

# CASPR (E-8): sc-373777

## BACKGROUND

Neurexins comprise a family of neuronal cell surface proteins, which include neurexin I (NRXN1), neurexin II (NRXN2), neurexin III (NRXN3) and CASPR (neurexin IV). Neurexins I-III are expressed as  $\alpha$  and  $\beta$  isoforms. The  $\alpha$  isoforms are made of three cassettes, which contain two LNS (laminin A, neurexins, sex hormone-binding)-domains separated by EGF domains, followed by a transmembrane region and a 55 amino acid cytoplasmic C-terminal. The  $\alpha$  isoforms bind to neuroligins at the second LNS site, and to the excitatory neurotoxin  $\alpha$ -latrotoxin. The  $\beta$  isoforms have only one LNS-domain, bind to neuroligins and play a role in the formation and remodeling of synapses. CASPR (for contactin-associated protein 1, also designated paranodin in mouse), contains an extracellular domain similar to the other three neurexins, and binds to the surface glycoprotein contactin. CASPR and the closely related CASPR2, a mammalian homolog of *Drosophila* neurexin IV (Nrx-IV), demarcate distinct subdomains in myelinated axons. Specifically, CASPR exists at the paranodal junctions, while CASPR2 co-localizes with Shaker-like K<sup>+</sup> channels in the juxtaparanodal region. CASPR may play a role in the communication of glial cells and neurons during development.

## REFERENCES

1. Ichtchenko, K., et al. 1996. Structures, alternative splicing, and neurexin binding of multiple neuroligins. *J. Biol. Chem.* 271: 2676-2682.
2. Einheber, S., et al. 1997. The axonal membrane protein CASPR, a homologue of neurexin IV, is a component of the septate-like paranodal junctions that assemble during myelination. *J. Cell Biol.* 139: 1495-1506.
3. Nguyen, T., et al. 1997. Binding properties of neuroligin 1, and Neurexin I $\beta$  reveal function as heterophilic cell adhesion molecules. *J. Biol. Chem.* 272: 26032-26039.
4. Peles, E., et al. 1997. Identification of a novel contactin-associated transmembrane receptor with multiple domains implicated in protein-protein interactions. *EMBO J.* 16: 978-988.
5. Poliak, S., et al. 1997. CASPR2, a new member of the neurexin superfamily, is localized at the juxtaparanodes of myelinated axons and associates with K<sup>+</sup> channels. *Neuron* 24: 1037-1047.

## CHROMOSOMAL LOCATION

Genetic locus: CNTNAP1 (human) mapping to 17q21.2; Cntnap1 (mouse) mapping to 11 D.

## SOURCE

CASPR (E-8) is a mouse monoclonal antibody raised against amino acids 1251-1316 of CASPR of human origin.

## PRODUCT

Each vial contains 200  $\mu$ g IgG<sub>1</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

## STORAGE

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

## APPLICATIONS

CASPR (E-8) is recommended for detection of CASPR of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2  $\mu$ g per 100-500  $\mu$ g of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for CASPR siRNA (h): sc-41915, CASPR siRNA (m): sc-41916, CASPR shRNA Plasmid (h): sc-41915-SH, CASPR shRNA Plasmid (m): sc-41916-SH, CASPR shRNA (h) Lentiviral Particles: sc-41915-V and CASPR shRNA (m) Lentiviral Particles: sc-41916-V.

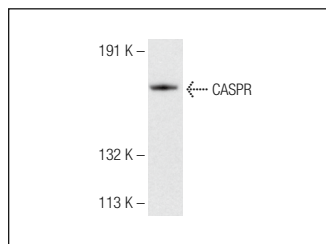
Molecular Weight of CASPR: 165 kDa.

Positive Controls: mouse brain extract: sc-2253 or mouse heart extract: sc-2254.

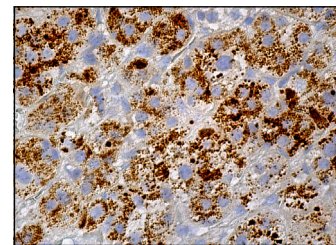
## RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgG $\kappa$  BP-HRP: sc-516102 or m-IgG $\kappa$  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). 3) Immunofluorescence: use m-IgG $\kappa$  BP-FITC: sc-516140 or m-IgG $\kappa$  BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850. 4) Immunohistochemistry: use m-IgG $\kappa$  BP-HRP: sc-516102 with DAB, 50X: sc-24982 and Immunohistomount: sc-45086, or Organo/Limonene Mount: sc-45087.

## DATA



CASPR (E-8): sc-373777. Western blot analysis of CASPR expression in mouse heart tissue extract.



CASPR (E-8): sc-373777. Immunoperoxidase staining of formalin fixed, paraffin-embedded human adrenal gland tissue showing cytoplasmic staining of glandular cells.

## SELECT PRODUCT CITATIONS

1. Appeltshauser, L., et al. 2022. Diabetes mellitus is a possible risk factor for nodo-paranodopathy with antiparanodal autoantibodies. *Neurol. Neuroimmunol. Neuroinflamm.* 9: e1163.

## RESEARCH USE

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