

SphK1 (M-13): sc-22702

BACKGROUND

Sphingosine kinase (SphK) 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 SphK 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/SphK 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 α . Furthermore, SPP/SphK may play an important role in neuronal survival by regulating activation of SAPKs and caspases. SphK is widely expressed with highest levels in adult liver, kidney, heart and skeletal muscle, however activation of SphK disengages cells from their liver-specific phenotype. SphK1 is highly homologous with SphK2, another member of a growing class of sphingolipid kinases.

REFERENCES

- Xia, P., et al. 2000. An oncogenic role of sphingosine kinase. *Curr. Biol.* 10: 1527-1530.
- Liu, H., et al. 2000. Molecular cloning and functional characterization of a novel mammalian sphingosine kinase type 2 isoform. *J. Biol. Chem.* 275: 19513-19520.
- Osawa, Y., et al. 2001. Sphingosine kinase regulates hepatoma cell differentiation: roles of hepatocyte nuclear factor and retinoid receptor. *Biochem. Biophys. Res. Commun.* 286: 673-677.
- Edsall, L.C., et al. 2001. Sphingosine kinase expression regulates apoptosis and caspase activation in PC12 cells. *J. Neurochem.* 76: 1573-1584.

CHROMOSOMAL LOCATION

Genetic locus: Sphk1 (mouse) mapping to 11 E2.

SOURCE

SphK1 (M-13) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the C-terminus of SphK1 of mouse origin.

PRODUCT

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

Blocking peptide available for competition studies, sc-22702 P, (100 μ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

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.

APPLICATIONS

SphK1 (M-13) is recommended for detection of SphK1 of mouse and rat origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 μ g per 100-500 μ 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 (m): sc-45446, SphK1 shRNA Plasmid (m): sc-45446-SH and SphK1 shRNA (m) Lentiviral Particles: sc-45446-V.

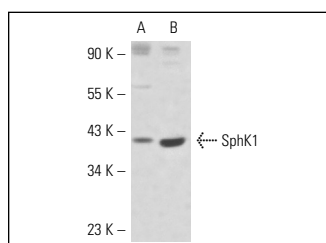
Molecular Weight of SphK1: 42 kDa.

Positive Controls: PC-12 cell lysate: sc-2250, mouse embryo extract: sc-364239 or RAW 264.7 whole cell lysate: sc-2211.

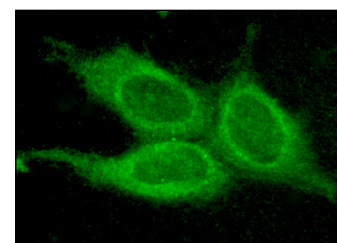
RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

DATA



SphK1 (M-13): sc-22702. Western blot analysis of SphK1 expression in PC-12 whole cell lysate (A) and mouse embryo tissue extract (B).



SphK1 (M-13): sc-22702. Immunofluorescence staining of methanol-fixed NIH/3T3 cells showing cytoplasmic localization.

SELECT PRODUCT CITATIONS

- Sato, K., et al. 2007. Critical role of ABCA1 transporter in sphingosine 1-phosphate release from astrocytes. *J. Neurochem.* 103: 2610-2619.
- Sorice, M., et al. 2008. Neurotrophic signalling pathway triggered by proapoptin in PC-12 cells occurs through lipid rafts. *FEBS J.* 275: 4903-4912.

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Try **SphK1 (G-11): sc-365401**, our highly recommended monoclonal alternative to SphK1 (M-13). Also, for AC, HRP, FITC, PE, Alexa Fluor® 488 and Alexa Fluor® 647 conjugates, see **SphK1 (G-11): sc-365401**.