

PRODUCT DATA SHEET

Sphingomyelin

Catalog No: 1332

Common Name: SM; Ceramide-1-phosphorylcholine

Source: natural, chicken, egg

Solubility: chloroform, methanol, warm ethanol

CAS No: 383907-87-7

Molecular Formula: C₃₉H₇₉N₂O₆P

Molecular Weight: 703 (palmitoyl)

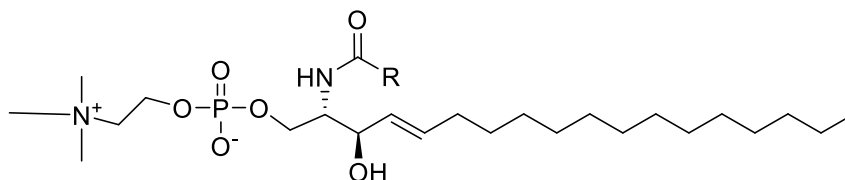
Storage: -20°C

Purity: TLC > 98%;

identity confirmed by MS

TLC System: chloroform/methanol/DI water (60:30:4 by vol.)

Appearance: solid



Application Notes:

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.¹ An improper ratio of sphingomyelin to ceramide has been shown to be a factor in Niemann-Pick disease² and neonatal respiratory distress syndrome.³ However, the ratio of sphingomyelin to ceramide is different for different cell types.⁴ Sphingomyelin is an important amphiphilic component when plasma lipoprotein pools expand in response to large lipid loads or metabolic abnormalities.⁵

Selected References:

1. R. N. Kolesnick, A. Haimovitz-Friedman, Z. Fuks The sphingomyelin signal transduction pathway mediates apoptosis for tumor necrosis factor, Fas, and ionizing radiation. *Biochem Cell Biol.*, Nov-Dec;72(11-12):471-4. Review. 1994
2. M. Schmuth, M. Q. Man, F. Weber, W. Gao, K. R. Feingold, P. Fritsch P, P. M. Elias, W. M. Holleran. Permeability barrier disorder in Niemann-Pick disease: sphingomyelin-ceramide processing required for normal barrier homeostasis. *J Invest Dermatol*, Sep;115(3):459-66, 2000
3. C. St Clair, E. R. Norwitz, K. Woensdregt, M. Cackovic, J. A. Shaw, H. Malkus, R. A. Ehrenkranz, J. L. Illuzzi. The probability of neonatal respiratory distress syndrome as a function of gestational age and lecithin/sphingomyelin ratio. *Am J Perinatol*, Sep;25(8):473-80, 2008, Epub Sep 4 2008
4. J. P. Kilkus, R. Goswami, S. A. Dawson, F. D. Testai, E. V. Berdyshev, X. Han, G. Dawson. Differential regulation of sphingomyelin synthesis and catabolism in oligodendrocytes and neurons. *J Neurochem*, Aug;106(4):1745-57, 2008. Epub 2008 Jun 28. Erratum in: *J Neurochem*. Dec;107(6):1766, 2008
5. A. Nilsson, R. D. Duan, Absorption and lipoprotein transport of sphingomyelin. *J Lipid Res*. Jan;47(1):154-71, 2006. Epub Oct 26. Review, 2005

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