

PRODUCT INFORMATION



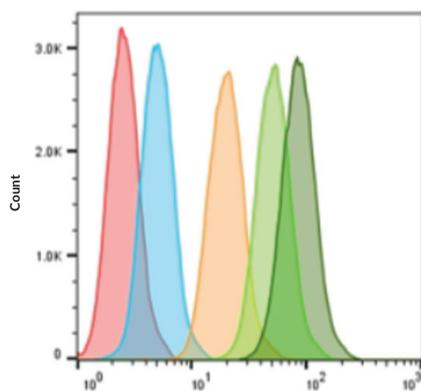
Sphingosine Kinase 2 Monoclonal Antibody (Clone 7B3)

Item No. 35706

Overview and Properties

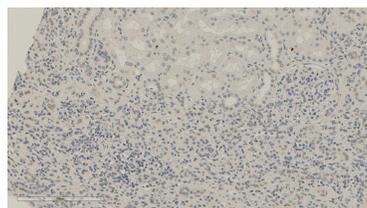
Contents:	This vial contains 100 µg of protein G-affinity purified monoclonal antibody.
Synonyms:	SK2, SPHK2, SPK2
Immunogen:	Full-length recombinant human SPHK2
Cross Reactivity:	(+) SPHK2
Species Reactivity:	(+) Human; other species not tested
Uniprot No.:	Q9NRA0
Form:	Liquid
Storage:	-20°C (as supplied)
Stability:	≥3 years
Storage Buffer:	PBS, pH 7.2, with 50% glycerol and 0.02% sodium azide
Clone:	7B3
Host:	Mouse
Isotype:	IgG1
Applications:	ELISA, Flow Cytometry (FC), and Immunohistochemistry (IHC); the recommended starting dilution is 1:10,000 for ELISA, 1:100-1,000 for FC, and 1:200 for IHC. Other applications were not tested, therefore optimal working concentration/dilution should be determined empirically.

Images



SPHK2 Monoclonal Antibody (Clone 7B3) (10 µg/ml)
SPHK2 Monoclonal Antibody (Clone 7B3) (5 µg/ml)
SPHK2 Monoclonal Antibody (Clone 7B3) (1 µg/ml)
Secondary Antibody
Buffer Control

Jurkat cells were fixed with 3.7% formaldehyde for 15 minutes on ice and blocked with PBS containing 5% FBS and 0.1% saponin for 1 hour at room temperature. SPHK2 Monoclonal Antibody (Clone 7B3) was used at the indicated concentrations. Goat Anti-Mouse (IgG+IgM) FITC (Item No. 10006617) was used as the secondary antibody at a dilution of 1:200.



Immunohistochemical staining of formalin-fixed and paraffin-embedded human kidney tissue after heat-induced antigen retrieval in citrate buffer, pH 6.0. Following incubation with SPHK2 Monoclonal Antibody (Clone 7B3), cells/tissues were incubated with a biotinylated secondary antibody, followed by alkaline phosphatase-streptavidin and chromogen (DAB).

WARNING
THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA
This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

WARRANTY AND LIMITATION OF REMEDY
Buyer agrees to purchase the material subject to Cayman's Terms and Conditions. Complete Terms and Conditions including Warranty and Limitation of Liability information can be found on our website.

Copyright Cayman Chemical Company, 12/13/2023

CAYMAN CHEMICAL
1180 EAST ELLSWORTH RD
ANN ARBOR, MI 48108 · USA
PHONE: [800] 364-9897
[734] 971-3335
FAX: [734] 971-3640
CUSTSERV@CAYMANCHEM.COM
WWW.CAYMANCHEM.COM

PRODUCT INFORMATION



Description

Sphingosine kinase 2 (SPHK2) is an ATP-dependent lipid kinase that is encoded by the *SPHK2* gene in humans.¹ It is composed of an N-terminal domain that contains an ATP binding site and a C-terminal domain that mediates substrate binding and specificity. SPHK2 is localized to the mitochondria, nucleus, and endoplasmic reticulum and is expressed in a wide variety of tissues, including the liver and kidney.² Upon cellular stimulation with EGF, phorbol 12-myristate 13-acetate (PMA; Item No. 10008014), or FcεRI, SPHK2 is activated and catalyzes the phosphorylation of sphingosine to sphingosine-1-phosphate (S1P).^{1,3} SPHK2 has roles in many physiological and pathological processes, including cancer, inflammation, and neurodegenerative diseases.^{1,4-7} Unlike SPHK1, SPHK2-derived S1P increases apoptosis and inhibits cell growth *in vitro*.⁸⁻¹⁰ *In vivo*, hepatic SPHK2 regenerates S1P intracellularly after its dephosphorylation to sphingosine by the phospholipid phosphatase LPP3 at the cell membrane, which removes a portion of the sphingosine from the circulation. Therefore, inhibition of SPHK2 results in a paradoxical increase in circulating S1P levels as sphingosine returns to the circulation where it can be phosphorylated by SPHK1.¹¹ Overexpression of *SPHK2* increases intracellular calcium levels and induces apoptosis in NIH3T3 cancer cells and reduces LPS-induced increases in TNF-α and IL-6 levels in isolated human peripheral blood mononuclear cell-derived macrophages *in vitro*.^{4,5} SPHK2 activity is increased in postmortem frontal cortex from patients with Alzheimer's disease.⁷ Cayman's Sphingosine Kinase 2 Monoclonal Antibody (Clone 7B3) can be used for ELISA, flow cytometry (FC), and immunohistochemistry (IHC) applications.

References

1. Hatoum, D., Haddadi, N., Lin, Y., *et al.* Mammalian sphingosine kinase (SphK) isoenzymes and isoform expression: Challenges for SphK as an oncotarget. *Oncotarget* **8(22)**, 36898-36929 (2017).
2. Liu, H., Sugiura, M., Nava, V.E., *et al.* Molecular cloning and functional characterization of a novel mammalian sphingosine kinase type 2 isoform. *J. Biol. Chem.* **275(26)**, 19513-19520 (2000).
3. Hait, N.C., Bellamy, A., Milstien, S., *et al.* Sphingosine kinase type 2 activation by ERK-mediated phosphorylation. *J. Biol. Chem.* **282(16)**, 12058-12065 (2007).
4. Maceyka, M., Sankala, H., Hait, N.C., *et al.* SphK1 and SphK2, sphingosine kinase isoenzymes with opposing functions in sphingolipid metabolism. *J. Biol. Chem.* **280(44)**, 37118-37129 (2005).
5. Weigert, A., von Knethen, A., Thomas, D., *et al.* Sphingosine kinase 2 is a negative regulator of inflammatory macrophage activation. *Biochim. Biophys. Acta Mol. Cell Biol. Lipids* **1864(9)**, 1235-1246 (2019).
6. Samy, E.T., Meyer, C.A., Caplazi, P., *et al.* Cutting edge: Modulation of intestinal autoimmunity and IL-2 signaling by sphingosine kinase 2 independent of sphingosine 1-phosphate. *J. Immunol.* **179(9)**, 5644-5648 (2007).
7. Takasugi, N., Sasaki, T., Suzuki, K., *et al.* BACE1 activity is modulated by cell-associated sphingosine-1-phosphate. *J. Neurosci.* **31(18)**, 6850-6857 (2011).
8. Liu, H., Toman, R.E., Goparaju, S.K., *et al.* Sphingosine kinase type 2 is a putative BH3-only protein that induces apoptosis. *J. Biol. Chem.* **278(41)**, 40330-40336 (2003).
9. Maceyka, M., Milstien, S., and Spiegel, S. Sphingosine kinases, sphingosine-1-phosphate and sphingolipidomics. *Prostaglandins Other Lipid Mediat.* **77(1-4)**, 15-22 (2005).
10. Haddadi, N., Lin, Y., Simpson, A.M., *et al.* "Dicing and splicing" sphingosine kinase and relevance to cancer. *Int. J. Mol. Sci.* **18(9)**, 1891 (2017).
11. Kharel, Y., Huang, T., Salamon, A., *et al.* Mechanism of sphingosine 1-phosphate clearance from blood. *Biochem. J.* **477(5)**, 925-935 (2020).

CAYMAN CHEMICAL
1180 EAST ELLSWORTH RD
ANN ARBOR, MI 48108 · USA
PHONE: [800] 364-9897
[734] 971-3335
FAX: [734] 971-3640
CUSTSERV@CAYMANCHEM.COM
WWW.CAYMANCHEM.COM