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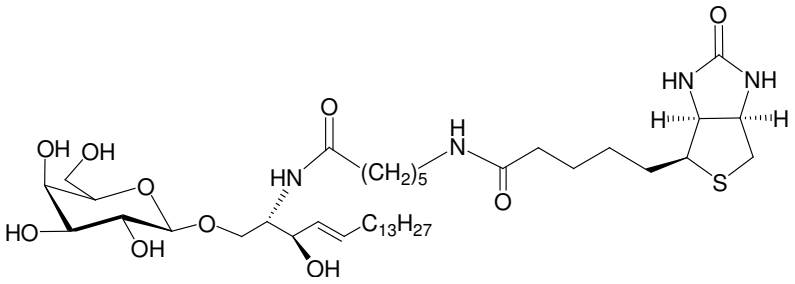
PRODUCT DATA SHEET

N-Hexanoyl-biotin-galactosylceramide

Catalog number: 2203
Synonyms: N-C6:0-Biotin-*beta*-D-galactosylsphingosine; N-C6:0-Biotin-cerebroside
Source: semisynthetic, bovine
Solubility: chloroform/methanol 2:1, methanol, DMF
CAS number: N/A

Molecular Formula: $C_{40}H_{72}N_4O_{10}S$
Molecular Weight: 801
Storage: -20°C
Purity: TLC: >98%, HPLC: >98%, identity confirmed by MS
TLC System: chloroform/methanol/DI water, 80:20:1
Appearance: solid



Application Notes:

This galactosylceramide analogue contains a biotin unit attached to the amine of the sphingosine moiety via a hexanoic acid linker and is ideal for use in sphingolipid studies. The biotin structure allows for attachment of the galactosylceramide to streptavidin and avidin making it extremely useful for binding to substrates and for toxin detection[1].

Galactocerebrosides are found primarily in neuronal tissues and are the major glycosphingolipids in the central nervous system. They are the largest single component of the myelin sheath of nerves and seem to act, along with other molecules, to form part of the structural support of the myelin sheath.[2] Cerebrosides are involved in a very wide range of biological activities such as cell agglutination, intracellular communication, cellular development, and antitumor/cytotoxic effects.[3] Galactocerebroside can be metabolized into sulfatide which is also abundant in the nervous system and myelin sheath. Due to the relatively high melting point of cerebrosides (much greater than physiological body temperature) they have a para-crystalline structure. Krabbe's disease (globoid cell leukodystrophy) is characterized by a deficiency in the enzyme galactocerebrosidase, which is responsible for degrading galactocerebroside. This leads to an accumulation of cerebroside and psychosine (which is very cytotoxic and can result in demyelination of nerves and loss of axonal conductivity). This standard from Matreya is excellent for use in the identification and isolation of cerebrosides in the study of Krabbe's disease and other studies.[4]

Selected References:

1. A. Mukhopadhyay et al. "Direct interaction between the inhibitor 2 and ceramide *via* sphingolipid-protein binding is involved in the regulation of protein phosphatase 2A activity and signaling" *FASEB*, Vol. 23(3) pp. 751-763, *2009*
2. M. Sheldon, D.Lyudmila, "Cycloserine-induced decrease of cerebroside in myelin" *Lipids,* Vol. 33:4 pp. 441-443, *1998*
3. X. Zhou, L. Tang and Y. Liu "An Isomeric Mixture of Novel Cerebrosides Isolated from *Impatiens pritzellii* Reduces Lipopolysaccharide-Induced Release of IL-18 from Human Peripheral Blood Mononuclear Cells" *Lipids,* Vol. 44:8 pp. 759-763, *2009*
4. X. Han and H. Cheng "Characterization and direct quantitation of cerebroside molecular species from lipid extracts by shotgun lipidomics" *Journal of Lipid Research,* Vol. 46 pp. 163-175, *2005*