SANTA CRUZ BIOTECHNOLOGY, INC.

SEMA5A siRNA (h): sc-63000

BACKGROUND

Semaphorins are a family of cell surface and secreted proteins that are conserved from insects to humans. Members of this family of proteins are approximately 750 amino acids in length (including signal sequences) and are defined by a conserved extracellular "semaphorin" domain of approximately 500 amino acids containing 14-16 cysteines, blocks of conserved sequences and no obvious repeats. Secreted and cell-bound semaphorins chemically attract and repel the growth of neural axons, guiding the development of intricate networks of neural tissue. SEMA5A (Semaphorin-5A), also known as semF or SEMAF (Semaphorin-F), is 1,074 amino acid single-pass type I membrane protein that belongs to the semaphorin family and is involved in axonal guidance cue in mammalian midbrain neurons. Sema5A promotes multiple functional responses through a plexin-B3 receptor.

REFERENCES

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3. Kantor, D.B., et al. 2004. Semaphorin 5A is a bifunctional axon guidance cue regulated by heparan and chondroitin sulfate proteoglycans. Neuron 44: 961-975.
4. Maraganore, D.M., et al. 2005. High-resolution whole-genome association study of Parkinson disease. Am. J. Hum. Genet. 77: 685-693.
5. Fiore, R., et al. 2005. Inactivation of the Sema5a gene results in embryonic lethality and defective remodeling of the cranial vascular system. Mol. Cell. Biol. 25: 2310-2319.
6. Jin, Z., et al. 2006. Sema3D, Sema3F, and Sema5A are expressed in overlapping and distinct patterns in chick embryonic heart. Dev. Dyn. 235: 163-169.
7. Melin, M., et al. 2006. Constitutional downregulation of SEMA5A expression in autism. Neuropsychobiology 54: 64-69.
8. Hilario, J.D., et al. 2009. Semaphorin 5A is a bifunctional axon guidance cue for axial motoneurons *in vivo*. Dev. Biol. 326: 190-200.

CHROMOSOMAL LOCATION

Genetic locus: SEMA5A (human) mapping to 5p15.31.

PRODUCT

SEMA5A 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 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see SEMA5A shRNA Plasmid (h): sc-63000-SH and SEMA5A shRNA (h) Lentiviral Particles: sc-63000-V as alternate gene silencing products.

For independent verification of SEMA5A (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-63000A, sc-63000B and sc-63000C.

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 µl of the RNAse-free water provided. Resuspension of the siRNA duplex in 330 µl of RNAse-free water makes a 10 µM solution in a 10 µM Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

SEMA5A siRNA (h) is recommended for the inhibition of SEMA5A 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 µM in 66 µl. 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor SEMA5A gene expression knockdown using RT-PCR Primer: SEMA5A (h)-PR: sc-63000-PR (20 µl). 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 for detailed protocols and support products.