 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see HS2ST1 shRNA Plasmid (m): sc-105540-SH and HS2ST1 shRNA (m) Lentiviral Particles: sc-105540-V as alternate gene silencing products.

For independent verification of HS2ST1 (m) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-105540A, sc-105540B and sc-105540C.

STORAGE AND RESUSPENSION

Store lyophilized siRNA duplex at -20° C with desiccant. Stable for at least one year from the date of shipment. Once resuspended, store at -20° C, avoid contact with RNAses and repeated freeze thaw cycles.

Resuspend lyophilized siRNA duplex in 330 µl of the RNAse-free water provided. Resuspension of the siRNA duplex in 330 µl of RNAse-free water makes a 10 µM solution in a 10 µM Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

HS2ST1 siRNA (m) is recommended for the inhibition of HS2ST1 expression in mouse cells.

SUPPORT REAGENTS

For optimal siRNA transfection efficiency, Santa Cruz Biotechnology's siRNA Transfection Reagent: sc-29528 (0.3 ml), siRNA Transfection Medium: sc-36868 (20 ml) and siRNA Dilution Buffer: sc-29527 (1.5 ml) are recommended. Control siRNAs or Fluorescein Conjugated Control siRNAs are available as 10 µM in 66 µl. Each contain a scrambled sequence that will not lead to the specific degradation of any known cellular mRNA. Fluorescein Conjugated Control siRNAs include: sc-36869, sc-44239, sc-44240 and sc-44241. Control siRNAs include: sc-37007, sc-44230, sc-44231, sc-44232, sc-44233, sc-44234, sc-44235, sc-44236, sc-44237 and sc-44238.

GENE EXPRESSION MONITORING

HS2ST1 (G-10): sc-376530 is recommended as a control antibody for monitoring of HS2ST1 gene expression knockdown by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) or immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor HS2ST1 gene expression knockdown using RT-PCR Primer: HS2ST1 (m)-PR: sc-105540-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

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.