

Certificate of Analysis

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Product Name: Sphingosine-1-phosphate

Catalog No.: 1370

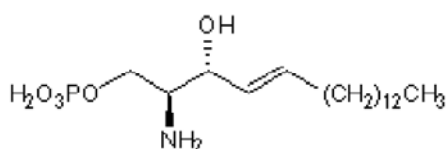
Batch No.: 3

CAS Number: 26993-30-6

IUPAC Name: (E)-D-erythro-2-amino-1-(dihydrogenphosphate)-4-octadecene-1,3-diol

1. PHYSICAL AND CHEMICAL PROPERTIES

Batch Molecular Formula: C₁₈H₃₈NO₅P
Batch Molecular Weight: 379.48
Physical Appearance: White solid
Storage: Desiccate at +4°C
Batch Molecular Structure:



2. ANALYTICAL DATA

HPLC: Shows 98.8% purity
¹H NMR: Consistent with structure
Mass Spectrum: Consistent with structure

Microanalysis:

	Carbon	Hydrogen	Nitrogen
Theoretical	56.97	10.09	3.69
Found	57.03	10.26	3.59

Caution - Not Fully Tested • Research Use Only • Not For Human or Veterinary Use

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Description:

Endogenous second messenger involved in the control of cell proliferation and motility, and Ca²⁺ mobilization. Acts as an agonist at sphingosine-1-phosphate receptors (S1P₁₋₅) and as an activator of GPR3, GPR6 and GPR12. Effectors regulated include p38 MAP kinase, PLC, adenylyl cyclase, myosin light chain phosphatase and focal adhesion kinase. Also activates VRAC-mediated transport of 2'3'-cyclic-GMP-AMP (cGAMP).

Physical and Chemical Properties:

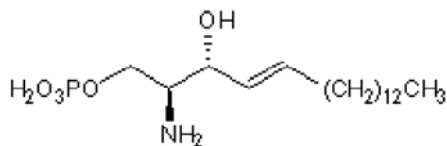
Batch Molecular Formula: C₁₈H₃₈NO₅P

Batch Molecular Weight: 379.48

Physical Appearance: White solid

Minimum Purity: ≥98%

Batch Molecular Structure:



Storage: Desiccate at +4°C

Solubility & Usage Info:

Stock solutions of this product are difficult to produce - we therefore recommend that either of the following methods are used to produce a stock solution of this product: Method 1 - Dissolve the product in phosphate-buffered saline as a complex with bovine serum albumin (4mg/ml) to a final concentration of 1mM (van Koppen *et al* (1996) Activation of a high affinity G_i protein-coupled plasma membrane receptor by sphingosine-1-phosphate. *J.Biol.Chem.* 271 2082). Method 2 - The product can be dissolved to 0.5µM in a microinjection buffer consisting of 100mM K⁺-glutamate and 30mM K⁺-citrate (pH7.3) (Postma *et al* (1996) Sphingosine-1-phosphate rapidly induces Rho-dependent retraction: action through a specific cell surface receptor. *EMBO J.* 15 2388).

Stability and Solubility Advice:

Some solutions can be difficult to obtain and can be encouraged by rapid stirring, sonication or gentle warming (in a 45-60°C water bath).

Information concerning product stability, particularly in solution, has rarely been reported and in most cases we can only offer a general guide. Our standard recommendations are:

SOLIDS: Provided storage is as stated on the product label and the vial is kept tightly sealed, the product can be stored for up to 6 months from date of receipt.

SOLUTIONS: We recommend that stock solutions, once prepared, are stored aliquoted in tightly sealed vials at -20°C or below and used within 1 month. Wherever possible solutions should be made up and used on the same day.

References:

Lahey *et al* (2020) LRRC8A:C/E heteromeric channels are ubiquitous transporters of cGAMP. *Mol.Cell.* **80** 1. PMID: 33171122.

Morstein *et al* (2019) Optical control of sphingosine-1-phosphate formation and function. *Nat.Chem* **15** 623. PMID: 31036923.

Essler *et al* (2002) Sphingosine 1-phosphate dynamically regulates myosin light chain phosphatase activity in human endothelial cells. *Cell.Signal.* **14** 607. PMID: 11955953.

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