Alpha(2-3,6) Neuraminidase

α(2-3,6) Neuraminidase (N-acetylneuraminate glycohydrolase EC 3.2.1.18) cleaves all non-reducing terminal non-branched α(2-3) and α(2-6) sialic acid residues from complex carbohydrates and glycoproteins. There is no detectable activity on α(2-8) or α(2-9) linkages or on branched α(2-3) or α(2-6) linkages (Figure 1). The relative cleavage rates for different linkages are: α(2-3) > α(2-6).

α(2-3,6) Neuraminidase will not cleave branched sialic acids (linked to an internal residue). Use α(2-3,6,8,9) Neuraminidase for α(2-8) or branched sialic acids. To cleave only nonreducing terminal α(2-3) unbranched sialic acid residues, use α(2-3) Neuraminidase.

α(2-3,6) Neuraminidase is isolated from a clone of *Clostridium perfringens*. The enzyme has been extensively characterized using oligosaccharide standards

α(2-3,6) Neuraminidase is useful for:

- Structural analysis of oligosaccharides
- Determining sialic acid linkages
- Glycoprotein desialylation
- Removing heterogeneity from glycoproteins

Specifications

Activity

≥ 250 U/mg, ≥15 U/mL

Storage

Store at 4°C. Do not freeze.

Formulation

The enzyme is provided as a sterile-filtered solution in 20 *mM* Tris HCI, 25 *mM* NaCI pH 7.5.

Stability

Stable at least 12 months when stored properly. Several days exposure to ambient temperatures will not reduce activity.

Product Description

Molecular Weight

~41,000 Daltons

Specificity

Only non-reducing terminal α(2-3) and α(2-6) unbranched sialic acids (see Figure 1).

Purity

Each lot of α(2-3,6) Neuraminidase is tested for contaminating protease as follows: 10 µg of denatured BSA is incubated for 24 hours at 37°C with 2 µL of enzyme. SDS-PAGE analysis of the treated BSA shows no evidence of degradation.

The production host strain has been extensively tested and does not produce any detectable glycosidases.

pH Range:

50 mM sodium phosphate (pH 6.0) provides the optimal buffer for enzyme activity with 3'-siayllactose, a standard substrate. If glycosidase treatment is performed at suboptimal pH because of glycoprotein solubility or activity requirements, expect some diminution in enzyme activity.

Assay

One unit of α(2-3,6) Neuraminidase is defined as the amount of enzyme required to produce 1 µmole of methylumbelliferone in 1 minute at 37°C, pH 5.0 from MU-NANA [2'-(4-methylumbelliferyl)-α-D-N-acetylneuraminic acid].

Reagents

- 5X Reaction buffer 6.0 - 250 *mM* sodium phosphate, pH 6.0

Suggestions for Use

Procedure for De-sialylation

1. Add up to 100 µg of glycoprotein or 1 nmol of oligosaccharide to a tube.
2. Add water to a total of 14 µL.
3. Add 4 µL 5X Reaction Buffer 6.0.
4. Add 2 µL of α(2-3,6) Neuraminidase.
5. Incubate at 37°C for 1 hour.

De-sialylation may be monitored by SDS-PAGE if the size differential between native and desialylated protein is sufficient for detection.

References

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5. Roggentin, P, B. Rothe, F Lottspeich and R. Schauer. Cloning and sequencing of a Clostridium perfringens sialidase gene. FEBS Lett 238:31-34 (Sep 1988).

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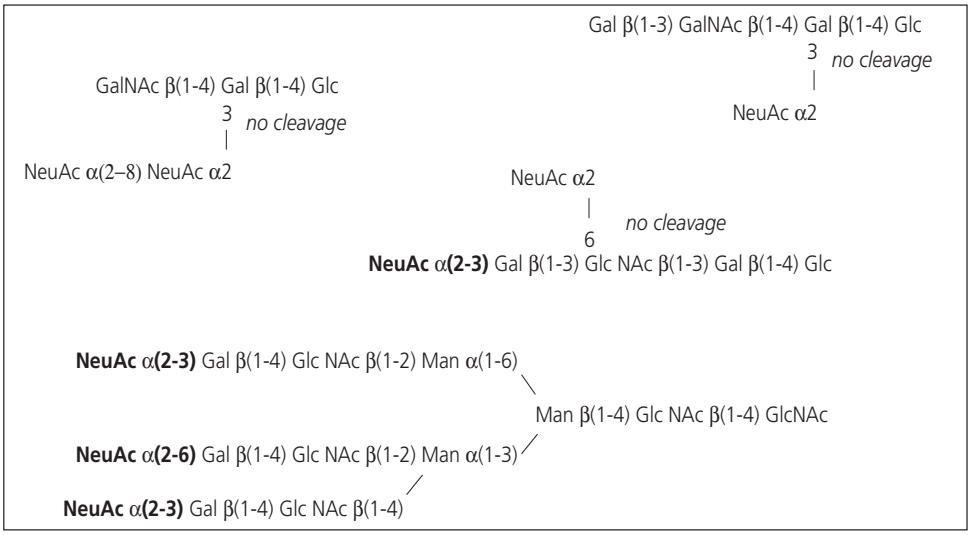
Figure 1 - Linkage specificities showing cleavable residues (in bold) for α(2-3,6) Neuraminidase



Gal = Galactose; Glc = Glucose; Man = Mannose; GalNAc = N-acetylgalactosamine; GlcNAc = N-acetylglucosamine; NeuAc = N-acetylneuraminic Acid (Sialic Acid)

Order Information

Catalog No.	Product Description	Package Size	Temp. °C
120056-1	**α(2-3,6) Neuraminidase** *(Clostridium perfringens* recombinant*)*	60 µL	+4

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