

# PRODUCT DATA SHEET

## Monosialoganglioside GM<sub>1</sub> (NH<sub>4</sub><sup>+</sup> salt)

**Catalog No:** 1544; 1544-50

**Common Name:** GM<sub>1</sub>

**Source:** natural, ovine

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

**CAS No:** 1007119-81-4

**Molecular Formula:** C<sub>73</sub>H<sub>131</sub>N<sub>3</sub>O<sub>31</sub> • NH<sub>3</sub>

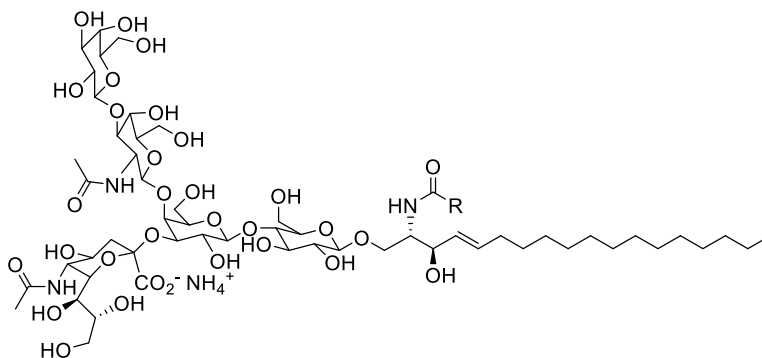
**Molecular Weight:** 1547+ NH<sub>3</sub> (stearoyl)

**Storage:** -20°C

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

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

**Appearance:** solid



### Application Notes:

Gangliosides<sup>1</sup> are acidic glycosphingolipids that form lipid rafts in the outer leaflet of the cell plasma membrane, especially in neuronal cells in the central nervous system.<sup>2</sup> They participate in cellular proliferation, differentiation, adhesion, signal transduction, cell-to-cell interactions, tumorigenesis, and metastasis.<sup>3</sup> The accumulation of gangliosides has been linked to several diseases including Tay-Sachs and Sandhoff disease. An autoimmune response against gangliosides can lead to Guillain-Barre syndrome. GM<sub>1</sub> stimulates neuronal sprouting and enhances the action of nerve growth factor (NGF) by directly and tightly associating with Trk, the high-affinity tyrosine kinase-type receptor for NGF. It is the specific cell surface receptor for cholera toxin.<sup>4</sup>

### Selected References:

1. L. Svennerholm, et al. (eds.), *Structure and Function of Gangliosides*, New York, Plenum, 1980
2. T. Kolter, R. Proia, K. Sandhoff, Combinatorial Ganglioside Biosynthesis. *J. Biol. Chem.*, July Vol. 277, No. 29, pp. 25859-25862, 2002
3. S. Birkle, G. Zeng, L. Gao, R. K. Yu, and J. Aubry. Role of tumor-associated gangliosides in cancer progression. *Biochimie*, 85, 455-463, 2003
4. C. E. Miller, J. Majewski, R. Faller, S. Satija, and T. L. Kuhl, Cholera Toxin Assault on Lipid Monolayers Containing Ganglioside GM<sub>1</sub>. *Biophysj.*, June Vol. 86(6), 3700-3708, 2004

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