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## Product Information

### Sphingosine Kinase 1 human, recombinant expressed in insect cells, N-terminal His-tagged

Catalog Number **S9446**  
Storage Temperature  $-70\text{ }^{\circ}\text{C}$

CAS RN 50864-48-7  
EC 2.7.1.91  
Synonyms: SPHK1

#### Product Description

Sphingosine 1-phosphate (S1P) is a bioactive lipid mediator that is involved in multiple biological processes including cell growth, differentiation, motility, angiogenesis, cytoskeletal reorganization, and survival.<sup>1,2</sup> Sphingosine Kinase (SPHK) is responsible for the conversion of sphingosine to S1P. SPHK can utilize either ATP or GTP as the phosphate donor.<sup>3</sup> S1P cellular levels are regulated by its formation via SPHK.

Two Sphingosine Kinases has been identified, SPHK1 and SPHK2 (Catalog Number S7321). Both kinases function to produce S1P, but differ from one another in size, localization, activation factors, and substrate preference. SPHK1 is the smaller protein containing 383 amino acids.<sup>4</sup> SPHK1 is found in various tissues throughout the body, being most highly expressed in the lungs and spleen, and is predominantly localized in the cytoplasm.<sup>5</sup> Activation of SPHK1 is achieved by multiple stimuli of cell growth and survival.<sup>6</sup>

Substrates:<sup>7</sup>  
D-erythro-sphingosine (SPH)  
Dihydrosphingosine (DHS)

Inhibitors:  
N,N-Dimethylsphingosine  
ADP  
High salt concentration<sup>4</sup>

The product is supplied in a solution containing 25 mM Tris-HCl, pH 8.0, 100 mM NaCl, 0.05% TWEEN<sup>®</sup> 20, 50% glycerol, and 3 mM DTT.

#### Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

#### Storage/Stability

The product ships on dry ice and storage at  $-70\text{ }^{\circ}\text{C}$  is recommended. After the initial thawing, aliquot the remaining unused enzyme and snap-freeze in dry ice/ethanol bath or liquid nitrogen.

#### References

1. Spiegel, S., and Milstien, S., *Nat. Rev. Mol. Cell Biol.*, **4**, 397–407 (2003).
2. Olivera, A., and Spiegel, S., *Prostaglandins*, **64**, 123–134 (2001).
3. Baumruker, T., *et al. Immunol. Lett.*, **96**, 175-185 (2005).
4. Liu, H., *et al.*, *J. Biol. Chem.*, **275**, 19513–19520 (2000).
5. Olivera, A., *et al.*, *J. Biol. Chem.*, **147**, 545–558, (1999).
6. Liu, H., *et al.*, *J. Biol. Chem.*, **278**, 40330–40336 (2003).
7. Jin-Wook, K., *et al.*, *Bioorg. Med. Chem.*, **13**, 3475-3485 (2005).

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