

# SphK1 (M-209): sc-48825

## BACKGROUND

Sphingosine kinase (SphK or SphK1) is a key enzyme catalyzing the phosphorylation of sphingosine to form sphingosine 1-phosphate (SPP or S1P). SPP is a bioactive lipid that exerts multiple biological effects in a large variety of cell types, acting as either an intracellular messenger or an extracellular ligand coupled to Edg-family receptors. Competitive inhibitors of SphK1 block formation of SPP and selectively inhibit cellular proliferation induced by a variety of factors. One potent inhibitor of SphK1 activity is DMS (N,N-dimethylsphingosine). SPP/SphK1 has been implicated as a signaling pathway that regulates diverse cellular functions, including cell growth, proliferation and survival. Specifically, SphK1 is involved in the signaling pathway(s) that protects human hepatocytes from the apoptotic action of TNF $\alpha$ . Furthermore, SPP/SphK1 may play an important role in neuronal survival by regulating activation of SAPks and caspases. SphK1 is widely expressed with highest levels in adult liver, kidney, heart and skeletal muscle; however, activation of SphK1 disengages cells from their liver-specific phenotype. SphK1 is highly homologous with SphK2, another member of a growing class of sphingolipid kinases. Expression of SphK2 mRNA exhibits a markedly different tissue distribution than that of SphK1 and appears at a later stage in embryonic development.

## CHROMOSOMAL LOCATION

Genetic locus: SPHK1 (human) mapping to 17q25.1; Sphk1 (mouse) mapping to 11 E2.

## SOURCE

SphK1 (M-209) is a rabbit polyclonal antibody raised against amino acids 125-333 mapping near the C-terminus of SphK1 of mouse origin.

## PRODUCT

Each vial contains 200  $\mu$ g IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

## APPLICATIONS

SphK1 (M-209) is recommended for detection of SphK1 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2  $\mu$ g per 100-500  $\mu$ g of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for SphK1 siRNA (h): sc-44114, SphK1 siRNA (m): sc-45446, SphK1 shRNA Plasmid (h): sc-44114-SH, SphK1 shRNA Plasmid (m): sc-45446-SH, SphK1 shRNA (h) Lentiviral Particles: sc-44114-V and SphK1 shRNA (m) Lentiviral Particles: sc-45446-V.

Molecular Weight of SphK1: 42 kDa.

Positive Controls: PC-12 cell lysate: sc-2250, rat skeletal muscle extract: sc-364810 or mouse embryo extract: sc-364239.

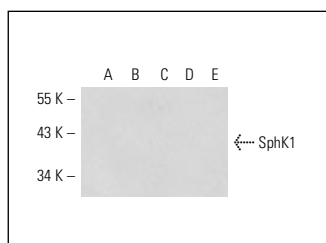
## STORAGE

Store at 4° C, **\*\*DO NOT FREEZE\*\***. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

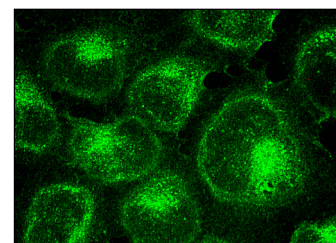
## RESEARCH USE

For research use only, not for use in diagnostic procedures.

## DATA



SphK1 (M-209): sc-48825. Western blot analysis of SphK1 expression in C2C12 (A), PC-12 (B) and RAW 264.7 (C) whole cell lysates and rat skeletal muscle (D) and mouse embryo (E) tissue extracts.



SphK1 (M-209): sc-48825. Immunofluorescence staining of methanol-fixed HeLa cells showing membrane localization.

## SELECT PRODUCT CITATIONS

- Sorice, M., et al. 2008. Neurotrophic signalling pathway triggered by pro-saprosin in PC-12 cells occurs through lipid rafts. *FEBS J.* 275: 4903-4912.
- Aydin, M., et al. 2010. The sphingosine-1-phosphate pathway is up-regulated in response to partial urethral obstruction in male rats and activates RhoA/Rho-kinase signalling. *BJU Int.* 106: 562-571.
- Lin, H., et al. 2011. Expression of sphingosine kinase 1 in amoeboid microglial cells in the corpus callosum of postnatal rats. *J. Neuroinflammation* 8: 13.
- Perez-Perez, R., et al. 2011. Attenuated metabolism is a hallmark of obesity as revealed by comparative proteomic analysis of human omental adipose tissue. *J. Proteomics* 75: 783-795.
- Masood, R., et al. 2012. Gold nanorod-sphingosine kinase siRNA nanocomplexes: a novel therapeutic tool for potent radiosensitization of head and neck cancer. *Integr. Biol.* 4: 132-141.
- Zhu, Z.A., et al. 2012. Reversion of multidrug resistance by SKI-II in SGC7901/DDP cells and exploration of underlying mechanisms. *Asian Pac. J. Cancer Prev.* 13: 625-631.

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) or our catalog for detailed protocols and support products.



Try **SphK1 (G-11): sc-365401** or **SphK1 (FQ-9): sc-100441**, our highly recommended monoclonal alternatives to SphK1 (M-209). Also, for AC, HRP, FITC, PE, Alexa Fluor<sup>®</sup> 488 and Alexa Fluor<sup>®</sup> 647 conjugates, see **SphK1 (G-11): sc-365401**.