



Qty: 100 µg/400 µL

Rabbit anti-DISC1 (Mid)

Catalog No. 40-6900

Lot No.

Rabbit anti-DISC1 (Mid)

FORM

This polyclonal antibody is supplied as a 400 µL aliquot at a concentration of 0.25 mg/mL in phosphate buffered saline (pH 7.4) containing 0.1% sodium azide. This antibody is epitope-affinity purified from rabbit antiserum.

PAD: ZMD.489

IMMUNOGEN

Synthetic peptide derived from an internal region of the mouse DISC1 (disrupted in schizophrenia 1) isoforms 1 and 2, which differ from rat by one amino acid

SPECIFICITY

This antibody is specific for an internal region of isoforms 1 and 2 of the mouse DISC1 protein. On Western blots, it identifies two target bands at ~70 and ~100 kDa.

REACTIVITY

Reactivity has been confirmed with mouse brain homogenates by Western blotting, and with frozen mouse hippocampal tissue by immunohistochemistry and immunofluorescence. Based on amino acid sequence homology, reactivity with rat is expected.

Sample	Immunohistochemistry (frozen)*	Western Blotting	Immunofluorescence
Mouse	+++	+++	+++
Rat	ND	ND	ND

(Excellent +++, Good++, Poor +, No reactivity 0, Not applicable N/A, Not Determined ND)

USAGE

Working concentrations for specific applications should be determined by the investigator. Appropriate concentrations will be affected by several factors, including secondary antibody affinity, antigen concentration, sensitivity of detection method, temperature and length of incubations, etc. The suitability of this antibody for applications other than those listed below has not been determined. The following concentration ranges are recommended starting points for this product.

Western Blotting: 1-3 µg/mL
Immunohistochemistry (frozen)*: 1-3 µg/mL
Immunofluorescence: 1-3 µg/mL

*Mouse hippocampus tissue sections were fixed in 1% paraformaldehyde and cryopreserved prior to use in immunohistochemistry and immunofluorescence.

STORAGE

Store at 2-8°C for up to one month. Store at -20°C for long-term storage. Avoid repeated freezing and thawing.

(cont'd)

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PI406900

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BACKGROUND

DISC1 (disrupted in schizophrenia 1) is a multifunctional protein that was initially implicated in schizophrenia by a strategy that identified genes at breakpoints of a balanced [t(1;11)q(42.1;14.3)] chromosomal translocation. This translocation, which segregated with a high incidence of schizophrenia and other psychiatric conditions in a large Scottish family, interrupts the coding sequence of *DISC1*, leading to loss of the C-terminal 257 amino acids of the DISC1 protein.^{1,2} DISC1 interacts with multiple proteins of the centrosome and cytoskeletal system, including MIPT3, MAP1A and NUDEL; proteins which localize receptors to membranes, including α -actinin2 and β 4-spectrin; and proteins which transduce signals from membrane receptors, including ATF4 and ATF5.³⁻⁵ Truncated mutant DISC1 fails to interact with ATF4, ATF5 or NUDEL.^{4,5} DISC1 participates in neurite outgrowth.⁶ DISC1 protein truncations may contribute to schizophrenia by disrupting neuronal functions dependent on proper cytoskeletal regulation, including neuronal migration, neurite architecture and intracellular transport, all of which have been hypothesized to be pathogenic in the schizophrenic brain.

Regions of the primate brain which express DISC1 have been implicated in schizophrenia in humans⁷, including the hippocampus, lateral septum, amygdala, cerebral cortex, cerebellum and paraventricular hypothalamus⁸. DISC1 is expressed in the mouse brain in homologous regions to those that express the protein in primates, including the hippocampus, cerebral cortex, olfactory bulbs and cerebellum.⁹⁻¹⁰ There are at least 5 protein isoforms of DISC1.¹ Immunocytochemical studies of DISC1 have demonstrated punctate, cytoplasmic expression with asymmetric perinuclear distribution including the centrosome, as well as punctata extending into neuronal processes.⁴ Mitochondrial localization has also been reported³, and at least one DISC1 isoform has been described in the nucleus¹².

REFERENCES

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