

NDST3 (S-14): sc-16769

BACKGROUND

The N-deacetylation and N-sulfation of N-acetylglucosamine residues in heparan sulfate and heparin initiate a set of biochemical reactions, which lead to the synthesis of oligosaccharide sequences that have specific ligand binding properties. These reactions are catalyzed by the monomeric enzymes GlcNAc N-deacetylase/N-sulfotransferases (NDSTs), which have two catalytic activities. Multiple NDST isozymes have been identified, each having unique tissue distribution and enzymatic properties. Phylogenetic data suggests that NDST1-4 evolved from a common ancestral gene, which diverged to give rise to two subtypes, NDST1/2 and NDST3/4. NDST1, which maps to human chromosome 5q32-q33.1, shares the most homology with NDST2, which maps to human chromosome 10q22. The least conserved amino acids between these two enzymes are found in the N-terminus/putative transmembrane regions. The human NDST3 and NDST4 genes are closely linked on chromosome 4, mapping to chromosome 4q25-26 and 4q26-27, respectively. RT-PCR analysis of various mouse tissues reveals a restricted pattern of NDST3 and NDST4 mRNA expression when compared with that of NDST1 and NDST2, which are abundantly and ubiquitously expressed.

REFERENCES

- Dixon, J., Loftus, S.K., Gladwin, A.J., Scambler, P.J., Wasmuth, J.J. and Dixon, M.J. 1995. Cloning of the human heparan sulfate-N-deacetylase/N-sulfotransferase gene from the Treacher Collins syndrome candidate region at 5q32-q33.1. *Genomics* 26: 239-244.
- Humphries, D.E., Lanciotti, J. and Karlinsky, J.B. 1998. cDNA cloning, genomic organization and chromosomal localization of human heparan glucosaminyl N-deacetylase/N-sulphotransferase-2. *Biochem. J.* 332: 303-307.
- Aikawa, J. and Esko, J.D. 1999. Molecular cloning and expression of a third member of the heparan sulfate/heparin GlcNAc N-deacetylase/N-sulfotransferase family. *J. Biol. Chem.* 274: 2690-2695.
- Aikawa, J., Grobe, K., Tsujimoto, M. and Esko, J.D. 2001. Multiple isozymes of heparan sulfate/heparin GlcNAc N-deacetylase/GlcN N-sulfotransferase. Structure and activity of the fourth member, NDST4. *J. Biol. Chem.* 276: 5876-5882.

CHROMOSOMAL LOCATION

Genetic locus: NDST3 (human) mapping to 4q26; Ndst3 (mouse) mapping to 3 G1.

SOURCE

NDST3 (S-14) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of NDST3 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-16769 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

NDST3 (S-14) is recommended for detection of NDST3 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).

NDST3 (S-14) is also recommended for detection of NDST3 in additional species, including equine, canine, bovine and porcine.

Suitable for use as control antibody for NDST3 siRNA (h): sc-40765, NDST3 siRNA (m): sc-40766, NDST3 shRNA Plasmid (h): sc-40765-SH, NDST3 shRNA Plasmid (m): sc-40766-SH, NDST3 shRNA (h) Lentiviral Particles: sc-40765-V and NDST3 shRNA (m) Lentiviral Particles: sc-40766-V.

Molecular Weight of NDST3: 101 kDa.

Positive Controls: HeLa nuclear extract: sc-2120.

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.