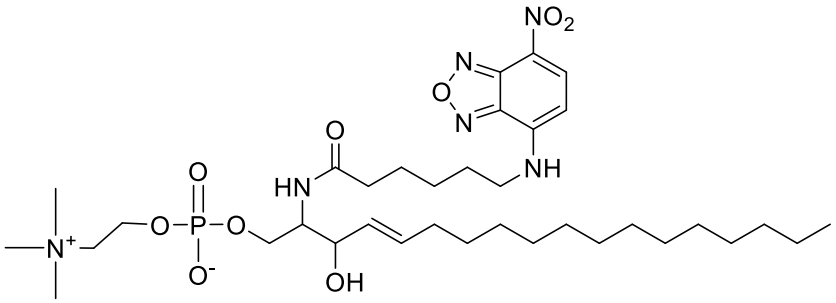
# PRODUCT DATA SHEET

## N-Hexanoyl-NBD-sphingosylphosphorylcholine

**Catalog No:** 1912, 1912-001
**Common Name:** N-C6:0-NBD-Sphingomyelin; N-C6:0-NBD-Sphingosylphosphorylcholine (mixture of D-*erythro* and L-*threo* isomers); N-C6:0-NBD-SM
**Source:** semisynthetic, bovine buttermilk
**Solubility:** chloroform, ethanol, methanol

**CAS No:** 94885-04-8
**Molecular Formula:** $C_{35}H_{61}N_6O_9P$
**Molecular Weight:** 740
**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 product is a fluorescent sphingomyelin with an absorption of 467nm and an emission of 535nm. NBD has been shown to have only a small influence on lipid adsorption into cells and cellular membranes. 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 disease[2] 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. Kolesnick, A. Haimovitz-Friedman, Z. Fuks "The sphingomyelin signal transduction pathway mediates apoptosis for tumor necrosis factor, Fas, and ionizing radiation" *Biochem Cell Biol.*, Vol. 72 pp.471-474, *1994*
2. 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*
3. 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. 473-80, *2008*
4. J. Kilkus et al. "Differential regulation of sphingomyelin synthesis and catabolism in oligodendrocytes and neurons" *J Neurochem.*, Vol. 106:4 pp.1745-1757, *2008*
5. A. Nilsson, R. Duan "Absorption and lipoprotein transport of sphingomyelin" *J Lipid Res*., Vol. 47:1 pp. 154-71, *2006*