SANTA CRUZ BIOTECHNOLOGY, INC.

SphK1 (G-11): sc-365401

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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 TNFα. 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. 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 (G-11) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 331-351 near the C-terminus of SphK1 of mouse origin.

PRODUCT

Each vial contains 200 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

SphK1 (G-11) is available conjugated to agarose (sc-365401 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-365401 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-365401 PE), fluorescein (sc-365401 FITC), Alexa Fluor® 488 (sc-365401 AF488), Alexa Fluor® 546 (sc-365401 AF546), Alexa Fluor® 594 (sc-365401 AF594) or Alexa Fluor® 647 (sc-365401 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-365401 AF680) or Alexa Fluor® 790 (sc-365401 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-365401 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

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

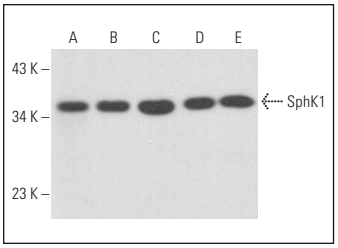
SphK1 (G-11) is recommended for detection of SphK1 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 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.

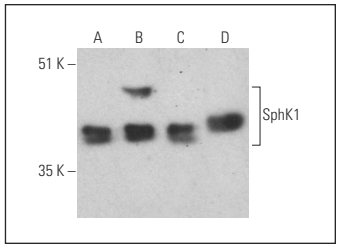
Molecular Weight of SphK1: 42 kDa.

Positive Controls: MCF7 whole cell lysate: sc-2206, RAW 264.7 whole cell lysate: sc-2211 or A-10 cell lysate: sc-3806.

DATA



SphK1 (G-11): sc-365401. Western blot analysis of SphK1 expression in RAW 264.7 (**A**), A-10 (**B**), U-87 MG (**C**), HT-1080 (**D**) and MCF7 (**E**) whole cell lysates.



SphK1 (G-11) HRP: sc-365401 HRP. Direct western blot analysis of SphK1 expression in NIH/3T3 (**A**), MCF7 (**B**), RAW 264.7 (**C**) and U-87 MG (**D**) whole cell lysates.

SELECT PRODUCT CITATIONS

1. Chen, Q., et al. 2020. Angiocrine sphingosine-1-phosphate activation of S1PR2-YAP signaling axis in alveolar type II cells is essential for lung repair. Cell Rep. 31: 107828.
2. Li, X., et al. 2021. CST6 protein and peptides inhibit breast cancer bone metastasis by suppressing CTSB activity and osteoclastogenesis. Theranostics 11: 9821-9832.
3. Di Pietro, P., et al. 2022. Targeting the ASMase/S1P pathway protects from sortilin-evoked vascular damage in hypertension. J. Clin. Invest. 132: e146343.
4. Franco, M., et al. 2023. Immunolocalization of sphingolipid catabolism enzymes along the nephron: novel early urinary biomarkers of renal damage. Int. J. Mol. Sci. 24: 16633.
5. Wen, M., et al. 2024. Dihydromyricetin ameliorates diabetic renal fibrosis via regulating SphK1 to suppress the activation of NF-κB pathway. Eur. J. Pharmacol. 978: 176799.

PROTOCOLS

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