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Customer Service: 1-800 786 1236
Technical Service: 214 387 8105
Fax: 214 387 0870
Info@fabgennix.com
www.fabgennix.com

Antibodies to Schizophrenia related Genes (Schizophrenia Related Targets)

Anti-Disrupted in Schizophrenia 1 (Disc 1) antibodies (Cat #: Disc 1-101AP).

Other Nomenclature: Disrupted in Schizophrenia 1(DISC1).

The genetic and epidemiological studies suggest that schizophrenia is largely due to individual variation and susceptibility of different alleles with small to moderate effects on multiple genes. Molecular genetic studies have identified several potential regions of linkage and 2 associated chromosomal abnormalities in Schizophrenia and suggest several positional candidate genes including Disrupted in Schizophrenia 1 (DISC1). DISC1 is linked to Schizophrenia by association and linkage studies in independent population and is the only gene whole open reading frame (ORF) is truncated and co segregates with major mental illnesses in a Scottish population. It is well known that several neuronal pathways are disrupted in schizophrenia, the complexity of the genetics underlying schizophrenia is highlighted by the multitude of molecular pathways that have been reported to be disrupted in the disorder including muscarinic, serotonergic, and glutamatergic signaling systems. The genetic and epidemiological studies suggest that schizophrenia is largely due to individual variation and susceptibility of different alleles with small to moderate effects on multiple genes. Molecular genetic studies have identified several potential regions of linkage and 2 associated chromosomal abnormalities in Schizophrenia and suggest several positional candidate genes including Disrupted in Schizophrenia 1 (DISC1). Recent epigenetic and molecular biology data strongly suggest Disrupted in Schizophrenia 1 (Disc 1) gene as a risk factor of great significance in the underlying causes of Schizophrenia and related disorders. No functional significance of this protein was evident despite the presence of several well characterized protein domains on Disc 1. Recently the discovery and identification of its binding partners has revealed an incredible diversity of potential cellular and physiological functions. The interactive yeast-two hybrid screening revealed the "Disc 1 interactome" which contained several novel protein-protein interaction sites suggesting its role in several diverse functions. Studies on Disc 1 interactome showed protein-protein interaction with ligands that are consistent with the underlying molecular pathology observed at the synaptic level and the cognitive deficits seen behaviorally in schizophrenics (1). Phosphodiesterase Type 4B (PDE4B) and Ndel1-EOPA are two known target proteins that actively interact with Disc 1 (2).

The genetic and epidemiological studies suggest that schizophrenia is largely due to individual variation and susceptibility of different alleles with small to moderate effects on multiple genes. Molecular genetic studies have identified several potential regions of linkage and 2 associated chromosomal abnormalities in Schizophrenia and suggest several positional candidate genes including Disrupted in Schizophrenia 1 (DISC1). DISC1 is linked to Schizophrenia by association and linkage studies in independent population and is the only gene whole open reading frame (ORF) is truncated and co segregates with major mental illnesses in a Scottish population. A recent attempt to study and localize DISC1 in human autopsied brain samples from patients with schizophrenia, bipolar disorder, and major depression. Generally DISC1 is localized in nucleus of HeLa cells, however, this localization was altered in orbitofrontal cortex significantly in all major mental illnesses including substance and alcohol abuse suggesting DISC1 may be implicated in psychiatric conditions (1). Disc1 transgenic mice displayed several behavioral abnormalities including hyperactivity, disturbance in sensorimotor gating and olfactory and olfactory-associated behaviors and anhedonia and depression like symptoms (2). Several single nucleotide polymorphisms (SNPs) in DISC1 gene were typed, a three-SNP haplotype spanning 83 kb of the gene was associated with schizophrenia in family-based sample 93). Disc 1 was found in hippocampus where allelic variation in Disc 1 at Ser704Cys would have measurable impact on hippocampal structure and function including reduced hippocampal gray matter volume and altered engagement of hippocampus during several cognitive tasks assays (3). Disc1 is 832 amino acid protein with predicted MW of around 100kDa. In brain Disc1 is expressed as two distinct bands of molecular weight 95-100kDa and 70-85 kDa in human brain. This pattern is similar in rodent brain where 70-85kDa band intensity is much more intense than higher MW species. The identity of the 70-85 kDa species is still not yet confirmed.

The Disc1-selective antibodies were generated against unique antigenic sequence form near C-terminal end (aa) of the Disc1 gene. The antibodies to Disc1 are affinity purified over immobilized antigen based chromatography, and the purified immunoglobulins are stabilized in antibody stabilization buffer. FabGennix Int. Inc., will also provide limited quantities of antigenic blocking peptides for Disc1-101AP. Antibodies to Disc1 (Disc1-101AP) will label 100kDa and shorter form of Disc1 in PC-Disc1 samples. FabGennix Int. Inc., have made several other Alzheimer's-related target antibodies which are now available from FabGennix International Inc. For a complete listings visit www.FabGennix.com. FabGennix Inc. will also conjugate antibodies with secondary enzymes (alk-Pase or HRP) or fluorescent probes upon request at a nominal cost.

| Catalog # | Host Species | Nature | Cross reactivity | Quantity | volume |
|-------------|--------------|---|------------------|------------|---------|
| Disc1-101AP | Rabbit | Affinity purified DISC1 antibodies | human | 100 ug | 200ul |
| P-Disc1 | Rabbit | Antigenic blocking peptide for DISC1-101AP | n/a | 250 ug | 100ul |
| PC-Disc1 | n/a | Western blotting positive control for DISC1 | n/a | for 5 appl | inquire |

R = rat; M = mouse; H = human; C = chicken; monk = monkey ; * not all variants are labeled equally

Immunogen: Synthetic peptides corresponding to positions 734-749 corresponding to amino acids (prl hse dkr ktp lke) from N-terminal regions of Disc1 protein, peptide sequences are unique to Disc1 protein and is unique to human Disc1 protein.

Concentration: Disc1-101AP: IgG concentration 0.76-0.72 mg/ml in antibody stabilization buffer.

Applications: Antibody Disc1-101AP is ideal for WB and ELISA applications, other applications have not been tested. This antibody does not cross react to other proteins. The species cross reactivity for this antibody is not examined. The dilutions for this antibody is for reference only, investigators are expected to determine the optimal conditions for specific assay.
WB: > 1:500; IMM & i.p pull-down assays: n.d; IHC n.d. ELISA <1:10,000

Reactivity: This antibody detects multiple (3-4 bands) bands in the 110-85kDa molecular weight range probably belongs to multiple splice variants as all of them were blocked by excess antigenic blocking peptide. The antibody does not cross reacts with other proteins of the BACE family members.

Protocols: Standard protocol for various applications (WB; IMM and IHC) of this antibody can be requested by calling Technical support line, basic information on this antibody is provided with the product specification sheet, however, FabGennix Inc. strongly recommends investigators to optimize conditions for use of this antibody in their laboratories.

Form/Storage: The affinity-purified antibodies are supplied as stabilized product. Store at -20°C for long-term storage. FabGennix Inc. does not recommend storage of very dilute antibody solutions unless they are prepared in specially formulated multi use antibody dilution buffer (Cat # DiluOBuffer). Working solutions of antibodies in DiluOBuffer should be filtered through 0.45 filter after every use for long-term storage.

References:

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- Takatoshi Hikida, Hanna Jaaro-Peled, Saurav Seshadri, Kenichi Oishi, Caroline Hookway, Stephanie Kong, Di Wu, Rong Xue, Manuella Andradé, Stephanie Tankou, Susumu Mori, Michela Gallagher, Koko Ishizuka, Mikhail Pletnikov, Satoshi Kida, and Akira Sawa. Dominant-negative DISC1 transgenic mice display schizophrenia-associated phenotypes detected by measures translatable to humans. *PNAS* 104, 14501-14506, 2007.
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For users who may require large amounts of Disc1-101AP, please enquire about bulk material discounts.
This Product is for Research Use Only and is NOT intended for use in humans or clinical diagnosis.

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5850 Town and Country Blvd. Suite 301. Frisco, TX 75034

Customer service: 1800 786 1236; Technical Support: 214 387 8105