

Product Information

Neuraminidase from *Vibrio cholerae*

Catalog Number **N6514**
Storage Temperature 2–8 °C

EC 3.2.1.18
CAS RN 9001-67-6
Synonyms: Acyl-neuraminy Hydrolase, Sialidase,
Receptor-destroying enzyme

Product Description

Neuraminidase is used to cleave *N*-acetylneuraminic acid (sialic acid) from a variety of glycoproteins. Sialic acids are a family of N- and O-substituted derivatives of neuramic acid. Some of the more common and diverse known functions of sialic acids include the binding of hormones, toxins, and viruses, the masking of surface antigens, the modification of the circulating half-lives of red blood cells and glycoproteins, and the maintenance of surface negative charge.¹

The reaction specificity of neuraminidase varies with biological source. Neuraminidase from *Vibrio cholerae* requires Ca²⁺ ions for activity and is inhibited by the presence of EDTA. It preferentially hydrolyzes $\alpha(2\rightarrow3)$ -linkages of sialic acid, but will also cleave $\alpha(2\rightarrow6)$ and $\alpha(2\rightarrow8)$ -linkages. The preference for $\alpha(2\rightarrow3)$ -linkages is estimated at 260-fold.⁴

The X-ray crystal structure of neuraminidase from *Vibrio cholerae* at 2.3 Å resolution verified the 83 kDa enzyme folds into three distinct domains. The central catalytic domain has the canonical neuraminidase beta-propeller fold and is flanked by two domains which possess identical lectin-like topologies.⁵

This product is purified by affinity chromatography and is supplied as 0.2 µm filtered aqueous solution of 50 mM sodium acetate, pH 5.5, containing 0.15 M sodium chloride and 4 mM calcium chloride. It contains no preservatives.

Specific Activity: 8–24 units/mg protein

Unit Definition: One unit will liberate 1.0 µmole of *N*-acetylneuraminic acid per minute at pH 5.0 at 37 °C using NAN-lactose as the substrate.

Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Data Safety Sheet for information regarding hazards and safe handling practices.

Storage/Stability

Store the product at 2–8 °C. **Do not freeze.**

The product, as supplied, remains active for at least 2 years.

References

1. Ajit, V., and Diaz, S., A neuraminidase from *Streptococcus sanguis* that can release O-acetylated sialic acids. *J. Biol. Chem.*, **258**, 12465-12471 (1983).
2. Cassidy, J.T. et al., The sialic acids VI. Purification and properties of sialidase from *Clostridium perfringens*. *J. Biol. Chem.*, **240**, 3501-3506 (1965).
3. Freibolin, H. et al., ¹H-NMR spectroscopy - a potent method for the determination of substrate-specific sialidases (author's transl). *Hoppe Syeler's Z. Physiol. Chem.*, **362**, 1455-1463 (1981).
4. Source Book of Enzymes, White, J.S., and White, D.C., (eds.), CRC Press, (Boca Raton and New York: 1997) p. 445.
5. Crennell, S. et al., Crystal structure of *Vibrio cholerae* neuraminidase reveals dual lectin-like domains in addition to the catalytic domain. *Structure*, **2**, 535-544 (1994).

DS,PHC 06/17-1