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Contactin 1 shRNA (h) Lentiviral Particles: sc-43695-V

BACKGROUND

Changes in synaptic efficacy can mediate crucial processes during learning and memory formation. Accumulating evidence implicates cell adhesion molecules in activity-dependent synaptic modifications associated with paired-pulse facilitation (PPF), long-term potentiation (LTP) and long-term depression (LTD). Among the cell adhesion molecules involved in these processes are the contactins. Contactins are immunoglobulin superfamily members that play a selective role in synaptic plasticity, PPF and LTD, and may regulate cell-cell interactions contributing to synaptic plasticity in conjunction with other synapse targeting molecules, including paranodin and phosphacan. In addition, contactins are essential components that control expression and distribution of Na⁺ channels in neurons, junctional attachment at the paranode, and ultimately the physiology of the myelinated nerve. The human Contactin 1 gene encodes a 1,018 amino acid protein. The human Contactin 3 gene encodes a 646 amino acid plasmacytoma-associated neuronal glycoprotein. The human Contactin 5 gene encodes a 1,100 amino acid neural adhesion molecule. The human Contactin 6 gene encodes a 1,028 amino acid neural adhesion molecule.

REFERENCES

1. Ranscht, B. 1988. Sequence of contactin, a 130-kD glycoprotein concentrated in areas of interneuronal contact, defines a new member of the immunoglobulin supergene family in the nervous system. *J. Cell Biol.* 107: 1561-1573.
2. Fields, R.D. and Itoh, K. 1996. Neural cell adhesion molecules in activity-dependent development and synaptic plasticity. *Trends Neurosci.* 19: 473-480.
3. Kazarinova-Noyes, K., et al. 2001. Contactin associates with Na⁺ channels and increases their functional expression. *J. Neurosci.* 21: 7517-7525.

CHROMOSOMAL LOCATION

Genetic locus: CNTN1 (human) mapping to 12q12.

PRODUCT

Contactin 1 shRNA (h) 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 µl frozen stock containing 1.0 x 10⁶ 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 Contactin 1 siRNA (h): sc-43695 and Contactin 1 shRNA Plasmid (h): sc-43695-SH as alternate gene silencing products.

STORAGE

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

PROTOCOLS

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

APPLICATIONS

Contactin 1 shRNA (h) Lentiviral Particles is recommended for the inhibition of Contactin 1 expression in human cells.

SUPPORT REAGENTS

Control shRNA Lentiviral Particles: sc-108080. Available as 200 µl frozen viral stock containing 1.0 x 10⁶ 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

Contactin 1 (S-20): sc-20297 is recommended as a control antibody for monitoring of Contactin 1 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 donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (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 donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor Contactin 1 gene expression knockdown using RT-PCR Primer: Contactin 1 (h)-PR: sc-43695-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° 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.