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SANTA CRUZ BIOTECHNOLOGY, INC.

SEMA3C shRNA (h) Lentiviral Particles: sc-44091-V

BACKGROUND

SEMA3C (also designated semaphorin 3C, semaphorin E, SEMAE, SemE, sema domain, immunoglobulin domain (Ig) and short basic domain, secreted) is an ubiquitous protein that mediates axonal guidance, repulsive gradients, induction of growth cone collapse and cell survival/death. Secreted SEMA3C favors survival and neuritogenesis of cultured cerebellar granule neurons (CGNs). SEMA3C from macrophages and fibroblasts that selectively directs against sympathetic nerve fibers may be one element responsible for reduced sympathetic innervation in rheumatoid arthritis tissue. SEMA3C mutant mice die within hours after birth from congenital cardiovascular defects consisting of interruption of the aortic arch and improper septation of the cardiac outflow tract. SEMA3C is expressed in the cardiac outflow tract as neural crest cells and promotes crest cell migration into the proximal cardiac outflow tract. Semaphorins constitute a family of molecules sharing a common extracellular domain (semaphorin domain). The family includes several types of secreted and membrane-associated molecules that are grouped into eight subclasses (subclasses 1-7 and viral semaphorins).

REFERENCES

1. Kolodkin, A.L., et al. 1993. The semaphorin genes encode a family of transmembrane and secreted growth cone guidance molecules. Cell 75: 1389-1399.
2. Puschel, A.W., et al. 1995. Murine semaphorin D/collapsin is a member of a diverse gene family and creates domains inhibitory for axonal extension. Neuron 14: 941-948.
3. Dodd, J., et al. 1995. Axon guidance: a compelling case for repelling growth cones. Cell 81: 471-474.
4. Matthes, D.J., et al. 1995. Semaphorin II can function as a selective inhibitor of specific synaptic arborizations. Cell 81: 631-639.

CHROMOSOMAL LOCATION

Genetic locus: SEMA3C (human) mapping to 7q21.11.

PRODUCT

SEMA3C 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 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 SEMA3C siRNA (h): sc-44091 and SEMA3C shRNA Plasmid (h): sc-44091-SH as alternate gene silencing products.

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.

APPLICATIONS

SEMA3C shRNA (h) Lentiviral Particles is recommended for the inhibition of SEMA3C expression in human cells.

SUPPORT REAGENTS

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

SEMA3C (N-20): sc-27796 is recommended as a control antibody for monitoring of SEMA3C 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 SEMA3C gene expression knockdown using RT-PCR Primer: SEMA3C (h)-PR: sc-44091-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.

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.