SANTA CRUZ BIOTECHNOLOGY, INC.

netrin-1 (5H8): sc-293197

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Netrin proteins are a family of laminin-related secreted proteins that provide guidance signals for axonal growth and cell migration during development. Netrin-1, which is the mammalian homolog of UNC-6 from *C. elegans*, is largely expressed in the developing nervous system and in mesodermal tissues. Netrin-1 is expressed by the floor plate as either a cell associated protein or in a diffusible form, and it binds to several surface receptor components, including deleted in colorectal cancer (DCC) and neogenin. During embryonic development, netrin-1 diffuses through the neuronal epithelium, where it forms a chemoattractant gradient that directs axonal migration to the ventral midline of the spinal cord. Netrin-2 and the corresponding mouse homolog netrin-3 are expressed primarily in the lower two-thirds of the spinal cord, and, like netrin-1, they can either attract or repel commissural axons at a distance. Netrin signaling is dependent on the concentration of calcium outside the cell and the level of PKA activity. In axonal cells, a reduction in PKA activity converts the responsiveness of the axons to the netrin proteins, as the cells are repelled, rather than attracted, by the netrin gradient.

REFERENCES

1. Kennedy, T.E., et al. 1994. Netrins are diffusible chemotropic factors for commissural axons in the embryonic spinal cord. Cell 78: 425-435.
2. Colamarino, S.A. and Tessier-Lavigne, M. 1995. The axonal chemoattractant netrin-1 is also a chemorepellent for trochlear motor axons. Cell 81: 621-629.
3. Livesey, F.J. and Hunt, S.P. 1997. Netrin and netrin receptor expression in the embryonic mammalian nervous system suggests roles in retinal, striatal, nigral, and cerebellar development. Mol. Cell. Neurosci. 8: 417-429.
4. Van Raay, T.J., et al. 1997. The NTN2L gene encoding a novel human netrin maps to the autosomal dominant polycystic kidney disease region on chromosome 16p13.3. Genomics 41: 279-282.
5. Ming, G.L., et al. 1997. CAMP-dependent growth cone guidance by netrin-1. Neuron 19: 1225-1235.
6. Meyerhardt, J.A., et al. 1999. Netrin-1: interaction with deleted in colorectal cancer (DCC) and alterations in brain tumors and neuroblastomas. Cell Growth Differ. 10: 35-42.
7. Wang, H., et al. 1999. Netrin-3, a mouse homolog of human NTN2L, is highly expressed in sensory ganglia and shows differential binding to netrin receptors. J. Neurosci. 19: 4938-4947.

CHROMOSOMAL LOCATION

Genetic locus: NTN1 (human) mapping to 17p13.1.

SOURCE

netrin-1 (5H8) is a mouse monoclonal antibody raised against amino acids 495-604 of netrin-1 of human origin.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

PRODUCT

Each vial contains 100 µg IgG_{2a} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

netrin-1 (5H8) is recommended for detection of netrin-1 of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)] and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

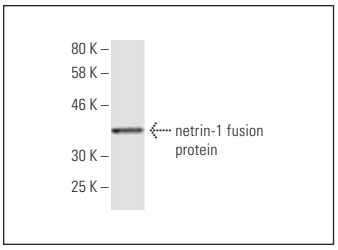
Suitable for use as control antibody for netrin-1 siRNA (h): sc-42044, netrin-1 shRNA Plasmid (h): sc-42044-SH and netrin-1 shRNA (h) Lentiviral Particles: sc-42044-V.

Molecular Weight of netrin-1: 75 kDa.

RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml).

DATA



netrin-1 (5H8): sc-293197. Western blot analysis of human recombinant netrin-1 fusion protein.

SELECT PRODUCT CITATIONS

1. Eve, A.M.J. and Smith, J.C. 2017. Knockdown of Laminin γ-3 (Lamc3) impairs motoneuron guidance in the zebrafish embryo. Wellcome Open Res. 2: 111.
2. Jasmin, M., et al. 2021. Netrin-1 and its receptor DCC modulate survival and death of dopamine neurons and Parkinson's disease features. EMBO J. 40: e105537.

STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.