

## Product Data Sheet

Product Name: Glucosylceramide (bovine buttermilk)

Cat. No.: GC52493

### Chemical Properties

Cas. No.

SMILES O[C@H]1[C@H](O)[C@@H](CO)O[C@@H](OC[C@@H]([C@H](O)/C=C/CCCCCCCCCCCCC)NC([R])=O)[C@@H]1O

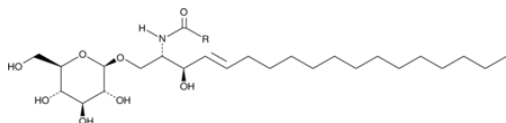
Formula C46H89NO8 (for docosanoyl) M.Wt 784.2

Solubility Chloroform:Methanol (2:1): Soluble Storage -20°C

General For obtaining a higher solubility, please warm the tube at 37 °C and shake it in the tips ultrasonic bath for a while. Stock solution can be stored below -20°C for several months.

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

Structure



### Background

Glucosylceramides are formed by the tethering of glucose to a ceramide by glucosylceramides synthase.<sup>1</sup> They are present in neuronal and non-neuronal mammalian tissues and are found at low quantities in a large number of plant species, where they comprise 5-30% of total lipids in the plant plasma membrane, and in fungi.<sup>1,2,3</sup> Glucosylceramides levels decrease during cold acclimatization in plants and glucosylceramides in fungi are involved in the regulation of virulence and act as elicitors in plants, stimulating plant defense mechanisms.<sup>3,4</sup> Glucosylceramides are precursors in the synthesis of lactosylceramides and gangliosides. Increased levels of glucosylceramides are associated with obesity-induced insulin resistance in mice and with neuronal deficits observed in neuronopathic Gaucher disease.<sup>1,5</sup> This product contains glucosylceramide molecular species with primarily C22:0, C23:0, and C24:0 fatty acyl chain lengths. *As this product is derived from a natural source, there may be variations in the sphingoid backbone.* [Matreya, LLC. Catalog No. 1521]

1. Holland, W.L., and Summers, S.A. Sphingolipids, insulin resistance, and metabolic disease: New

**Caution: Product has not been fully validated for medical applications. For research use only.**

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insights from in vivo manipulation of sphingolipid metabolism *Endocr. Rev.* 29(4)381-402(2008)

2. Cahoon, E.B., and Lynch, D.V. Analysis of glucocerebrosides of rye (*Secale cereale* L. cv Puma) leaf and plasma membrane *Plant Physiol.* 95(1)56-68(1991)

3. Lynch, D.V., and Dunn, T.M. An introduction to plant sphingolipids and a review of recent advances in understanding their metabolism and function *New Phytol.* 161(3)667-702(2004)

4. Rollin-Pinheiro, R., Bernardino, M.C., and Barreto-Bergter, E. Sphingolipids: Functional and biological aspects in mammals, plants, and fungi *Analysis of membrane lipids* 21-40(2020)

5. Dai, M., Liou, B., Swope, B., et al. Progression of behavioral and CNS deficits in a viable murine model of chronic neuronopathic Gaucher disease *PLoS One* 11(9)e0162367(2016)

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