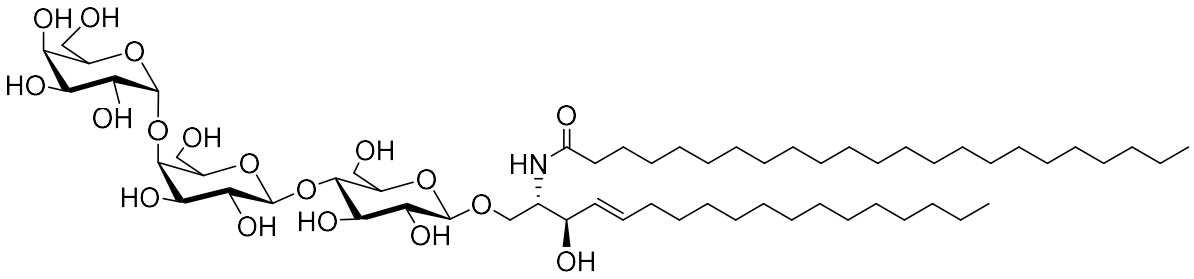
PRODUCT DATA SHEET

N-Tricosanoyl-ceramide trihexoside

Catalog No: 1524
Common Name: N-C23:0-Ceramide trihexoside; N-Tricosanoyl globotriaosylceramide
Source: semisynthetic, porcine RBC
Solubility: chloroform/methanol (2:1) DMSO, hot methanol
CAS No: 536745-84-3

Molecular Formula: $C_{59}H_{111}NO_{18}$
Molecular Weight: 1123
Storage: -20°C
Purity: TLC > 98%; identity confirmed by MS
TLC System: chloroform/methanol/DI water (65:25:3 by Vol.)
Appearance: solid



Application Notes:

This product is a well-defined ceramide trihexoside containing a tricosanoic fatty acid acyl group on the sphingosine. Ceramide trihexoside is a glycosphingolipid found mostly in mammalian cell membranes. It is involved in cellular signaling and has been identified as a receptor for various toxins including shiga toxins and shiga-like toxins.[1] Some toxins, such as veratoxins from *Escherichia coli*, require specific fatty acids on the ceramide portion of CTH to show affinity in binding. An accumulation of CTH in the cellular membranes due to a lack of *alpha*-galactosidase to convert it into lactosyl ceramide results in Fabry disease.[2] This product can be used as an excellent standard for the identification of CTH in Fabry disease by HPLC[3] and mass spectrometry.[4] An inability to convert CTH to globoside due to mutations in the gene sequence leads to the P^k Blood Group Phenotype. It appears that under certain conditions CTH can enhance anticoagulant activity. CTH has also been studied as a tool to investigate lymphocyte activation.[5]

Selected References:

1. S. Ashkenazi, and T. Cleary, "Rapid method to detect shiga toxin and shiga-like toxin I based on binding to globotriosyl ceramide (Gb3), their natural receptor." *J Clin Microbiol.,* Vol. 27:6 pp. 1145-1150, *1989*
2. S. Bekri, et al. "The role of ceramide trihexoside (globotriaosylceramide) in the diagnosis and follow-up of the efficacy of treatment of Fabry disease: a review of the literature" *Cardiovasc Hematol Agents Med Chem,* Vol. 4:4 pp. 289–297, *2006*
3. J. Groener, et al. "HPLC for simultaneous quantification of total ceramide, glucosylceramide, and ceramide trihexoside concentrations in plasma" *Clin Chem.,* Vol. 53:4 pp. 742-747, *2007*
4. K. Mills, A. Johnson, B. Winchester, "Synthesis of novel internal standards for the quantitative determination of plasma ceramide trihexoside in Fabry disease by tandem mass spectrometry" *FEBS Lett.,* Vol. 27 pp. 171-176, *2002*
5. C. Menge, et al. "Globotriaosylceramide (Gb(3)/CD77) is synthesized and surface expressed by bovine lymphocytes upon activation in vitro" *Vet Immunol Immunopathol.,* Vol. 83 pp.19-36, *2001*

2178 High Tech Road, State College, PA 16803
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