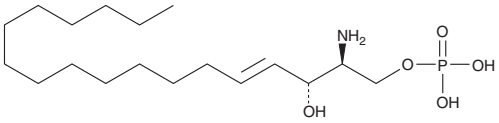
PRODUCT INFORMATION

Sphingosine-1-phosphate (d18:1)

Item No. 62570

CAS Registry No.: 26993-30-6
Formal Name: 2S-amino-4E-octadecene-1,3R-diol 1-(dihydrogen phosphate)
Synonyms: S1P (d18:1), Sphingosine-1-Phosphoric Acid
MF: $C_{18}H_{38}NO_5P$
FW: 379.5
Purity: ≥98%
Supplied as: A crystalline solid
Storage: -20°C
Stability: ≥4 years



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Laboratory Procedures

Sphingosine-1-phosphate (S1P) (d18:1) is supplied as a crystalline solid. S1P (d18:1) is sparingly soluble in organic solvents. Aqueous solutions can be prepared by directly dissolving the crystalline solid in basic buffers. The solubility of S1P (d18:1) in 0.3 M NaOH is approximately 4 mg/ml, but it will precipitate at pH less than 7.5. The reconstituted material will be stable for 24 hours if stored at 4°C.

Description

Sphingosine-1-phosphate (S1P) is the product of phosphorylation of sphingosine by sphingosine kinase that is secreted from cells and acts as an agonist at S1P receptors.[1,2] It increases intracellular calcium levels in TAg-Jurkat cells expressing $S1P_1$ and G_{qi5}, which allows for phospholipase C stimulation by G_i proteins, when used at a concentration of 200 nM, as well as in TAg-Jurkat cells expressing $S1P_2$ and $S1P_3$ receptors (EC_{50}s = 8 and 11 nM, respectively).[3] Intra- and extracellular levels of S1P vary spatially allowing it to function as an autocrine or paracrine factor, respectively, and dysregulation of S1P levels are associated with various disease states, such as inflammation and autoimmunity.[4] S1P has a wide variety of effects, including an involvement in cell growth, angiogenesis, immunity, and neuroprotection.

References

1. Sanchez, T. and Hla, T. Structural and functional characteristics of S1P receptors. *J. Cell. Biochem.* **92(5)**, 913-922 (2004).
2. van Koppen, C.J., zu Heringdorf, D.M., Laser, K.T., *et al.* Activation of a high affinity G_i protein-coupled plasma membrane receptor by sphingosine-1-phosphate. *J. Biol. Chem.* **271(4)**, 2082-2087 (1996).
3. An, S., Bleu, T., and Zheng, Y. Transduction of intracellular calcium signals through G protein-mediated activation of phospholipase C by recombinant sphingosine 1-phosphate receptors. *Mol. Pharmacol.* **55(5)**, 787-794 (1999).
4. Cartier, A. and Hla, T. Sphingosine 1-phosphate: Lipid signaling in pathology and therapy. *Science* **366(6463)**, (2019).

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