

# PRODUCT DATA SHEET

## N-Glycolyl-monosialoganglioside GM<sub>3</sub>, (NH<sub>4</sub><sup>+</sup> salt)

**Catalog number:** 1553

**Synonyms:** N-Glycolyl-GM<sub>3</sub>; NeuGcGM<sub>3</sub>;  
N-Gly-GM<sub>3</sub>

**Source:** semisynthetic, bovine buttermilk

**Solubility:** Chloroform/methanol/DI water,  
2:1:0.1; forms micellar solution in  
water

**CAS number:** 69345-49-9

**Molecular Formula:** C<sub>64</sub>H<sub>118</sub>N<sub>2</sub>O<sub>22</sub>•NH<sub>3</sub>

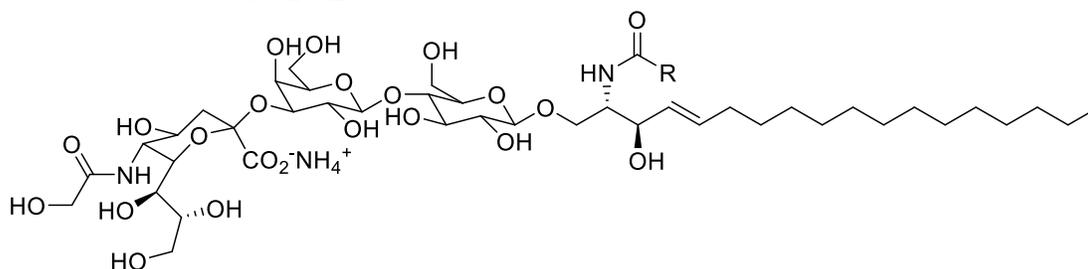
**Molecular Weight:** 1268 + NH<sub>3</sub> (tricosanoyl)

**Storage:** -20°C

**Purity:** TLC: >98%; identity confirmed by MS

**TLC System:** chloroform/methanol/ 2.5N  
aqueous ammonium hydroxide,  
(60:40:9 by vol.)

**Appearance:** solid



### Application Notes:

Sialic acids are important for cell-cell recognition and cell-pathogen interactions. They can be found on gangliosides localized to plasma membranes, where sialylated sugar chains protrude out of cells, serving as specific antigens in immune reactions and ligands for receptors in cell adhesion.<sup>1</sup> N-acetylneuraminic acid (NeuAc) and its hydroxylated form, N-glycolyneuraminic acid (NeuGc), are the two major variants of sialic acid found in most mammals.<sup>2</sup> Though NeuGc is found in most mammals, its presence in humans is limited due to a partial truncation of the CMP-NeuAc hydroxylase gene that renders the biosynthetic enzyme inactive.<sup>3</sup> Therefore, human cells are not capable of synthesizing their own NeuGc-sialoconjugates.<sup>4</sup> Despite zero to minimal amounts of NeuGc being found in healthy human tissues, higher levels of NeuGc have been detected in a variety of tumors and are associated with their progression and metastasis.<sup>5,6</sup> For example, abnormal expression of N-Glycolyl GM<sub>3</sub>, a NeuGc-containing ganglioside, is found mostly on the surface of malignant tumors.<sup>7</sup> Thus, the presence of these tumor-associated antigens provides a basis for early (and potentially pre-malignant) immunological localization and diagnosis. Matreya's scientists have developed a high-quality standard for N-Glycolyl GM<sub>3</sub> detection to advance this research quantitative isolation and analysis.

### Selected References:

1. Lopez, P.H.H. and Schnaar, R.L. Gangliosides in cell recognition and membrane protein regulation. *Curr. Opin. Struct. Biol.* **19**(5), 549-557 (2009).
2. Kooner, A.S., Yu, H., and Chen, X. Synthesis of N-glycolyneuraminic acid (Neu5Gc) and its glycosides. *Front. Immunol.* **10**, 2004 (2019).
3. Irie, A. and Suzuki, A. CMP-N-Acetylneuraminic acid hydroxylase is exclusively inactive in humans. *Biochem. Biophys. Res. Commun.* **248**(2), 330-333 (1998).
4. Blanco, R. N-glycolyl GM<sub>3</sub> ganglioside as a relevant tumor antigen in humans. *J. Mol. Biomark. Diagn.* **7**(6), 1000e124 (2016).
5. Yin, J., Hashimoto, A., Izawa, M., et al. Hypoxic culture induces expression of sialin, a sialic acid transporter, and cancer-associated gangliosides containing non-human sialic acid on human cancer cells. *Cancer Res.* **66**(6), 2937-2945 (2006).
6. Marquina, G., Waki, H., Fernandez, L.E., et al. Gangliosides expressed in human breast cancer. *Cancer Res.* **56**(22), 5165-5171 (1996).
7. Pilco-Janeta, D., De la Cruz Puebla, M., Soriano, J., et al. Aberrant expression of N-glycolyl GM<sub>3</sub> ganglioside is associated with the aggressive biological behavior of human sarcomas. *BMC Cancer* **19**, 556 (2019).

This product is to be used for research only. It is not intended for drug or diagnostic use, human consumption or to be used in food or food additives. Matreya assumes no liability for any use of this product by the end user. We believe the information, offered in good faith, is accurate.