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## Product Data Sheet

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Product Name: X-NeuNAc

Cat. No.: GC16527

### Chemical Properties

Cas. No. 160369-85-7

Chemical Name sodium;(2S,4S,6R)-5-acetamido-2-[(5-bromo-4-chloro-1H-indol-3-yl)oxy]-4-hydroxy-6-[(1S,2S)-1,2,3-trihydroxypropyl]oxane-2-carboxylate

SMILES CC(=O)NC1C(CC(OC1C(C(CO)O)O)(C(=O)[O-])OC2=CNC3=C2C(=C(C=C3)Br)Cl)O.[Na+]

Formula	C <sub>19</sub> H <sub>21</sub> BrClN <sub>2</sub> NaO <sub>9</sub>	M.Wt	559.72
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Solubility	≥ 28mg/mL in DMSO	Storage	Store at -20°C
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General tips For obtaining a higher solubility , please warm the tube at 37 °C and shake it in the ultrasonic bath for a while. Stock solution can be stored below -20°C for several months.

Shipping Condition Evaluation sample solution : ship with blue ice All other available size: ship with RT , or blue ice upon request.

Structure 

### Background

Km: 0.89 mM for neuraminidase

X-Neu5Ac is a new substrate for chromogenic assay of neuraminidase activity in bacterial expression systems.

Many studies have focused on the functional role of cell surface gangliosides, which are thought to facilitate antigenicity, cell-cell recognition and cell growth regulation. Nacetyl neuraminic acid (Neu5Ac) within gangliosides Plays a key function in these roles. Chromogenic substrates, such as Neu5Ac, are used routinely for cytologic, histologic and spectroscopic analyses of enzyme activity.

In vitro: X-Neu5Ac was hydrolyzed by neuraminidase to release a halogenated product undergoing rapid aerobic oxidation to form the dark blue pigment. Preliminary kinetic studies indicated that X-Neu5Ac was a good and stable substrate for neuraminidase. In

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addition, X-Neu5Ac would also be hydrolyzed mutant enzymes [1].

In vivo: To visualize extracellular sialidase activity on the membrane surface in the rat brain, acute brain slices were incubated with X-Neu5Ac at pH 7.3. After 1h, myelin-abundant regions showed intense fluorescence in the rat brain. Although the hippocampus showed weak fluorescence in the brain, mossy fiber terminals in the hippocampus showed relatively intense fluorescence. In addition, the fluorescence intensities caused by X-Neu5Ac was correlated with the sialidase activity. Therefore, staining with X-Neu5Ac was specific for sialidase and useful for quantitative analysis of sialidase activities [1].

Clinical trial: N/A

### References:

[1] Fujii I, Iwabuchi Y, Teshima T, Shiba T, Kikuchi M. X-Neu5Ac: a novel substrate for chromogenic assay of neuraminidase activity in bacterial expression systems. *Bioorg Med Chem.* 1993 Aug;1(2):147-9.

[2] Minami A, Shimizu H, Meguro Y, Shibata N, Kanazawa H, Ikeda K, Suzuki T. Imaging of sialidase activity in rat brain sections by a highly sensitive fluorescent histochemical method. *Neuroimage.* 2011 Sep 1;58(1):34-40.

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