

SphK2 (9C5E1): sc-517192

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 α . 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.

REFERENCES

1. Xia, P., et al. 2000. An oncogenic role of sphingosine kinase. *Curr. Biol.* 10: 1527-1530.
2. 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.
3. Osawa, Y., et al. 2001. TNF- α -induced sphingosine 1-phosphate inhibits apoptosis through a phosphatidylinositol 3-kinase/Akt pathway in human hepatocytes. *J. Immunol.* 167: 173-180.
4. 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.
5. Edsall, L.C., et al. 2001. Sphingosine kinase expression regulates apoptosis and caspase activation in PC12 cells. *J. Neurochem.* 76: 1573-1584.
6. Hayashi, S., et al. 2002. Identification and characterization of RPK118, a novel sphingosine kinase-1-binding protein. *J. Biol. Chem.* 277: 33319-33324.
7. Meacci, E., et al. 2002. Sphingosine 1-phosphate evokes calcium signals in C2C12 myoblasts via EDG-3 and EDG-5 receptors. *Biochem. J.* 362: 349-357.
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CHROMOSOMAL LOCATION

Genetic locus: SPHK2 (human) mapping to 19q13.33.

SOURCE

SphK2 (9C5E1) is a mouse monoclonal antibody raised against a recombinant protein corresponding to amino acids 36-52 of SphK2 of human origin.

PRODUCT

Each vial contains 100 μ g IgG κ light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

SphK2 (9C5E1) is recommended for detection of SphK2 of human origin by immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500), flow cytometry (1 μ g per 1 x 10⁶ cells) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for SphK2 siRNA (h): sc-39225, SphK2 shRNA Plasmid (h): sc-39225-SH and SphK2 shRNA (h) Lentiviral Particles: sc-39225-V.

Molecular Weight of SphK2: 70 kDa.

RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Immunofluorescence: use m-IgG κ BP-FITC: sc-516140 or m-IgG κ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz[®] Mounting Medium: sc-24941 or UltraCruz[®] Hard-set Mounting Medium: sc-359850. 2) Immunohistochemistry: use m-IgG κ BP-HRP: sc-516102 with DAB, 50X: sc-24982 and Immunohistomount: sc-45086, or Organo/Limonene Mount: sc-45087.

SELECT PRODUCT CITATIONS

1. Zhao, Z., et al. 2021. Lipid metabolism is a novel and practical source of potential targets for antiviral discovery against porcine parvovirus. *Vet. Microbiol.* 261: 109177.

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.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.