

PRODUCT DATA SHEET

N-Heptadecanoyl-sphingosylphosphorylcholine

Catalog No: 1890

Common Name: N-C17:0-Sphingomyelin
(mixture of D-erythro and L-threo-isomers)

Source: semisynthetic, bovine buttermilk

Solubility: chloroform, methanol, ethanol

CAS No: N/A

Molecular Formula: C₄₀H₈₁N₂O₆P

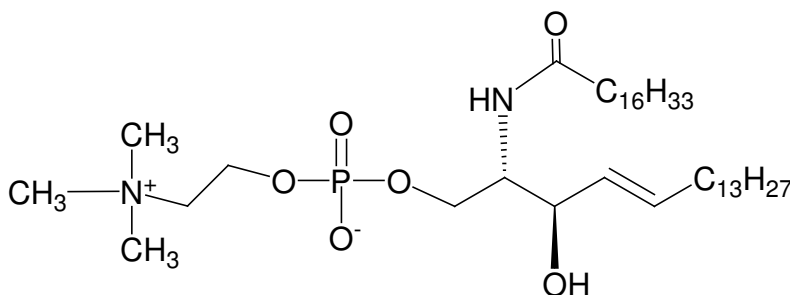
Molecular Weight: 717

Storage: -20°C

Purity: TLC >98%; identity confirmed by MS

TLC System: chloroform/methanol/DI water
(60:30:5 by vol.)

Appearance: solid



Application Notes:

This sphingomyelin contains C17:0 which is an unnatural fatty acid making it an ideal internal standard and biological marker.¹ The activity of C17 sphingomyelin is very similar to natural sphingomyelin due to their structural similarities.² Sphingomyelin is found in mammalian cell membranes, especially in the membranes of the myelin sheath. It is the most abundant sphingolipid in mammals and is thought to be found mostly in the exoplasmic leaflet of the membrane although there is also evidence of a sphingomyelin pool in the inner leaflet of the membrane. It is involved in signal transduction and apoptosis. An improper ratio of sphingomyelin to ceramide has been shown to be a factor in Niemann-Pick disease³ and neonatal respiratory distress syndrome.⁴ However, the ratio of sphingomyelin to ceramide is different for different cell types. Sphingomyelin is an important amphiphilic component when plasma lipoprotein pools expand in response to large lipid loads or metabolic abnormalities.

Selected References:

1. M. Nakane et al. "Lethal forebrain ischemia stimulates sphingomyelin hydrolysis and ceramide generation in the gerbil hippocampus" *Neuroscience Letters*, Vol. 296 pp. 89-92, 2000
2. T. Kirkegaard et al. "Hsp70 stabilizes lysosomes and reverts Niemann-Pick disease-associated lysosomal pathology" *Nature*, Vol. 463 pp. 549-553, 2010
3. M. Schmuth, et al. "Permeability barrier disorder in Niemann-Pick disease: sphingomyelin-ceramide processing required for normal barrier homeostasis" *J Invest Dermatol.*, Vol. 115(3) pp. 459-466, 2000
4. C. St Clair et al. "The probability of neonatal respiratory distress syndrome as a function of gestational age and lecithin/sphingomyelin ratio" *Am J Perinatol.*, Vol. 25(8) pp. 473-480, 2008,

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