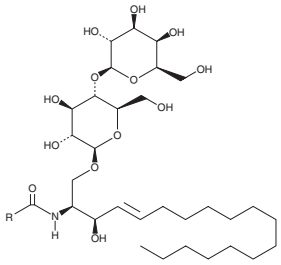
PRODUCT INFORMATION

Lactosylceramide (porcine RBC)

Item No. 16983



Synonym:	LacCer
MF:	$C_{48}H_{91}NO_{13}$ (for stearoyl)
FW:	890.2
Purity:	≥98%
Supplied as:	A solid
Storage:	-20°C
Stability:	≥4 years

Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Laboratory Procedures

Lactosylceramide (LacCer) (porcine RBC) is supplied as a solid. A stock solution may be made by dissolving the LacCer (porcine RBC) in the solvent of choice, which should be purged with an inert gas. LacCer (porcine RBC) is soluble in the organic solvent DMSO.

Description

LacCer is an endogenous bioactive sphingolipid. It is expressed on the plasma membrane of human phagocytes and mediates phagocytosis, chemotaxis, and superoxide generation.[1] LacCer forms membrane microdomains with Lyn kinase and the α_i subunits of inhibitory G protein-coupled receptors, suggesting a role in cell signaling. Elevated LacCer levels in kidney cortex homogenates and urine are directly correlated with hyperglycemia, insulin resistance, and obesity in *db/db* transgenic diabetic mice.[2] It promotes recruitment of CNS-infiltrating monocytes and microglia and enhances neurodegeneration in mice with chronic experimental autoimmune encephalomyelitis (EAE), a model of multiple sclerosis (MS).[3] Increased levels of LacCer in atherosclerotic plaques are correlated with increased levels of the pro-inflammatory cytokines IL-6, monocyte chemoattractant protein-1 (MCP-1), and macrophage inflammatory protein 1β (MIP-1β), as well as lipids and macrophages.[4] LacCer is also upregulated during the secretory phase of the menstrual cycle.[5] This product contains lactosylceramide molecular species with primarily C22:0, C24:0, and 2-hydroxy C24:0 fatty acyl chain lengths. *As this product is derived from a natural source, there may be variations in the sphingoid backbone.*

References

1. Iwabuchi, K., Nakayama, H., Oizumi, A., *et al.* Role of ceramide from glycosphingolipids and its metabolites in immunological and inflammatory responses in humans. *Mediators Inflamm.* **2015(120748)** (2015).
2. Subathra, M., Korrapati, M., Howell, L.A., *et al.* Kidney glycosphingolipids are elevated early in diabetic nephropathy and mediate hypertrophy of mesangial cells. *Am. J. Physiol. Renal Physiol.* **309(3)** (2015).
3. Mayo, L., Trauger, S.A., Blain, M., *et al.* Regulation of astrocyte activation by glycolipids drives chronic CNS inflammation. *Nature Medicine* **20(10)**, 1147-1156 (2014).
4. Edsfeldt, A., Dunér, P., Ståhlman, M., *et al.* Sphingolipids contribute to human atherosclerotic plaque inflammation. *Arterioscler. Thromb. Vasc. Biol.* **36(6)** (2016).
5. Mikami, M., Tukazaki, K., Nozawa, S., *et al.* Menstrual cycle-associated expression of 2-hydroxy fatty acyl phytosphingosine-containing GlcCer, LacCer and Gb3Cer in human uterine endometrium. *Biochim Biophys. Acta.* **1125(1)**, 104-109 (1992).

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