

NANS (B-1): sc-514091

BACKGROUND

Sialic acids are a family of 9-carbon 2-keto-3-deoxy sugars that are found on the ends of glycoproteins and glycolipids and play important roles in recognition events within the cell. NANS (N-acetylneuraminic acid synthase), also known as SAS, is a 359 amino acid protein that contains one AFP (anti-freeze protein)-like domain and functions in the biosynthesis of sialic acids. Expressed ubiquitously, NANS enzymatically catalyzes the H₂O-dependent formation of N-acetylneuraminic acid (Neu5Ac) and 2-keto-3-deoxy-D-glycero-D-galacto-nononic acid (KDN), both of which are sialic acids. NANS uses N-acetylmannosamine 6-phosphate as a substrate for Neu5Ac synthesis and mannose 6-phosphate as a substrate for KDN synthesis. Human NANS shares 36% identity with the *E. coli* protein neuB, suggesting a conserved function between species.

REFERENCES

1. Nakata, D., et al. 2000. Molecular cloning and expression of the mouse N-acetylneuraminic acid 9-phosphate synthase which does not have deaminoneuraminic acid (KDN) 9-phosphate synthase activity. *Biochem. Biophys. Res. Commun.* 273: 642-648.
2. Lawrence, S.M., et al. 2000. Cloning and expression of the human N-acetylneuraminic acid phosphate synthase gene with 2-keto-3-deoxy-D-glycero-D-galacto-nononic acid biosynthetic ability. *J. Biol. Chem.* 275: 17869-17877.
3. Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 605202. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>
4. Hao, J., et al. 2005. Cloning, expression, and characterization of sialic acid synthases. *Biochem. Biophys. Res. Commun.* 338: 1507-1514.
5. Hamada, T., et al. 2006. Solution structure of the antifreeze-like domain of human sialic acid synthase. *Protein Sci.* 15: 1010-1016.

CHROMOSOMAL LOCATION

Genetic locus: NANS (human) mapping to 9q22.33; Nans (mouse) mapping to 4 B1.

SOURCE

NANS (B-1) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 84-102 within an internal region of NANS of human origin.

PRODUCT

Each vial contains 200 µg IgM kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-514091 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

STORAGE

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

APPLICATIONS

NANS (B-1) is recommended for detection of NANS of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], 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).

Suitable for use as control antibody for NANS siRNA (h): sc-92845, NANS siRNA (m): sc-149822, NANS shRNA Plasmid (h): sc-92845-SH, NANS shRNA Plasmid (m): sc-149822-SH, NANS shRNA (h) Lentiviral Particles: sc-92845-V and NANS shRNA (m) Lentiviral Particles: sc-149822-V.

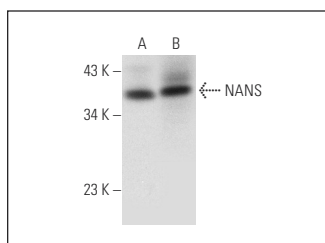
Molecular Weight of NANS: 40 kDa.

Positive Controls: Hep G2 cell lysate: sc-2227 or JAR cell lysate: sc-2276.

RECOMMENDED SUPPORT REAGENTS

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) Immunoprecipitation: use Protein L-Agarose: sc-2336 (0.5 ml agarose/2.0 ml). 3) 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.

DATA



NANS (B-1): sc-514091. Western blot analysis of NANS expression in Hep G2 (A) and JAR (B) whole cell lysates.

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.