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# 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. Suppression 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 dendritic 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 neuronal 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., Obaishi, H., Satoh, A., Wada, M., Mandai, K., Satoh, K., Nishioka, H., Matsuura, Y., Mizoguchi, A. and Takai, Y. 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., Ouimet, C.C. and Greengard, P. 1997. Spinophilin, a novel protein phosphatase 1 binding protein localized to dendritic spines. *Proc. Natl. Acad. Sci. USA* 94: 9956-9961.
3. McAvoy, T., Allen, P.B., Obaishi, H., Nakanishi, H., Takai, Y., Greengard, P., Nairn, A.C. and Hemmings, H.C., Jr. 1999. Regulation of Neurabin-I interaction with protein phosphatase 1 by phosphorylation. *Biochemistry* 38: 12943-12949.
4. Feng, J., Yan, Z., Ferreira, A., Tomizawa, K., Liauw, J.A., Zhuo, M., Allen, P.B., Ouimet, C.C. and Greengard, P. 2000. Spinophilin regulates the formation and function of dendritic spines. *Proc. Natl. Acad. Sci. USA* 97: 9287-9292.

## 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  $\mu$ M 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.

## 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  $\mu$ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330  $\mu$ l of RNase-free water makes a 10  $\mu$ M solution in a 10  $\mu$ M 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  $\mu$ M in 66  $\mu$ l. 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-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<sup>™</sup> Molecular Weight Standards: sc-2035, UltraCruz<sup>®</sup> Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) 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<sup>®</sup> Mounting Medium: sc-24941 or UltraCruz<sup>®</sup> 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  $\mu$ l). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

## RESEARCH USE

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

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) for detailed protocols and support products.