

# PRODUCT DATA SHEET

## Monosialoganglioside GM<sub>4</sub> (NH<sub>4</sub><sup>+</sup> salt), egg, chicken

**Catalog No:** 1535

**Common Name:** GM<sub>4</sub>

**Source:** natural, egg, chicken

**Solubility:** chloroform/methanol (2:1)

Forms micellar solution in water

**CAS No:** 66456-69-7

**Molecular Formula:** C<sub>57</sub>H<sub>106</sub>N<sub>2</sub>O<sub>17</sub> • NH<sub>3</sub>

(2-hydroxydocosanoyl; d18:1 sphingoid base)

**Molecular Weight:** 1091+NH<sub>3</sub>

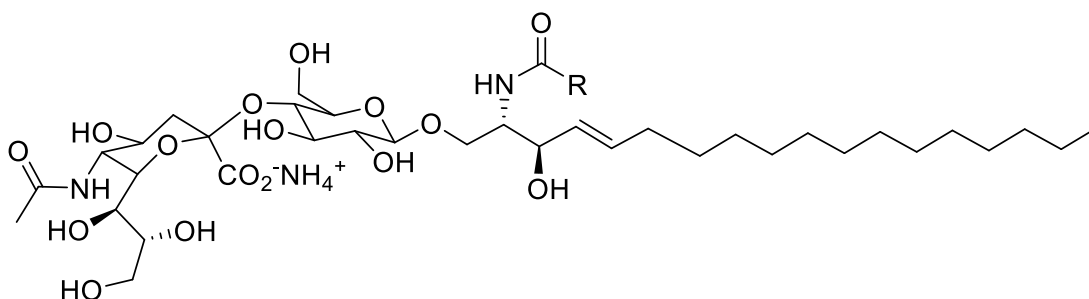
(2-hydroxydocosanoyl; d18:1 sphingoid base)

**Storage:** -20°C

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

**TLC System:** chloroform/ methanol/ 0.02% calcium chloride (60:30:5 by vol.)

**Appearance:** solid



### Application Notes:

As this product is derived from a natural source, there may be variations in the sphingoid backbone.

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>4</sub> is a monosialoganglioside located primarily in the central nervous system and was found to be a major component of myelin gangliosides.<sup>4</sup> It was also found to be a specific marker for human myelin and oligodendroglial perikarya. However, in chicken cerebellum, GM<sub>4</sub> is associated with astrocytes, and not with myelin. GM<sub>4</sub> has been found to be the major ganglioside in chicken egg yolk, chicken embryonic liver, and frog liver.

### 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.*, Vol. 277:29, pp. 25859-25862, 2002
3. S. Birkle et al. "Role of tumor-associated gangliosides in cancer progression" *Biochimie*, Vol. 85 pp. 455-463, 2003
4. Li et al. "Association of GM<sub>4</sub> ganglioside with the membrane surrounding lipid droplets in shark liver" *Journal of Lipid Research*, Vol. 43 pp. 1019-1025, 2002

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