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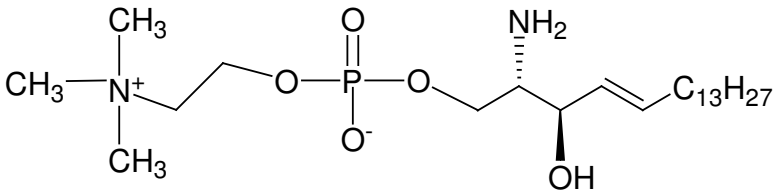
PRODUCT DATA SHEET

D-*erythro*-Sphingosylphosphorylcholine

Catalog No: 1318
Common Name: D-*erythro*-SPC
Source: semisynthetic, bovine buttermilk
Solubility: chloroform/methanol (2:1)
CAS No: N/A
Molecular Formula: $C_{23}H_{49}N_2O_5P$

Molecular Weight: 465
Storage: -20°C
Purity: TLC > 98%; identity confirmed by MS
TLC System: chloroform/methanol/DI water/ ammonium hydroxide (60:40:7:3 by Vol.)
Appearance: solid



Application Notes:

This product is the highly purified D-*erythro*-sphingosylphosphorylcholine isomer which has distinct functionality from its L-*threo* isomer. Sphingosylphosphorylcholine (SPC) has been identified in normal blood plasma, ascites and various other tissues. SPC is similar in structure to sphingosine-1-phosphate and lysophosphatidylcholine and has at least low-binding affinity to some of the same receptors such as the sphingosine-1-phosphate receptor. SPC is a bioactive lipid that acts as an intracellular and extracellular signalling molecule in numerous biological processes and activates various signaling cascades. It acts by binding to and activating cell surface receptors and thereby triggers numerous cell responses. Some of these signaling responses include vasoconstriction, vasodilation, angiogenesis, stress fiber formation, cytoskeletal rearrangements, proliferation, differentiation, migration, wound healing, and stimulation of DNA synthesis. SPC can also inhibit the growth of various cell types, mostly that of tumor cells causing much interest in its possible role as an anti-tumor therapy. SPC is a high-affinity ligand for the orphan receptor ovarian cancer G-protein-coupled receptor 1 (OGR1). The specific binding of SPC to OGR1 also activates p42/44 mitogen-activated protein kinases (MAP kinases) and inhibits cell proliferation.[1] D-*erythro*-SPC, but not L-*threo*-SPC, stereoselectively stimulates the proliferation of human adipose tissue-derived mesenchymal stem cells.[2] It has been found that SPC can help devise new ways of treating inflammatory kidney diseases and has been found to trigger proteins known to reduce inflammation. SPC has also been shown to cause an increase in urine production in the kidneys with an abnormal accumulation of salt in the urine.[3]

Selected References:

1. Y. Xu et al. "Sphingosylphosphorylcholine is a ligand for ovarian cancer G-protein-coupled receptor 1" *Nature Cell Biology*, Vol. 2:5 pp. 261-267, *2000*
2. J. Kim et al. "Sphingosylphosphorylcholine induces proliferation of human adipose tissue-derived mesenchymal stem cells via activation of JNK" *Journal of Lipid Research*, Vol. 47 pp. 653-664, *2006*
3. A. Huwiler et al. "Sphingosylphosphorylcholine acts in an anti-inflammatory manner in renal mesangial cells by reducing interleukin-1ß-induced prostaglandin E_2 formation" *Journal of Lipid Research*, Vol. 48 pp. 1985, *2007*

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