

SphK2 (m4): 293T Lysate: sc-110395

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., Gamble, J.R., Wang, L., Pitson, S.M., Moretti, P.A., Wattenberg, B.W., D'Andrea, R.J. and Vadas, M.A. 2000. An oncogenic role of sphingosine kinase. *Curr. Biol.* 10: 1527-1530.
2. Liu, H., Sugiura, M., Nava, V.E., Edsall, L.C., Kono, K., Poulton, S., Milstien, S., Kohama, T. and Spiegel, S. 2000. Molecular cloning and functional characterization of a novel mammalian sphingosine kinase type 2 isoform. *J. Biol. Chem.* 275: 19513-19520.
3. Osawa, Y., Banno, Y., Nagaki, M., Brenner, D.A., Naiki, T., Nozawa, Y., Nakashima, S. and Moriwaki, H. 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., Nagaki, M., Banno, Y., Nozawa, Y., Moriwaki, H. and Nakashima, S. 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., Cuvillier, O., Twitty, S., Spiegel, S. and Milstien, S. 2001. Sphingosine kinase expression regulates apoptosis and caspase activation in PC-12 cells. *J. Neurochem.* 76: 1573-1584.
6. Hayashi, S., Okada, T., Igarashi, N., Fujita, T., Jahangeer, S. and Nakamura, S.I. 2002. Identification and characterization of RPK118, a novel sphingosine kinase-1-binding protein. *J. Biol. Chem.* 277: 33319-33324.
7. Meacci, E., Cencetti, F., Formigli, L., Squecco, R., Donati, C., Tiribilli, B., Quercioli, F., Zecchi Orlandini, S., Francini, F. and Bruni, P. 2002. Sphingosine 1-phosphate evokes calcium signals in C2C12 myoblasts via EDG-3 and EDG-5 receptors. *Biochem. J.* 362: 349-357.
8. SWISS-PROT/TrEMBL (Q9NYA1). World Wide Web URL: <http://www.expasy.ch/sprot/sprot-top.html>

CHROMOSOMAL LOCATION

Genetic locus: Sphk2 (mouse) mapping to 7 B4.

PRODUCT

SphK2 (m4): 293T Lysate represents a lysate of mouse SphK2 transfected 293T cells and is provided as 100 μ g protein in 200 μ l SDS-PAGE buffer.

APPLICATIONS

SphK2 (m4): 293T Lysate is suitable as a Western Blotting positive control for mouse reactive SphK2 antibodies. Recommended use: 10-20 μ l per lane.

Control 293T Lysate: sc-117752 is available as a Western Blotting negative control lysate derived from non-transfected 293T cells.

STORAGE

Store at -20° C. Repeated freezing and thawing should be minimized. Sample vial should be boiled once prior to use. 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.