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# Neurabin-I shRNA (m) Lentiviral Particles: sc-45983-V

## 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., 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.

## CHROMOSOMAL LOCATION

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

## PRODUCT

Neurabin-I shRNA (m) Lentiviral Particles is a pool of concentrated, transduction-ready viral particles containing 3 target-specific constructs that encode 19-25 nt (plus hairpin) shRNA designed to knock down gene expression. Each vial contains 200  $\mu$ l frozen stock containing  $1.0 \times 10^6$  infectious units of virus (IFU) in Dulbecco's Modified Eagle's Medium with 25 mM HEPES pH 7.3. Suitable for 10-20 transductions. Also see Neurabin-I siRNA (m): sc-45983 and Neurabin-I shRNA Plasmid (m): sc-45983-SH as alternate gene silencing products.

## STORAGE

Store lentiviral particles at  $-80^\circ\text{C}$ . Stable for at least one year from the date of shipment. Once thawed, particles can be stored at  $4^\circ\text{C}$  for up to one week. Avoid repeated freeze thaw cycles.

## PROTOCOLS

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

## APPLICATIONS

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

## SUPPORT REAGENTS

Control shRNA Lentiviral Particles: sc-108080. Available as 200  $\mu$ l frozen viral stock containing  $1.0 \times 10^6$  infectious units of virus (IFU); contains an shRNA construct encoding a scrambled sequence that will not lead to the specific degradation of any known cellular mRNA.

## GENE EXPRESSION MONITORING

Neurabin-I (52): sc-136327 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 (secondary) reagents are recommended: 1) Western Blotting: use goat anti-mouse IgG-HRP: sc-2005 (dilution range: 1:2000-1:32,000) or Cruz Marker™ compatible goat anti-mouse IgG-HRP: sc-2031 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use goat anti-mouse IgG-FITC: sc-2010 (dilution range: 1:100-1:400) or goat anti-mouse IgG-TR: sc-2781 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

## 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  $55-60^\circ\text{C}$  and the extension temperature should be  $68-72^\circ\text{C}$ .

## BIOSAFETY

Lentiviral particles can be employed in standard Biosafety Level 2 tissue culture facilities (and should be treated with the same level of caution as with any other potentially infectious reagent). Lentiviral particles are replication-incompetent and are designed to self-inactivate after transduction and integration of shRNA constructs into genomic DNA of target cells.

## RESEARCH USE

The purchase of this product conveys to the buyer the nontransferable right to use the purchased amount of the product and all replicates and derivatives for research purposes conducted by the buyer in his laboratory only (whether the buyer is an academic or for-profit entity). The buyer cannot sell or otherwise transfer (a) this product (b) its components or (c) materials made using this product or its components to a third party, or otherwise use this product or its components or materials made using this product or its components for Commercial Purposes.