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SIP1 Antibody

Catalog # ASC11156

Product Information

Application	WB, IF, ICC, E
Primary Accession	O14893
Other Accession	AAB82297, 2570925
Reactivity	Human, Mouse, Rat
Host	Rabbit
Clonality	Polyclonal
Isotype	IgG
Calculated MW	31585
Concentration (mg/ml)	1 mg/mL
Conjugate	Unconjugated
Application Notes	SIP1 antibody can be used for detection of SIP1 by Western blot at 0.5 - 1 g/mL. Antibody can also be used for immunocytochemistry starting at 4 g/mL. For immunofluorescence start at 20 g/mL.

Additional Information

Gene ID	8487
Other Names	Gem-associated protein 2, Gemin-2, Component of gems 2, Survival of motor neuron protein-interacting protein 1, SMN-interacting protein 1, GEMIN2, SIP1
Target/Specificity	SIP1;
Reconstitution & Storage	SIP1 antibody can be stored at 4℃ for three months and -20℃, 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	SIP1 Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	GEMIN2 (HGNC:10884)
Synonyms	SIP1
Function	The SMN complex catalyzes the assembly of small nuclear ribonucleoproteins (snRNPs), the building blocks of the spliceosome, and thereby plays an important role in the splicing of cellular pre- mRNAs (PubMed:18984161, PubMed:9323129). Most spliceosomal snRNPs contain a common set of Sm proteins SNRPB, SNRPD1, SNRPD2, SNRPD3, SNRPE, SNRPF and SNRPG that assemble in a heptameric protein ring on the Sm site of the

	small nuclear RNA to form the core snRNP (Sm core) (PubMed:18984161). In the cytosol, the Sm proteins SNRPD1, SNRPD2, SNRPE, SNRPF and SNRPG (5Sm) are trapped in an inactive 6S pICln-Sm complex by the chaperone CLNS1A that controls the assembly of the core snRNP (PubMed:18984161). To assemble core snRNPs, the SMN complex accepts the trapped 5Sm proteins from CLNS1A (PubMed:18984161, PubMed:9323129). Binding of snRNA inside 5Sm ultimately triggers eviction of the SMN complex, thereby allowing binding of SNRPD3 and SNRPB to complete assembly of the core snRNP (PubMed:31799625). Within the SMN complex, GEMIN2 constrains the conformation of 5Sm, thereby promoting 5Sm binding to snRNA containing the snRNP code (a nonameric Sm site and a 3'-adjacent stem-loop), thus preventing progression of assembly until a cognate substrate is bound (PubMed:16314521, PubMed:21816274, PubMed:31799625).
Cellular Location	Nucleus, gem. Cytoplasm. Note=Localized in subnuclear structures next to coiled bodies, called gems, which are highly enriched in spliceosomal snRNPs. Also found in the cytoplasm

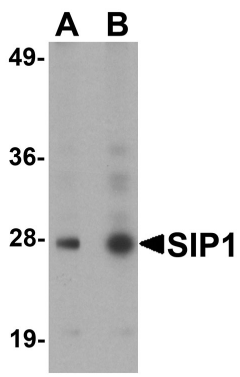
Background

SIP1 Antibody: SIP1 is one of the proteins found in the SMN complex, which consists of the survival of motor neuron (SMN) protein and several gemin proteins. The SMN complex is localized to a subnuclear compartment called gems (gemini of coiled bodies) and is required for assembly of spliceosomal snRNPs and for pre-mRNA splicing. SIP1 interacts directly with the SMN and it is required for formation of the SMN complex. A knockout mouse targeting the mouse homolog of this gene exhibited disrupted snRNP assembly and motor neuron degeneration. However, knockdown of the SIP1 mRNA in motor neurons showed normal motor axons while that of SMN mRNA did show abnormal motor axon outgrowth, indicating that SIP1 may have additional roles outside of the SMN complex.

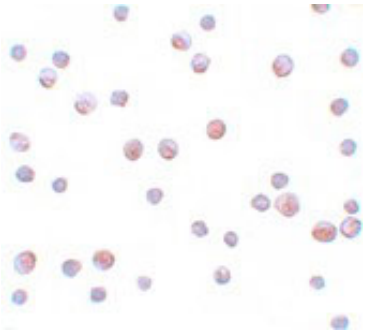
References

Liu Q, Fischer U, Wang F, et al. The spinal muscle atrophy disease gene product, SMN, and its associated protein SIP1 are in a complex with spliceosomal snRNP proteins. Cell1997; 90:1013-21.
Ogawa C, Usui K, Aoki M, et al. Gemin2 plays an important role in stabilizing the survival of motor neuron complex. J. Biol. Chem.2007; 282:11122-34.
Jablonka S, Holtmann B, Meister G, et al. Gene targeting of Gemin2 in mice reveals a correlation between defects in the biogenesis of U snRNPs and motoneuron cell death. Proc. Natl. Acad. Sci. USA2002; 99:10126-31.
McWhorter ML, Boon KL, Horan ES, et al. The SMN binding protein Gemin2 is not involved in motor axon outgrowth. Dev. Neurobiol.2008; 68:182-94.

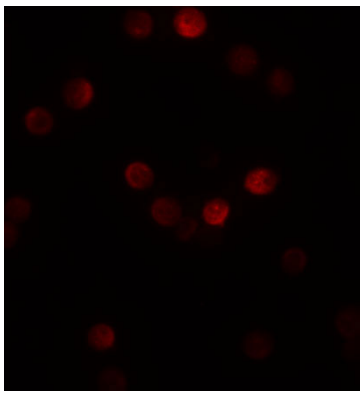
Images



Western blot analysis of SIP1 in HeLa cell lysate with SIP1 antibody at (A) 0.5 and (B) 1 µg/mL.



Immunocytochemistry of SIP1 in HeLa cells with SIP1 antibody at 4 µg/mL.



Immunofluorescence of SIP1 in HeLa cells with SIP1 antibody at 20 µg/mL.