SPHK1/Sphingosine Kinase 1 Protein, Human (sf9)

Cat. No.:	HY-P73421
Synonyms:	SK1; sphingosine kinase 1; SPHK1; SPK 1; SPK
Species:	Human
Source:	Sf9 insect cells
Accession:	Q9NYA1 (N-G&P, M1-L384)
Gene ID:	8877
Molecular Weight:	Approximately 46 kDa

PROPERTIES

Biological Activity	The enzyme activity of this recombinant protein is testing in progress, we cannot offer a guarantee yet.
Appearance	Solution.
Formulation	Supplied as sterile 20 mM Tris, 500 mM NaCl, 10% glycerol, pH 8.0
Endotoxin Level	<1 EU/μg, determined by LAL method.
Reconsititution	N/A
Storage & Stability	Stored at -80°C for 1 year. It is stable at -20°C for 3 months after opening. It is recommended to freeze aliquots at -80°C for extended storage. Avoid repeated freeze-thaw cycles.
Shipping	Shipping with dry ice.

DESCRIPTION

Background	The SPHK1 (Sphingosine Kinase 1) protein serves as a critical mediator in cellular signaling by catalyzing the phosphorylation of sphingosine, generating sphingosine 1-phosphate (SPP), a versatile lipid mediator with both intra- and extracellular functions. While also acting on D-erythro-sphingosine and sphinganine to a lesser extent, SPHK1 exhibits specificity by not affecting other lipids such as D,L-threo-dihydrosphingosine, N,N-dimethylsphingosine, diacylglycerol, ceramide, or phosphatidylinositol. In contrast to its proapoptotic counterpart SPHK2, SPHK1 negatively influences intracellular ceramide levels, promoting cell growth and inhibiting apoptosis. Its involvement extends to the regulation of inflammatory responses and neuroinflammation, where SPP stimulates TRAF2 E3 ubiquitin ligase activity, leading to NF-kappa-B activation and IL17 secretion in response to TNF signaling. Additionally, SPHK1 negatively regulates RANTES induction through the p38 MAPK signaling pathway. Beyond its kinase activity, SPHK1 plays a role in endocytic membrane trafficking, endosomal maturation, and membrane fusion. In Purkinje cells, it is implicated in the regulation of autophagosome-lysosome fusion upon VEGFA stimulation. Notably, SPHK1 exhibits serine acetyltransferase activity on PTGS2/COX2 in an acetyl-CoA dependent manner, promoting the neuronal secretion of specialized preresolving mediators, particularly 15-R-lipoxin A4, during neuroinflammation, which enhances phagocytic microglia.

Caution: Product has not been fully validated for medical applications. For research use only.

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