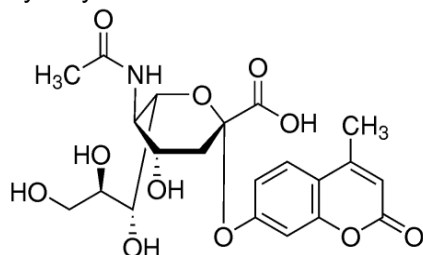


Product Information

2'-(4-Methylumbelliferyl)- α -D-N-acetylneuraminic acid, sodium salt hydrate

Catalog Number **M8639**
Storage Temperature $-20\text{ }^{\circ}\text{C}$

CAS RN 76204-02-9 (anhydrous)
Synonym: 4-MUNANA



• Na
• xH₂O

Product Description

Molecular formula: C₂₁H₂₄NNaO₁₁ · xH₂O
Molecular weight: 489.41 Da (anhydrous)
Specific Rotation: +51° (0.99% in water)¹
Extinction Coefficient: E^{mM} = 14.2 (317 nm, methanol)¹

2'-(4-Methylumbelliferyl)- α -D-N-acetylneuraminic acid, sodium salt hydrate has been used to measure the activity of *V. cholerae* neuraminidase¹ (pH 4.6) and neuraminidase from cultured fibroblasts^{1,2} (pH 4.2 and 4.3). The enzymatic reaction was stopped by the addition of glycine buffer, pH 10.7. Free 4-methylumbelliferone was determined using an excitation at 365 nm and fluorescence emission at 450 nm. The unhydrolyzed substrate has an excitation maximum at 315 nm and a fluorescence maximum at 374 nm, and thus, only slightly interfered with the free 4-methylumbelliferone measurement.¹ Similar conditions (final pH 10.4, excitation 360 nm, emission 440 nm) have been reported in fluorometric assays of neuraminidase activity in *Arthrobacter* and *Clostridium*.³ Recombinant *Salmonella typhimurium* neuraminidase showed a broad pH optimum between 5.5 and 7.0 when assayed using 4-MUNANA as a substrate in different buffer conditions.⁴

2'-(4-Methylumbelliferyl)- α -D-N-acetylneuraminic acid, sodium salt hydrate has been used to detect neuraminidase activity in zymograms after polyacrylamide gel electrophoresis and isoelectric focusing.⁵

Precautions and Disclaimer

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

Preparation Instructions

This product is soluble in N,N-dimethylformamide (DMF, 200 mM) and in water (50 mg/ml).

Storage/Stability

Store the product at $-20\text{ }^{\circ}\text{C}$.

A solution in DMF can be stored for up to one month at $-20\text{ }^{\circ}\text{C}$.

References

- Potier, M., et al., Fluorometric assay of neuraminidase with a sodium (4-methylumbelliferyl- α -D-N-acetylneuraminic acid) substrate. *Anal. Biochem.*, **94(2)**, 287-296 (1979).
- Warner, T.G., and O'Brien, J.S., Synthesis of 2'-(4-methylumbelliferyl)- α -D-N-acetylneuraminic acid and detection of skin fibroblast neuraminidase in normal humans and in sialidosis. *Biochemistry*, **18(13)**, 2783-2787 (1979).
- Myers, R.W., et al., The synthesis of 4-methylumbelliferyl α -ketoside of N-acetylneuraminic acid and its use in a fluorometric assay for neuraminidase. *Anal. Biochem.*, **101(1)**, 166-174 (1980).
- Hoyer, L.L., et al., Purification and properties of cloned *Salmonella typhimurium* LT2 sialidase with virus-typical kinetic preference for sialyl α 2 \rightarrow 3 linkages. *J. Biochem. (Tokyo)*, **110(3)**, 462-467 (1991).
- Berg, W., et al., Fluorescent staining of sialidases in polyacrylamide gel electrophoresis and ultrathin-layer isoelectric focusing. *Anal. Biochem.*, **145(2)**, 339-342 (1985).

CS,MES,NSB,MAM 10/08-1

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