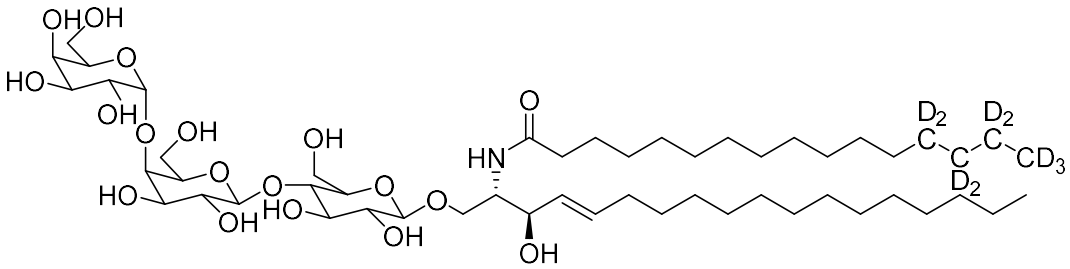
PRODUCT DATA SHEET

MATREYA LLC
Lipids and Biochemicals
A Cayman Chemical Company

N-Hexadecanoyl-D_9 (13,13,14,14,15,15,16,16,16)-ceramide trihexosides

Catalog number: 1551
Synonyms: CTH-D_9; Gb_3-D_9; Globotriaosylceramide-D_9; N-C16:0-CD_9-CTH; N-C16:0-CD_9-Gb_3; N-Hexadecanoyl-CD_9-globotriaosylceramide; N-Palmitoyl-CD_9-ceramide trihexoside
Source: semisynthetic, porcine RBC

Solubility: Chloroform/methanol/water, 2:1:0.1; DMSO
CAS number: N/A
Molecular Formula: $C_{52}H_{88}D_9NO_{18}$
Molecular Weight: 1033
Storage: -20°C
Purity: TLC: >98%; identity confirmed by MS
TLC System: chloroform/methanol/DI water, (65:25:4 by vol.)
Appearance: solid



Application Notes:

This high purity deuterated product is ideal for the identification of ceramide trihexoside in samples and biological systems. Ceramide trihexoside (CTH) 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. G. Cleary, "Rapid method to detect shiga toxin and shiga-like toxin I based on binding to globotriosyl ceramide (Gb3), their natural receptor." *J Clin Microbio*. June; 27(6): 1145-1150, *1989*
2. S. Bekri, O. Lidove, R. Jaussaud, B. Knebelmann, F. Barbey. "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* 4 (4): 289–97, *October 2006*
3. J. E. Groener, B. J. Poorthuis, S. Kuiper, M. T. Helmond, C. E. Hollak, J. M. Aerts. "HPLC for simultaneous quantification of total ceramide, glucosylceramide, and ceramide trihexoside concentrations in plasma." *Clin Chem.,* Apr;53(4):742-7, *2007*. Epub Mar 1 *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.,* Mar 27;515(1-3):171-6, *2002*
5. C. Menge, I. Stamm, M. Wuhrer, R. Geyer, L. H. Wieler, G. Baljer. "Globotriaosylceramide (Gb(3)/CD77) is synthesized and surface expressed by bovine lymphocytes upon activation in vitro." *Vet Immunol Immunopathol.,* Nov;83(1-2):19-36, *2001*

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