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DISC1 Antibody

Catalog # ASC10568

Product Information

Application	WB, IF, ICC, E
Primary Accession	Q9NRI5
Other Accession	NP_061132, 61742823
Reactivity	Human, Mouse
Host	Rabbit
Clonality	Polyclonal
Isotype	IgG
Calculated MW	93611
Concentration (mg/ml)	1 mg/mL
Conjugate	Unconjugated
Application Notes	DISC1 antibody can be used for detection of DISC1 by Western blot at 0.5 - 2 g/mL. Antibody can also be used for immunocytochemistry starting at 5 g/mL. For immunofluorescence start at 20 g/mL.

Additional Information

Gene ID	27185
Other Names	Disrupted in schizophrenia 1 protein, DISC1, KIAA0457
Target/Specificity	DISC1; At least four isoforms of DISC1 are known to exist; this antibody will detect the three longest isoforms.
Reconstitution & Storage	DISC1 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	DISC1 Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	DISC1 (HGNC:2888)
Synonyms	KIAA0457
Function	Involved in the regulation of multiple aspects of embryonic and adult neurogenesis (PubMed:19303846, PubMed:19502360). Required for neural progenitor proliferation in the ventrical/subventrical zone during embryonic brain development and in the adult dentate gyrus of the hippocampus (By similarity). Participates in the Wnt-mediated neural progenitor proliferation as a positive regulator by modulating GSK3B activity and CTNNB1 abundance (PubMed:19303846). Plays a role as a modulator of the AKT-mTOR signaling

	pathway controlling the tempo of the process of newborn neurons integration during adult neurogenesis, including neuron positioning, dendritic development and synapse formation (By similarity). Inhibits the activation of AKT-mTOR signaling upon interaction with CCDC88A (By similarity). Regulates the migration of early-born granule cell precursors toward the dentate gyrus during the hippocampal development (PubMed:19502360). Inhibits ATF4 transcription factor activity in neurons by disrupting ATF4 dimerization and DNA-binding (By similarity). Plays a role, together with PCNT, in the microtubule network formation (PubMed:18955030).
Cellular Location	Cytoplasm. Cytoplasm, cytoskeleton Mitochondrion. Cytoplasm, cytoskeleton, microtubule organizing center, centrosome. Postsynaptic density {ECO:0000250|UniProtKB:Q811T9}. Note=Colocalizes with NDEL1 in the perinuclear region and the centrosome (By similarity). Localizes to punctate cytoplasmic foci which overlap in part with mitochondria (PubMed:12506198, PubMed:15797709). Colocalizes with PCNT at the centrosome (PubMed:18955030). {ECO:0000250|UniProtKB:Q811T9, ECO:0000269|PubMed:12506198, ECO:0000269|PubMed:15797709, ECO:0000269|PubMed:18955030}
Tissue Location	Ubiquitous. Highly expressed in the dentate gyrus of the hippocampus. Also expressed in the temporal and parahippocampal cortices and cells of the white matter.

Background

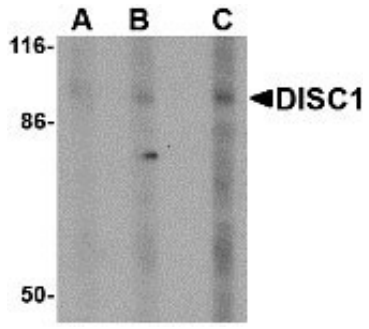
DISC1 Antibody: Disrupted in schizophrenia 1 (DISC1) is a candidate gene for susceptibility to schizophrenia. It was discovered through chromosomal analysis of a large Scottish family whose members exhibited schizophrenia and related psychiatric disorders. Through yeast two-hybrid screening, it was discovered that DISC1 interacts with many members of the centrosome and cytoskeletal system including MAP1A and Nudel. More recently, DISC1 has been found to regulate the transport of a complex containing Nudel, the lissencephaly-1 (LIS1) protein, and 14-3-3epsilon from neuronal cell bodies to the axons by the action of the microtubule-dependent directed motor protein kinesin-1, also known as KIF5A. Decreased expression of DISC1 in neurons caused an accelerated rate of neuronal integration, resulting in aberrant morphological development, suggesting that DISC1 plays a role in dendritic development and synapse formation.

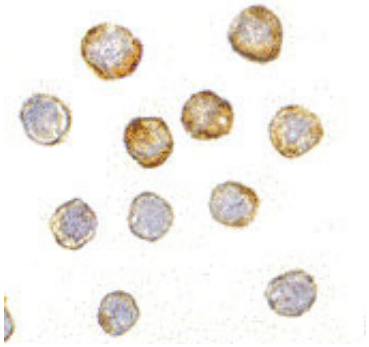
References

Millar JK, Wilson-Annan JC, Anderson S, et al. Disruption of two novel genes by a translocation co-segregating with schizophrenia. Hum. Mol. Genet. 2000; 9:1415-23.
Morris JA, Kandpal G, Ma L, et al. DISC1 (Disrupted-in-schizophrenia 1) is a centrosome-associated protein that interacts with MAP1A, MIPT3, ATF4/5 and NUDEL: regulation and loss of interaction with mutation. Hum. Mol. Genet. 2003; 12:1591-608.
Taya S, Shinoda T, Tsuboi D, et al. DISC1 regulates the transport of the NUDEL/LIS1/14-3-3e complex through kinesin-1. J. Neurosci. 2007; 27:15-26.
Duan X, Chang JH, Ge S, et al. Disrupted-in-schizophrenia 1 regulates integration of newly generated neurons in the adult brain. Cell 2007; 1146-58.

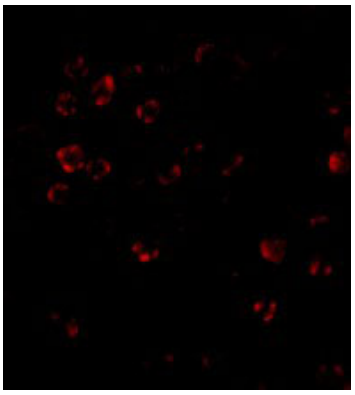
Images

Western blot analysis of DISC1 in SK-N-SH cell lysate with DISC1 antibody at (A) 0.5, (B) 1 and (C) 2 µg/mL.





Immunocytochemistry of DISC1 in HeLa cells with DISC1 antibody at 5 µg/mL.



Immunofluorescence of DISC1 in HeLa cells with DISC1 antibody at 20 µg/mL.

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