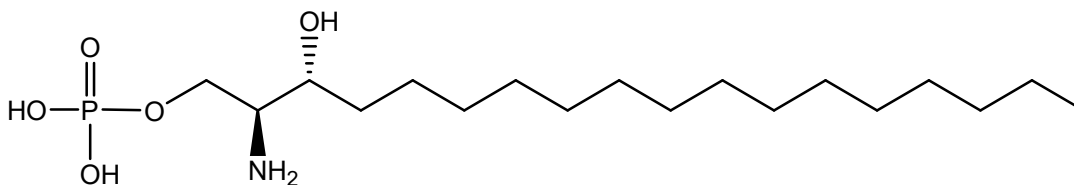


PRODUCT DATA SHEET

D-erythro-Dihydroshingosine-1-phosphate

Catalog No:	1852	Storage:	-20°C
Source:	synthetic	Purity:	TLC > 98%; identity confirmed by MS
Solubility:	chloroform/methanol/40% dimethylamine, 5:15:3, 1 mg/ml	TLC System:	n-butanol/DI water/ammonium hydroxide/methanol, (40:10:10:10 by vol.)
CAS No:	19794-97-9	Appearance:	solid
Molecular Formula:	C ₁₈ H ₄₀ NO ₅ P		
Molecular Weight:	382		



Application Notes:

Dihydroshingosine-1-phosphate (DhS1P) is the saturated analog of the more common sphingosine-1-phosphate (S1P) and has recently been found to have many important and unique functions. It has been found to activate ERK1/2 and to stimulate MMP1 production. DhS1P induces MMP1 (a key enzyme in matrix degradation) while S1P does not¹ and S1P enhances TGF-*beta* through cross-activation of Smad signaling while DhS1P inhibits it.² DhS1P or its derivatives have been suggested as effective therapeutic antifibrotic agents. Because of their unique actions *in vivo* DhS1P can be used as a negative control for S1P for intracellular effects. However, DhS1P is a ligand for many S1P receptors. It has been found that SK1 overexpression, but not SK2, in different primary cells and cultured cell lines results in predominant upregulation of the synthesis of DhS1P compared to S1P. A new functional role for SK1 has been presented, which can control the survival/death (DhS1P-S1P/ceramides) balance by targeting sphingolipid de novo biosynthesis and selectively generating DhS1P at a metabolic step preceding ceramide formation.³

Selected References:

1. S. Bu et al. "Dihydroshingosine 1-phosphate stimulates MMP1 gene expression via activation of ERK1/2-Ets1 pathway in human fibroblasts" *The FASEB Journal*, Vol. 20(1) pp. 184-186, 2006
2. S. Bu et al. "Opposite Effects of Dihydroshingosine 1-Phosphate and Sphingosine 1-Phosphate on Transforming Growth Factor- β /Smad Signaling Are Mediated through the PTEN/PPM1A-dependent Pathway" *Journal of Biological Chemistry*, Vol. 283(28) pp. 19593-19602, 2008
3. E. Berdyshe "De novo biosynthesis of dihydroshingosine-1-phosphate by sphingosine kinase 1 in mammalian cells" *Cellular Signaling*, Vol. 18(10) pp. 1779-1792, 2006

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