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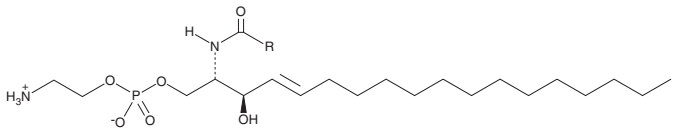
PRODUCT INFORMATION

Ceramide Phosphoethanolamine (bovine)

Item No. 24453

Synonyms: N-Acyl Ceramide Phosphoethanolamine (d18:1/acyl mixture), CPE, N-acyl-D-*erythro*-Sphingosylphosphorylethanolamine
MF: $C_{43}H_{87}N_2O_6P$ (for tricosanoyl)
FW: 759.2
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

Ceramide phosphoethanolamine (CPE) (bovine) is supplied as a solid. A stock solution may be made by dissolving the CPE (bovine) in the solvent of choice. CPE (bovine) is soluble in a 2:1 solution of chloroform:methanol.

Description

CPE is an analog of sphingomyelin that contains ethanolamine rather than choline as the head group. It is the principal membrane phospholipid in invertebrates such as *Drosophila*, which lacks sphingomyelin.[1] It is only produced in small amounts in mammalian cells, accounting for approximately 0.02 mol% of total phospholipids in mouse testis and brain.[2] In *Drosophila*, CPE is biosynthesized by CPE synthase from ceramide and cytidine diphosphate-ethanolamine in the Golgi lumen. In mammals, it is biosynthesized by sphingomyelin synthase 2 (SMS2) in the plasma membrane and by sphingomyelin synthase-related protein (SMSr) in the endoplasmic reticulum (ER).[1] In *Drosophila*, CPE has a role in glial ensheathment of axons.[3] Disrupting CPE synthesis by depleting SMSr *in vitro* in mammalian cells leads to an accumulation of ER ceramides, which are then mislocalized to the mitochondria, inducing apoptosis.[4] However, ceramide levels are not altered in transgenic mice lacking SMSr catalytic activity.[2] This product contains ceramide phosphoethanolamine molecular species with primarily C23:0, C24:0, and C21:0 fatty acyl chains. *As this product is derived from a natural source, there may be variations in the sphingoid backbone.*

References

1. Vacaru, A.M., van den Dikkenberg, J., Ternes, P., *et al*. Ceramide phosphoethanolamine biosynthesis in *Drosophila* is mediated by a unique ethanolamine phosphotransferase in the Golgi lumen. *J. Biol. Chem.* **288(16)**, 11520-11530 (2013).
2. Bickert, A., Ginkel, C., Kol, M., *et al*. Functional characterization of enzymes catalyzing ceramide phosphoethanolamine biosynthesis in mice. *J. Lipid Res.* **56(4)**, 821-835 (2015).
3. Ghosh, A., Kling, T., Snaidero, N., *et al*. A global *in vivo Drosophila* RNAi screen identifies a key role of ceramide phosphoethanolamine for glial ensheathment of axons. *PLos Genet.* **9(12)**, e1003980 (2013).
4. Tafesse, F.G., Vacaru, A.M., Bosma, E.F., *et al*. Sphingomyelin synthase-related protein SMSr is a suppressor of ceramide-induced mitochondrial apoptosis. *J. Cell Sci.* **127(Pt 2)**, 445-454 (2014).

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