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SORL1 Antibody

Purified Mouse Monoclonal Antibody
Catalog # AO1123a

Product Information

Application	WB, IHC, ICC, E
Primary Accession	Q92673
Reactivity	Human
Host	Mouse
Clonality	Monoclonal
Clone Names	3B6B11
Isotype	IgG1
Calculated MW	248426
Description	SORL1 (sortilin-related receptor, L A repeats containing) also known as sorting protein-related receptor containing LDLR class A (SorLA), is a Type I membrane protein that may be involved in cell-cell interaction. SorLA, a single transmembrane receptor, binds LDL and transports it into cells by endocytosis. SorLA is synthesized as a proreceptor which is processed to the mature form by a furin-like propeptidase. It can also bind to RAP (receptor-associated protein). SorLA is a multifunctional endocytis receptor important in lipoprotein and protease uptake. The N-terminal propeptide, which is removed, can be cleaved by furin or homologous proteases. Endogenous SorLA binds the neuropeptide head activator (HA) and is important for HA signaling and function. The gene encoding for the protein maps to chromosome 8p23.1. SorLA is expressed mainly in brain (cerebral cortex, cerebellum and the occipital pole), but can also be found in liver, spinal cord, kidney, testis and pancreas.
Immunogen	Purified recombinant fragment of human SORL1 expressed in E. Coli.
Formulation	Ascitic fluid containing 0.03% sodium azide.

Additional Information

Gene ID	6653
Other Names	Sortilin-related receptor, Low-density lipoprotein receptor relative with 11 ligand-binding repeats, LDLR relative with 11 ligand-binding repeats, LR11, SorLA-1, Sorting protein-related receptor containing LDLR class A repeats, SorLA, SORL1, C11orf32
Dilution	WB~~1/500 - 1/2000 IHC~~1/500 - 1/2000 ICC~~N/A E~~N/A
Storage	Maintain refrigerated at 2-8°C for up to 6 months. For long term storage store at -20°C in small aliquots to prevent freeze-thaw cycles.
Precautions	SORL1 Antibody is for research use only and not for use in diagnostic or

therapeutic procedures.

Protein Information

Name SORL1 (HGNC:11185)

Synonyms C11orf32

Function Sorting receptor that directs several proteins to their correct location within the cell (Probable). Along with AP-1 complex, involved Golgi apparatus - endosome sorting (PubMed:17646382). Sorting receptor for APP, regulating its intracellular trafficking and processing into amyloidogenic-beta peptides. Retains APP in the trans- Golgi network, hence preventing its transit through late endosomes where amyloid beta peptides Abeta40 and Abeta42 are generated (PubMed:16174740, PubMed:16407538, PubMed:17855360, PubMed:24523320). May also sort newly produced amyloid-beta peptides to lysosomes for catabolism (PubMed:24523320). Does not affect APP trafficking from the endoplasmic reticulum to Golgi compartments (PubMed:17855360). Sorting receptor for the BDNF receptor NTRK2/TRKB that facilitates NTRK2 trafficking between synaptic plasma membranes, postsynaptic densities and cell soma, hence positively regulates BDNF signaling by controlling the intracellular location of its receptor (PubMed:23977241). Sorting receptor for GDNF that promotes GDNF regulated, but not constitutive secretion (PubMed:21994944). Sorting receptor for the GDNF-GFRA1 complex, directing it from the cell surface to endosomes. GDNF is then targeted to lysosomes and degraded, while its receptor GFRA1 recycles back to the cell membrane, resulting in a GDNF clearance pathway. The SORL1-GFRA1 complex further targets RET for endocytosis, but not for degradation, affecting GDNF-induced neurotrophic activities (PubMed:23333276). Sorting receptor for ERBB2/HER2. Regulates ERBB2 subcellular distribution by promoting its recycling after internalization from endosomes back to the plasma membrane, hence stimulating phosphoinositide 3-kinase (PI3K)-dependent ERBB2 signaling. In ERBB2-dependent cancer cells, promotes cell proliferation (PubMed:31138794). Sorting receptor for lipoprotein lipase LPL. Promotes LPL localization to endosomes and later to the lysosomes, leading to degradation of newly synthesized LPL (PubMed:21385844). Potential sorting receptor for APOA5, inducing APOA5 internalization to early endosomes, then to late endosomes, wherefrom a portion is sent to lysosomes and degradation, another portion is sorted to the trans-Golgi network (PubMed:18603531). Sorting receptor for the insulin receptor INSR. Promotes recycling of internalized INSR via the Golgi apparatus back to the cell surface, thereby preventing lysosomal INSR catabolism, increasing INSR cell surface expression and strengthening insulin signal reception in adipose tissue. Does not affect INSR internalization (PubMed:27322061). Plays a role in renal ion homeostasis, controlling the phospho-regulation of SLC12A1/NKCC2 by STK39/SPAK kinase and PPP3CB/calcineurin A beta phosphatase, possibly through intracellular sorting of STK39 and PPP3CB (By similarity). Stimulates, via the N-terminal ectodomain, the proliferation and migration of smooth muscle cells, possibly by increasing cell surface expression of the urokinase receptor uPAR/PLAUR. This may promote extracellular matrix proteolysis and hence facilitate cell migration (PubMed:14764453). By acting on the migration of intimal smooth muscle cells, may accelerate intimal thickening following vascular injury (PubMed:14764453). Promotes adhesion of monocytes (PubMed:23486467). Stimulates proliferation and migration of monocytes/macrophages (By similarity). Through its action on intimal smooth muscle cells and macrophages, may accelerate intimal thickening and macrophage foam cell formation in the process of atherosclerosis (By similarity). Regulates hypoxia-enhanced adhesion of hematopoietic stem and

progenitor cells to the bone marrow stromal cells via a PLAUR-mediated pathway. This function is mediated by the N-terminal ectodomain (PubMed:23486467). Metabolic regulator, which functions to maintain the adequate balance between lipid storage and oxidation in response to changing environmental conditions, such as temperature and diet. The N-terminal ectodomain negatively regulates adipose tissue energy expenditure, acting through the inhibition the BMP/Smad pathway (By similarity). Sorting receptor that may regulate signaling by the heterodimeric neurotrophic cytokine CLCF1-CRLF1 bound to the CNTFR receptor by promoting the endocytosis of the tripartite complex CLCF1-CRLF1-CNTFR and lysosomal degradation (PubMed:26858303). May regulate IL6 signaling, decreasing cis signaling, possibly by interfering with IL6- binding to membrane-bound IL6R, while up-regulating trans signaling via soluble IL6R (PubMed:28265003).

Cellular Location

Golgi apparatus membrane; Single-pass type I membrane protein. Golgi apparatus, trans-Golgi network membrane; Single-pass type I membrane protein. Endosome membrane; Single-pass type I membrane protein. Early endosome membrane; Single-pass type I membrane protein. Recycling endosome membrane; Single-pass type I membrane protein. Endoplasmic reticulum membrane; Single-pass type I membrane protein. Endosome, multivesicular body membrane; Single-pass type I membrane protein. Cell membrane; Single-pass type I membrane protein. Cytoplasmic vesicle, secretory vesicle membrane; Single-pass type I membrane protein. Secreted. Note=Mostly intracellular, predominantly in the trans-Golgi network (TGN) and in endosome, as well as in endosome-to-TGN retrograde vesicles; found at low levels on the plasma membrane (PubMed:11294867, PubMed:15053742, PubMed:17855360, PubMed:21385844, PubMed:21994944, PubMed:31138794). At the cell surface, partially subjected to proteolytic shedding that releases the ectodomain (also called soluble SORLA, solLR11 or sLR11) in the extracellular milieu (PubMed:11082041, PubMed:16393139, PubMed:16531402). The shedding may be catalyzed by ADAM17/TACE (PubMed:16393139). Following shedding, PSEN1/presenilin-1 cleaves the remaining transmembrane fragment and catalyzes the release of a C- terminal fragment in the cytosol and of a soluble N-terminal beta fragment in the extracellular milieu. The C-terminal cytosolic fragment localizes to the nucleus (PubMed:16531402). At the cell surface, the full-length protein undergoes partial clathrin-dependent endocytosis guided by clathrin adapter protein 2 (AP-2) (PubMed:11294867, PubMed:15053742, PubMed:17646382).

Tissue Location

Highly expressed in brain (at protein level) (PubMed:16174740, PubMed:21147781, PubMed:9157966). Most abundant in the cerebellum, cerebral cortex and occipital pole; low levels in the putamen and thalamus (PubMed:16174740, PubMed:9157966). Expression is significantly reduced in the frontal cortex of patients suffering from Alzheimer disease (PubMed:16174740). Also expressed in spinal cord, spleen, testis, prostate, ovary, thyroid and lymph nodes (PubMed:8940146, PubMed:9157966).

References

1. Scherzer CR. Offe K. Gearing M. et al. Arch Neurol. 2004, Aug, 61(8):1200-5. 2. Gabrielsson BG. Olofsson LE. Sjogren A. et al. Obes Res. 2005, Apr, 13(4):649-52. 3. Shah S. Yu G. Mol Interv. 2006, Apr, 6(2):74-6, 58. Review.

Images



Figure 1: Western blot analysis using SORL1 mouse mAb against truncated SORL1 recombinant protein.

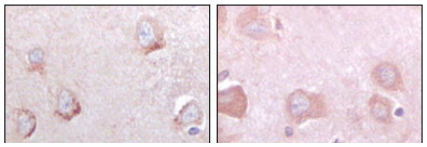


Figure 2: Immunohistochemical analysis of paraffin-embedded human cerebrum tissues using SORL1 mouse mAb with DAB staining.

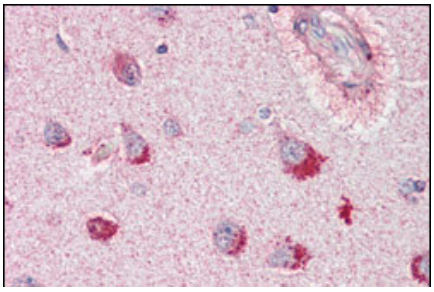


Figure 3: Immunohistochemical analysis of paraffin-embedded human brain, cortex tissues using SORL1 mouse mAb.

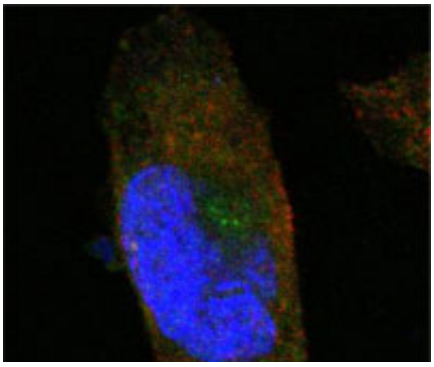


Figure 4: Confocal immunofluorescence analysis of PANC-1 cells using SORL1 mouse mAb (green). Red: Actin filaments have been labeled with Alexa Fluor-555 phalloidin. Blue: DRAQ5 fluorescent DNA dye.

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