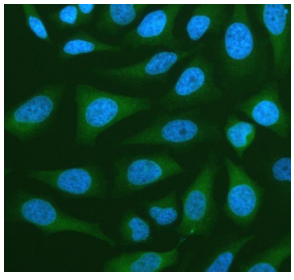
NANS Antibody / Sialic acid synthase (FY12362)

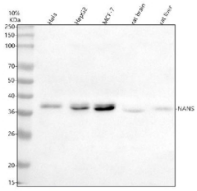
Catalog No.	Formulation	Size
FY12362	Adding 0.2 ml of distilled water will yield a concentration of 500 ug/ml	100 ug

Bulk quote request

Availability	1-2 days
Species Reactivity	Human, Rat
Format	Lyophilized
Host	Rabbit
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit IgG
Purity	Immunogen affinity purified
Buffer	Each vial contains 4 mg Trehalose, 0.9 mg NaCl, 0.2 mg Na2HPO4.
UniProt	Q9NR45
Localization	Cytoplasm
Applications	Western Blot : 0.25-0.5ug/ml Immunocytochemistry/Immunofluorescence : 5ug/ml ELISA : 0.1-0.5ug/ml
Limitations	This NANS antibody is available for research use only.



Immunofluorescent staining of NANS using anti-NANS antibody (green). NANS was detected in an immunocytochemical section of Hela cells. Enzyme antigen retrieval was performed using IHC enzyme antigen retrieval reagent for 15 mins. The cells were blocked with 10% goat serum. And then incubated with 5 ug/ml rabbit anti-NANS antibody overnight at 4oC. DyLight 488 Conjugated Goat Anti-Rabbit IgG was used as secondary antibody at 1:500 dilution and incubated for 30 minutes at 37oC. The section was counterstained with DAPI nuclear stain (blue). Visualize using a fluorescence microscope and filter sets appropriate for the label used.



Western blot analysis of NANS using anti-NANS antibody. Lane 1: human Hela whole cell lysates, Lane 2: human HepG2 whole cell lysates, Lane 3: human MCF-7 whole cell lysates, Lane 4: rat brain tissue lysates, Lane 5: rat liver tissue lysates. After electrophoresis, proteins were transferred to a nitrocellulose membrane at 150 mA for 50-90 minutes. Blocked the membrane with 5% non-fat milk/TBS for 1.5 hour at RT. The membrane was incubated with rabbit anti-NANS antibody at 0.5 ug/ml overnight at 4oC, then washed with TBS-0.1%Tween 3 times with 5 minutes each and probed with a goat anti-rabbit IgG-HRP secondary antibody at a dilution of 1:5000 for 1.5 hour at RT. The signal was developed using enhanced chemiluminescent. The expected molecular weight of NANS is ~40 kDa.

Description

The NANS antibody targets Sialic acid synthase, a cytosolic enzyme encoded by the NANS gene that catalyzes the formation of N-acetylneuraminic acid (Neu5Ac), the most abundant sialic acid in mammals. Sialic acids are terminal sugars found on glycoproteins and glycolipids, playing vital roles in cell-cell communication, pathogen recognition, and immune modulation. Sialic acid synthase converts N-acetylmannosamine-6-phosphate and phosphoenolpyruvate into N-acetylneuraminic acid-9-phosphate, which is later dephosphorylated to yield Neu5Ac. The NANS antibody enables precise detection of this enzyme, supporting research into glycosylation pathways, metabolic regulation, and genetic disease mechanisms.

Sialic acid synthase is widely expressed in tissues that actively produce glycoproteins, including liver, brain, and immune cells. The enzyme's activity is essential for the biosynthesis of sialylated glycoconjugates, which are critical for neuronal development and immune recognition. The NANS antibody allows researchers to monitor NANS expression levels and subcellular localization, facilitating studies that explore how sialic acid metabolism supports neural growth and synaptic function. In the developing brain, altered sialylation affects axonal targeting and synaptic plasticity, making this enzyme an important target in neurobiology.

Mutations in NANS cause sialic acid synthase deficiency, a rare autosomal recessive disorder characterized by skeletal dysplasia, developmental delay, and metabolic abnormalities. These mutations impair enzyme activity, leading to reduced sialic acid production and accumulation of precursors such as N-acetylmannosamine. The NANS antibody is an essential reagent for diagnosing and studying this deficiency, allowing direct measurement of protein levels and identification of loss-of-function variants. By detecting Sialic acid synthase in cellular and tissue models, researchers can examine how disrupted glycan biosynthesis contributes to disease phenotypes.

Beyond human pathology, Sialic acid synthase plays roles in host-pathogen interactions. Many viruses and bacteria exploit sialic acid residues for attachment and immune evasion. The NANS antibody helps elucidate how modulation of sialic acid synthesis influences infection susceptibility and immune responses. Additionally, this enzyme's regulation under hypoxia and stress conditions highlights its connection to energy metabolism and cellular adaptation.

The NANS antibody is suitable for western blotting, immunofluorescence, and immunohistochemistry. It yields strong cytoplasmic staining consistent with Sialic acid synthase localization. NSJ Bioreagents provides this antibody as a validated, high-specificity reagent for consistent results across applications. By enabling the study of glycan biosynthesis and metabolic signaling, the NANS antibody supports research in developmental biology, glycobiology, and metabolic disorders, helping clarify the essential role of sialic acid synthesis in human physiology.

Application Notes

Optimal dilution of the NANS antibody should be determined by the researcher.

Immunogen

E.coli-derived human NANS recombinant protein (Position: M1-E341) was used as the immunogen for the NANS antibody.

Storage

After reconstitution, the NANS antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.