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SPHK2 Antibody (C-term)

Purified Rabbit Polyclonal Antibody (Pab)
Catalog # AP7238B

Product Information

Application	IHC-P-Leica, WB, E
Primary Accession	Q9NRA0
Reactivity	Human, Mouse
Predicted	Rat, Bovine, Canine
Host	Rabbit
Clonality	Polyclonal
Isotype	Rabbit IgG
Calculated MW	69217
Antigen Region	590-620

Additional Information

Gene ID	56848
Other Names	Sphingosine kinase 2, SK 2, SPK 2, SPHK2
Target/Specificity	This SPHK2 antibody is generated from rabbits immunized with a KLH conjugated synthetic peptide between 590-620 amino acids from the C-terminal region of human SPHK2.
Dilution	IHC-P-Leica~~1:250 WB~~1:1000 E~~Use at an assay dependent concentration.
Format	Purified polyclonal antibody supplied in PBS with 0.09% (W/V) sodium azide. This antibody is prepared by Saturated Ammonium Sulfate (SAS) precipitation followed by dialysis against PBS.
Storage	Maintain refrigerated at 2-8°C for up to 2 weeks. For long term storage store at -20°C in small aliquots to prevent freeze-thaw cycles.
Precautions	SPHK2 Antibody (C-term) is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	SPHK2 (HGNC:18859)
Synonyms	SK2
Function	Catalyzes the phosphorylation of sphingosine to form sphingosine-1-phosphate (SPP), a lipid mediator with both intra- and

	extracellular functions. Also acts on D-erythro-dihydrosphingosine, D-erythro-sphingosine and L-threo-dihydrosphingosine. Binds phosphoinositides (PubMed:12954646, PubMed:19168031). In contrast to prosurvival SPHK1, has a positive effect on intracellular ceramide levels, inhibits cells growth and enhances apoptosis (PubMed:16118219). In mitochondria, is important for cytochrome-c oxidase assembly and mitochondrial respiration. The SPP produced in mitochondria binds PHB2 and modulates the regulation via PHB2 of complex IV assembly and respiration (PubMed:20959514). In nucleus, plays a role in epigenetic regulation of gene expression. Interacts with HDAC1 and HDAC2 and, through SPP production, inhibits their enzymatic activity, preventing the removal of acetyl groups from lysine residues with histones. Up- regulates acetylation of histone H3-K9, histone H4-K5 and histone H2B- K12 (PubMed:19729656). In nucleus, may have an inhibitory effect on DNA synthesis and cell cycle (PubMed:12954646, PubMed:16103110). In mast cells, is the main regulator of SPP production which mediates calcium influx, NF-kappa-B activation, cytokine production, such as TNF and IL6, and degranulation of mast cells (By similarity). In dopaminergic neurons, is involved in promoting mitochondrial functions regulating ATP and ROS levels (By similarity). Also involved in the regulation of glucose and lipid metabolism (By similarity).
Cellular Location	Cytoplasm. Nucleus. Endoplasmic reticulum {ECO:0000250|UniProtKB:Q9JIA7}. Mitochondrion inner membrane {ECO:0000250|UniProtKB:Q9JIA7}. Note=In nucleus, located in nucleosomes where it associates with core histone proteins such as histone 3 (PubMed:19729656). In brains of patients with Alzheimer's disease, may be preferentially localized in the nucleus. Cytosolic expression decrease correlates with the density of amyloid deposits (PubMed:29615132). In apoptotic cells, colocalizes with CASP1 in cell membrane where is cleaved and released from cells in an active form (PubMed:20197547).
Tissue Location	Mainly expressed in adult kidney, liver, and brain (PubMed:10751414). Expressed in cerebral cortex and hippocampus (at protein level) (PubMed:29615132). Isoform 1 is the predominant form expressed in most tissues (PubMed:16103110)

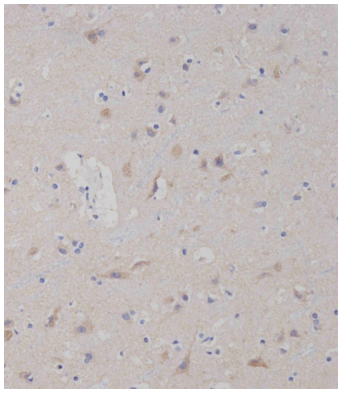
Background

Sphingosine Kinase (SphK) catalyzes the phosphorylation of the lipid sphingosine, creating the bioactive lipid sphingosine-1-phosphate (S1P). S1P subsequently signals through cell surface G protein-coupled receptors, as well as intracellularly, to modulate cell proliferation, survival, motility and differentiation. SphK is an important signaling enzyme which is activated by diverse agents, including growth factors that signal through receptor tyrosine kinases, agents activating G protein-coupled receptors, and immunoglobulin receptors. Two SphK isotypes, SphK-1 and SphK-2, have been cloned, and both isotypes are ubiquitously expressed. SphK-1 has been shown to mediate cell growth, prevention of apoptosis, and cellular transformation, and is upregulated in a variety of human tumors. In contrast, SphK-2 increases apoptosis, and may be responsible for phosphorylating and activating the immunosuppressive drug FTY720.

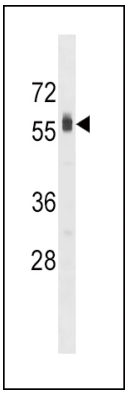
References

Shu, X., et al., Mol. Cell. Biol. 22(22):7758-7768 (2002).
Xia, P., et al., J. Biol. Chem. 277(10):7996-8003 (2002).
Liu, H., et al., J. Biol. Chem. 275(26):19513-19520 (2000).
Shutler, G., et al., Genomics 34(3):334-339 (1996).

Images



Immunohistochemical analysis of AP7238B on paraffin-embedded Human brain tissue was performed on the Leica® BOND RXm. Tissue was fixed with formaldehyde at room temperature. Heat induced epitope retrieval was performed by EDTA buffer (pH9. 0). Samples were incubated with primary antibody(1:250) for 15min at room temperature. Leica Bond Polymer Refine Detection was used as the secondary antibody.



SPHK2 Antibody (A605) (Cat. #AP7238b) western blot analysis in HepG2 cell line lysates (35ug/lane).This demonstrates the SPHK2 antibody detected the SPHK2 protein (arrow).

Citations

- Targeting sphingosine kinase 2 suppresses cell growth and synergizes with BCL2/BCL-XL inhibitors through NOXA-mediated MCL1 degradation in cholangiocarcinoma.
- Sphingosine 1-phosphate modulates spinal nociceptive processing.
- Down-regulation of Sphk2 suppresses bladder cancer progression.

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