

Neurabin-II siRNA (h): sc-43962

BACKGROUND

Neurabin-II, also called spinophilin, interacts with actin and PP-1 in dendritic spines of the central nervous system. The gene encoding human neurabin-II maps to chromosome 17q21.33. The structural characteristics of neurabin-II include one F-actin binding domain at the N-terminal region, a predicted coiled-coil structure at the C-terminal, one PDZ domain at the middle region, and a domain known to interact with transmembrane proteins. Neurabin-II bundles Actin filaments *in vitro*. *In vivo*, spinophilin localizes to the cortical sites of Actin filaments and to the sites of active membrane remodeling. Neurabin-II also forms a complex with the catalytic subunit of PP1 and modulates PP1 enzymatic activity *in vitro*. Neurabin-II localizes to the head of dendritic spines and aids in the ability of PP-1 to regulate the activity of α -amino-3-hydroxy-5-methyl-4-isoxazolepropionic acid (AMPA) and N-methyl-D-aspartate (NMDA) receptors. In this manner, neurabin-II modulates both glutamatergic synaptic transmission and dendritic morphology. Synergistic interactions between spinophilin and human tumor suppressor ARF suggest a role for neurabin-II in cell growth.

REFERENCES

- 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.
- Satoh, A., et al. 1998. Neurabin-II/spinophilin. An Actin filament-binding protein with one PDZ domain localized at cadherin-based cell-cell adhesion sites. *J. Biol. Chem.* 273: 3470-3475.
- Feng, J., et al. 2000. Spinophilin regulates the formation and function of dendritic spines. *Proc. Natl. Acad. Sci. USA* 97: 9287-9292.
- Stephens, D.J., et al. 2000. *In vivo* dynamics of the F-Actin-binding protein Neurabin-II. *Biochem. J.* 345: 185-194.
- Vivo, M., et al. 2001. The human tumor suppressor ARF interacts with spinophilin/Neurabin II, a type 1 protein-phosphatase-binding protein. *J. Biol. Chem.* 276: 14161-14169.

CHROMOSOMAL LOCATION

Genetic locus: PPP1R9B (human) mapping to 17q21.33.

PRODUCT

Neurabin-II siRNA (h) 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see Neurabin-II shRNA Plasmid (h): sc-43962-SH and Neurabin-II shRNA (h) Lentiviral Particles: sc-43962-V as alternate gene silencing products.

For independent verification of Neurabin-II (h) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-43962A, sc-43962B and sc-43962C.

PROTOCOLS

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

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 μ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330 μ l of RNase-free water makes a 10 μ M solution in a 10 μ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

Neurabin-II siRNA (h) is recommended for the inhibition of Neurabin-II expression in human 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 μ M in 66 μ 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-II (D-7): sc-373974 is recommended as a control antibody for monitoring of Neurabin-II 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 κ BP-HRP: sc-516102 or m-IgG κ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz MarkerTM Molecular Weight Standards: sc-2035, UltraCruz[®] Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use m-IgG κ BP-FITC: sc-516140 or m-IgG κ 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-II gene expression knockdown using RT-PCR Primer: Neurabin-II (h)-PR: sc-43962-PR (20 μ l, 479 bp). 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.