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SPT1 Antibody

Catalog # ASC11322

Product Information

Application	WB, E, IHC-P
Primary Accession	O15269
Other Accession	NP_6406, 5454084
Reactivity	Human
Host	Rabbit
Clonality	Polyclonal
Isotype	IgG
Calculated MW	52744
Concentration (mg/ml)	1 mg/mL
Conjugate	Unconjugated
Application Notes	SPT1 antibody can be used for detection of SPT1 by Western blot at 1 g/mL. Antibody can also be used for immunohistochemistry starting at 5 g/mL.

Additional Information

Gene ID	10558
Other Names	Serine palmitoyltransferase 1, 2.3.1.50, Long chain base biosynthesis protein 1, LCB 1, Serine-palmitoyl-CoA transferase 1, SPT 1, SPT1, SPTLC1, LCB1
Target/Specificity	SPTLC1; At least two isoforms of SPT1 are known to exist; this antibody will detect only isoform a. SPT1 antibody is predicted to not cross-react with SPT2.
Reconstitution & Storage	SPT1 antibody can be stored at 4°C for three months and -20°C, stable for up to one year. As with all antibodies care should be taken to avoid repeated freeze thaw cycles. Antibodies should not be exposed to prolonged high temperatures.
Precautions	SPT1 Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	SPTLC1
Synonyms	LCB1
Function	Component of the serine palmitoyltransferase multisubunit enzyme (SPT) that catalyzes the initial and rate-limiting step in sphingolipid biosynthesis by condensing L-serine and activated acyl-CoA (most commonly palmitoyl-CoA) to form long-chain bases. The SPT complex is also composed of SPTLC2 or SPTLC3 and SPTSSA or SPTSSB. Within this complex, the heterodimer with SPTLC2 or SPTLC3 forms the catalytic core (PubMed:19416851, PubMed:33558762, PubMed:36170811). The composition of the serine

	palmitoyltransferase (SPT) complex determines the substrate preference (PubMed:19416851, PubMed:33558762). The SPTLC1-SPTLC2-SPTSSA complex shows a strong preference for C16-CoA substrate, while the SPTLC1-SPTLC3-SPTSSA isozyme uses both C14-CoA and C16-CoA as substrates, with a slight preference for C14-CoA (PubMed:19416851, PubMed:19648650). The SPTLC1-SPTLC2-SPTSSB complex shows a strong preference for C18-CoA substrate, while the SPTLC1-SPTLC3-SPTSSB isozyme displays an ability to use a broader range of acyl-CoAs, without apparent preference (PubMed:19416851, PubMed:19648650, PubMed:33558761, PubMed:33558762). Required for adipocyte cell viability and metabolic homeostasis (By similarity).
Cellular Location	Endoplasmic reticulum membrane; Single-pass membrane protein {ECO:0000250|UniProtKB:O35704}
Tissue Location	Widely expressed. Not detected in small intestine.

Background

SPT1 Antibody: Serine palmitoyltransferase, which consists of two different subunits, is the key enzyme in sphingolipid biosynthesis. It converts L-serine and palmitoyl-CoA to 3-oxosphinganine with pyridoxal 5'-phosphate as a cofactor. SPT1 is the long chain base subunit 1 of mammalian serine palmitoyltransferase. SPT1 is not catalytically active but is necessary for the stabilization of the SPT2 subunit and anchoring the holoenzyme to the cytosolic face of the endoplasmic reticulum. Missense mutations in this gene have been identified in patients with hereditary sensory neuropathy type 1 (HSAN1). These mutations induce a shift in the substrate specificity of the holoenzyme, leading to the formation and accumulation of two neurotoxic sphingolipids.

References

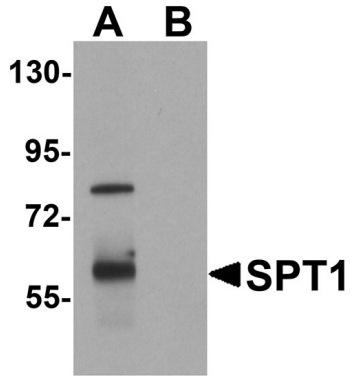
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Hanada K, Hara T, Nishijima N, et al. A mammalian homolog of the yeast LCB1 encodes a component of serine palmitoyltransferase, the enzyme catalyzing the first step in sphingolipid synthesis. J. biol. Chem. 1997; 272:32108-14.

Yasuda S, Nishijima N, and Hanada K. Localization, topology, and function of the LCB1 subunit of serine palmitoyltransferase in mammalian cells. J. Biol. Chem. 2003; 278:4176-83.

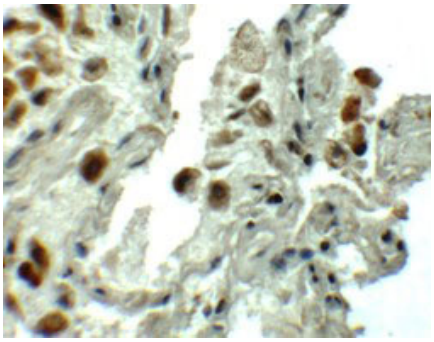
Penno A, Reilly MM, Houlden H, et al. Hereditary sensory neuropathy type 1 is caused by the accumulation of two neurotoxic sphingolipids. J. Biol. Chem. 2010; 285:11178-87.

Images



Western blot analysis of SPT1 in human lung tissue lysate with SPT1 antibody at 1 µg/mL in (A) the absence and (B) the presence of blocking peptide.

Immunohistochemistry of SPT1 in human lung tissue with



SPT1 antibody at 5 µg/mL.

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