SANTA CRUZ BIOTECHNOLOGY, INC.

Neurabin-I siRNA (m): sc-45983

BACKGROUND

Brain-specific Neurabin-I (neural tissue-specific F-Actin binding protein I) is highly concentrated in the synapse of developed neurons; it localizes in the growth cone lamellipodia during neuronal development. Supression of endogenous Neurabin in rat hippocampal neurons inhibits neurite formation. Neurabin-I recruits active PP1 via a PP1-docking sequence; mutation of the PP1-binding motif halts filopodia and restores stress fibers in Neurabin-I expressing cells. Neurabin-II (Spinophilin) is ubiquitously expressed but is abundantly expressed in brain. Neurabin-II localizes to neuronal dentritic spines, which are the specialized protrusions from dendritic shafts that receive most of the excitatory input in the CNS. Neurabin-II may regulate dendritic spine properties as Neurabin-II(-) mice have increased spine density during development *in vitro* and exhibit altered filopodial formation in cultured cells. Neurabin may also play a role in glutamatergic transmission as Neurabin-II(-) mice exhibit reduced long-term depression and resistance to kainate-induced seizures and neronal apoptosis. Neurabin-II complexes with the catalytic subunit of protein phosphatase 1 (PP1) *in vitro,* thus modulating the activity of PP1.

REFERENCES

1. Nakanishi, H., et al. 1997. Neurabin: a novel neural tissue-specific Actin filament-binding protein involved in neurite formation. J. Cell Biol. 139: 951-961.
2. Allen, P.B., et al. 1997. Spinophilin, a novel protein phosphatase 1 binding protein localized to dendritic spines. Proc. Natl. Acad. Sci. USA 94: 9956-9961.
3. McAvoy, T., et al. 1999. Regulation of Neurabin-I interaction with protein phosphatase 1 by phosphorylation. Biochemistry 38: 12943-12949.
4. Feng, J., et al. 2000. Spinophilin regulates the formation and function of dendritic spines. Proc. Natl. Acad. Sci. USA 97: 9287-9292.
5. Oliver, C.J., et al. 2002. Targeting protein phosphatase 1 (PP1) to the actin cytoskeleton: the Neurabin-I/PP1 complex regulates cell morphology. Mol. Cell. Biol. 22: 4690-4701.

CHROMOSOMAL LOCATION

Genetic locus: Ppp1r9a (mouse) mapping to 6 A1.

PRODUCT

Neurabin-I siRNA (m) is a pool of 3 target-specific 19-25 nt siRNAs designed to knock down gene expression. Each vial contains 3.3 nmol of lyophilized siRNA, sufficient for a 10 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see Neurabin-I shRNA Plasmid (m): sc-45983-SH and Neurabin-I shRNA (m) Lentiviral Particles: sc-45983-V as alternate gene silencing products.

For independent verification of Neurabin-I (m) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-45983A, sc-45983B and sc-45983C.

RESEARCH USE

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

STORAGE AND RESUSPENSION

Store lyophilized siRNA duplex at -20° C with desiccant. Stable for at least one year from the date of shipment. Once resuspended, store at -20° C, avoid contact with RNAses and repeated freeze thaw cycles.

Resuspend lyophilized siRNA duplex in 330 µl of the RNAse-free water provided. Resuspension of the siRNA duplex in 330 µl of RNAse-free water makes a 10 µM solution in a 10 µM Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

Neurabin-I siRNA (m) is recommended for the inhibition of Neurabin-I expression in mouse cells.

SUPPORT REAGENTS

For optimal siRNA transfection efficiency, Santa Cruz Biotechnology's siRNA Transfection Reagent: sc-29528 (0.3 ml), siRNA Transfection Medium: sc-36868 (20 ml) and siRNA Dilution Buffer: sc-29527 (1.5 ml) are recommended. Control siRNAs or Fluorescein Conjugated Control siRNAs are available as 10 µM in 66 µl. Each contain a scrambled sequence that will not lead to the specific degradation of any known cellular mRNA. Fluorescein Conjugated Control siRNAs include: sc-36869, sc-44239, sc-44240 and sc-44241. Control siRNAs include: sc-37007, sc-44230, sc-44231, sc-44232, sc-44233, sc-44234, sc-44235, sc-44236, sc-44237 and sc-44238.

GENE EXPRESSION MONITORING

Neurabin-I (D-4): sc-377407 is recommended as a control antibody for monitoring of Neurabin-I gene expression knockdown by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) or immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

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) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor Neurabin-I gene expression knockdown using RT-PCR Primer: Neurabin-I (m)-PR: sc-45983-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

PROTOCOLS

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