

S1P Lyase Substrate

Catalog number: S-200U

Molecular Formula: C₁₄H₂₁N₂O₈P

MW: 376.3

CAS#: 1166838-84-1

Alternate Name: (2S,3R)-2-amino-3-hydroxy-5-((2-oxo-2H-chromen-7-yl)oxy)pentyl phosphate

Solubility: water, DMSO >1 mg/mL

Storage and Handling: Store dry at -20 °C. Stock solutions should be stored frozen (-20 °C or below).

Background: Sphingosine-1-phosphate lyase (S1PL) is an enzyme that breaks sphingosine-1-phosphate into hexadecenal and phosphoethanolamine. S1PL has been proposed as a target for autoimmune disorder treatment¹ and in cancer therapy². S1P Lyase substrate is intended for monitoring S1PL activity releasing fluorescent 7-hydroxycoumarin in the presence of active enzyme.³

References: 1) Billich, A., et al. (2013). "Partial deficiency of sphingosine-1-phosphate lyase confers protection in experimental autoimmune encephalomyelitis." *PLoS One* **8**(3): e59630.

2) Engel, N., et al. (2012). "Metabolic profiling reveals sphingosine-1-phosphate kinase 2 and lyase as key targets of (phyto-) estrogen action in the breast cancer cell line MCF-7 and not in MCF-12A." *PLoS One* **7**(10): e47833.

3) Bedia, C., et al. (2009). "Synthesis of a fluorogenic analogue of sphingosine-1-phosphate and its use to determine sphingosine-1-phosphate lyase activity." *Chembiochem* **10**(5): 820-2.

Protocol: The following protocol is suggested for measuring S1P lyase activity in cell lysate.

1. Prepare cell lysate in 0.05 M potassium phosphate buffer, pH 7.2
2. Add 30 µL of cell lysate to a black 384-well plate (adjust accordingly for 96-well plate)
3. Add 10 µL of substrate/cofactor mixture (500 µM S-200U, 100 µM Na₂VO₄ & 1 mM pyridoxal 5-phosphate)
4. Incubate at 37°C for 6+ hours
5. Stop reaction with 20 µL MeOH
6. Read fluorescence at 370 nm excitation, 460 nm emission and 455 nm cutoff

Hazardous Properties and Cautions: The toxicological and pharmacological properties of this compound are not fully known. For further information see the MSDS on request. This product is manufactured and shipped only in small quantities, intended for research and development in a laboratory utilizing prudent procedures for handling chemicals of unknown toxicity, under the supervision of persons technically qualified to evaluate potential risks and authorized to enforce appropriate health and safety measures. As with all research chemicals, precautions should be taken to avoid unnecessary exposures or risks.

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