

# 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<sub>43</sub>H<sub>87</sub>N<sub>2</sub>O<sub>6</sub>P (for tricosanoyl)

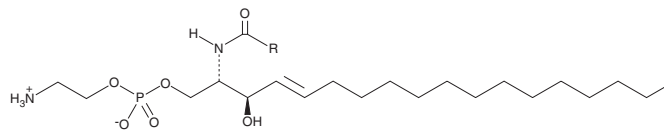
**FW:** 759.2

**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.<sup>1</sup> It is only produced in small amounts in mammalian cells, accounting for approximately 0.02 mol% of total phospholipids in mouse testis and brain.<sup>2</sup> 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).<sup>1</sup> In *Drosophila*, CPE has a role in glial ensheathment of axons.<sup>3</sup> 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.<sup>4</sup> However, ceramide levels are not altered in transgenic mice lacking SMSr catalytic activity.<sup>2</sup> 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).

#### WARNING

THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

#### SAFETY DATA

This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the [complete](#) Safety Data Sheet, which has been sent via email to your institution.

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