NEU1 Antibody / Sialidase-1 (F47706)

Catalog No.	Formulation	Size
F47706-0.4ML	In 1X PBS, pH 7.4, with 0.09% sodium azide	0.4 ml
F47706-0.08ML	In 1X PBS, pH 7.4, with 0.09% sodium azide	0.08 ml

Bulk quote request

Availability	1-3 business days
Species Reactivity	Human
Predicted Reactivity	Bovine
Format	Antigen affinity purified
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit Ig
Purity	Antigen affinity
UniProt	Q99519
Applications	Western Blot : 1:1000
Limitations	This NEU1 antibody is available for research use only.

NEU1 antibody western blot analysis in HepG2 lysate. Predicted molecular weight ~45 kDa.

Description

NEU1 antibody detects Sialidase-1 (Neuraminidase 1), a lysosomal enzyme responsible for the removal of terminal sialic acid residues from glycoproteins and glycolipids. The UniProt recommended name is Sialidase-1 (NEU1). This enzyme plays a central role in lysosomal catabolism, cellular communication, and membrane protein regulation. It functions as part of a lysosomal multi-enzyme complex that maintains proper turnover of sialoglycoconjugates and contributes to normal cellular homeostasis.

Sialidase-1 is synthesized as a 415-amino-acid precursor of approximately 45 kDa that undergoes glycosylation and

proteolytic processing before reaching the lysosome. Within the lysosomal lumen, NEU1 forms a stable multienzyme complex with protective protein/cathepsin A (PPCA) and beta-galactosidase (GLB1). PPCA acts as a chaperone that ensures correct folding, stability, and catalytic activation of NEU1. Together, these enzymes participate in the degradation of sialylated glycoproteins, gangliosides, and oligosaccharides.

The NEU1 gene is located on chromosome 6p21.33 and encodes the primary lysosomal sialidase in mammalian cells. Mutations in NEU1 cause sialidosis, an autosomal recessive lysosomal storage disorder characterized by accumulation of sialylated compounds in multiple tissues. Depending on mutation severity, sialidosis can present as an infantile or late-onset form, associated with coarse facial features, myoclonus, and progressive neurological decline. Loss of NEU1 activity impairs lysosomal exocytosis and leads to excessive storage of sialoglycoconjugates in neurons and fibroblasts.

Beyond its degradative role, Sialidase-1 also regulates cell surface receptor activity, extracellular matrix remodeling, and immune cell activation. It modulates desialylation of membrane glycoproteins such as integrins, Toll-like receptors, and growth factor receptors, influencing cellular adhesion, phagocytosis, and signaling. In macrophages, NEU1 cooperates with matrix metalloproteinase 9 (MMP9) to desialylate the insulin receptor, linking lysosomal function with metabolic regulation. Altered NEU1 expression or localization has been implicated in inflammatory disorders, metabolic syndrome, and tumor progression, where aberrant desialylation affects cell signaling and immune evasion.

At the tissue level, NEU1 is ubiquitously expressed, with high abundance in liver, kidney, spleen, and nervous tissue. It localizes primarily to the lysosomal membrane but can translocate to the plasma membrane in response to certain stimuli, contributing to immune and metabolic signaling events. Structural studies have shown that the catalytic site of NEU1 shares conserved residues with other sialidases but requires PPCA interaction for full activity, distinguishing it from the cytosolic and plasma membrane sialidases NEU2Ã¢Â€Â“NEU4.

NEU1 antibody provides specific detection of endogenous Sialidase-1 and is suitable for studying lysosomal function, glycoprotein metabolism, and disease mechanisms associated with sialidosis and desialylation-dependent signaling. It supports research examining lysosomal storage disorders, neurodegeneration, and immune modulation. NSJ Bioreagents provides NEU1 antibody validated for use in relevant research applications supporting studies in lysosomal biology, metabolic regulation, and cellular signaling.

Application Notes

Titration of the NEU1 antibody may be required due to differences in protocols and secondary/substrate sensitivity.

Immunogen

A portion of amino acids 188-214 from the human protein was used as the immunogen for this NEU1 antibody.

Storage

Aliquot the NEU1 antibody and store frozen at -20oC or colder. Avoid repeated freeze-thaw cycles.