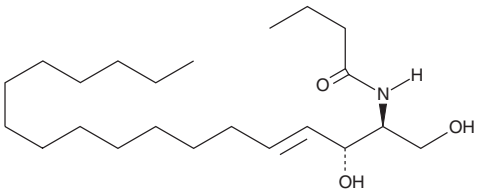
PRODUCT INFORMATION

C4 Ceramide (d18:1/4:0)

Item No. 22528

CAS Registry No.: 74713-58-9
Formal Name: N-[(1S,2R,3E)-2-hydroxy-1-(hydroxymethyl)-3-heptadecen-1-yl]-butanamide
Synonyms: Cer(d18:1/4:0), Ceramide (d18:1/4:0), N-butyroyl-D-*erythro*-Sphingosine
MF: $C_{22}H_{43}NO_3$
FW: 369.6
Purity: ≥95%
Supplied as: A crystalline solid
Storage: -20°C
Stability: ≥2 years



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

Laboratory Procedures

C4 Ceramide (d18:1/4:0) is supplied as a crystalline solid. A stock solution may be made by dissolving the C4 ceramide (d18:1/4:0) in the solvent of choice. C4 Ceramide (d18:1/4:0) is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide (DMF), which should be purged with an inert gas. The solubility of C4 ceramide (d18:1/4:0) in ethanol is approximately 30 mg/ml and approximately 20 mg/ml in DMSO and DMF.

Further dilutions of the stock solution into aqueous buffers or isotonic saline should be made prior to performing biological experiments. Ensure that the residual amount of organic solvent is insignificant, since organic solvents may have physiological effects at low concentrations. Organic solvent-free aqueous solutions of C4 ceramide (d18:1/4:0) can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of C4 ceramide (d18:1/4:0) in PBS, pH 7.2, is approximately 0.05 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

C4 Ceramide is a bioactive sphingolipid and cell-permeable analog of naturally occurring ceramides.[1-3] It inhibits IL-4 production by 16% in EL4 T cells stimulated with phorbol 12-myristate 13-acetate (PMA; Item No. 10008014) when used at a concentration of 10 µM.[1] C4 Ceramide is cytotoxic to SK-BR-3 and MCF-7/Adr breast cancer cells (IC_{50}s = 15.9 and 19.9 µM, respectively).[2] C4 Ceramide also increases maturation and stability of cystic fibrosis transmembrane conductance regulator (CFTR) proteins bearing the F508 deletion (F508del) mutation, enhances cAMP-activated chloride secretion, and suppresses secretion of IL-8 in primary epithelial cells isolated from patients with cystic fibrosis.[3]

References

1. Park, J., Li, Q., Chang, Y.T., *et al.* Inhibitory activity of a ceramide library in interleukin-4 production from activated T cells. *Bioorg. Med. Chem.* **13(7)**, 2589-2595 (2005).
2. Crawford, K.W., Bittman, R., Chun, J., *et al.* Novel ceramide analogues display selective cytotoxicity in drug-resistant breast tumor cell lines compared to normal breast epithelial cells. *Cell Mol. Biol. (Noisy-le-grand)* **49(7)**, 1017-1023 (2003).
3. Caohuy, H., Yang, Q., Eudy, Y., *et al.* Activation of 3-phosphoinositide-dependent kinase 1 (PDK1) and serum- and glucocorticoid-induced protein kinase 1 (SGK1) by short-chain sphingolipid C4-ceramide rescues the trafficking defect of ΔF508-cystic fibrosis transmembrane conductance regulator (ΔF508-CFTR). *J. Biol. Chem.* **289(52)**, 35953-35968 (2014).

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