SANTA CRUZ BIOTECHNOLOGY, INC.

SEMA3F siRNA (h): sc-62994

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. SEMA3F, also known as semaphorin IV, is a secreted protein belonging to the semaphorin family. SEMA3F is believed to play a role in cell motility and cell adhesion. Expressed abundantly in many tissues, SEMA3F is present at high levels in kidney, fetal brain, lung and mammary gland.

REFERENCES

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2. Nasarre, P., et al. 2003. Semaphorin SEMA3F and VEGF have opposing effects on cell attachment and spreading. Neoplasia 5: 83-92.
3. Vilbig, R., et al. 2004. Distinct roles for SEMA3A, SEMA3F, and an unidentified trophic factor in controlling the advance of geniculate axons to gustatory lingual epithelium. J. Neurocytol. 33: 591-606.
4. Kusy, S., et al. 2005. Promoter characterization of Semaphorin SEMA3F, a tumor suppressor gene. Biochim. Biophys. Acta 1730: 66-76.
5. Yamada, R.X., et al. 2006. Soluble guanylyl cyclase inhibitor prevents SEMA3F-induced collapse of axonal and dendritic growth cones of dentate granule cells. Biol. Pharm. Bull. 29: 796-798.
6. Favier, B., et al. 2006. Neuropilin-2 interacts with VEGFR-2 and VEGFR-3 and promotes human endothelial cell survival and migration. Blood 108: 1243-1250.
7. 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.
8. Gammill, L.S., et al. 2006. Neuropilin 2/semaphorin 3F signaling is essential for cranial neural crest migration and trigeminal ganglion condensation. J. Neurobiol. 67: 47-56.
9. Shimizu, A., et al. 2008. ABL2/ARG tyrosine kinase mediates SEMA3F-induced RhoA inactivation and cytoskeleton collapse in human glioma cells. J. Biol. Chem. 283: 27230-27238.

CHROMOSOMAL LOCATION

Genetic locus: SEMA3F (human) mapping to 3p21.31.

PROTOCOLS

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

PRODUCT

SEMA3F 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 SEMA3F shRNA Plasmid (h): sc-62994-SH and SEMA3F shRNA (h) Lentiviral Particles: sc-62994-V as alternate gene silencing products.

For independent verification of SEMA3F (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-62994A, sc-62994B and sc-62994C.

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

SEMA3F siRNA (h) is recommended for the inhibition of SEMA3F 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 SEMA3F gene expression knockdown using RT-PCR Primer: SEMA3F (h)-PR: sc-62994-PR (20 µl, 600 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Pan, J.X., et al. 2016. Doxorubicin-induced epithelial-mesenchymal transition through SEMA 4A in hepatocellular carcinoma. Biochem. Biophys. Res. Commun. 479: 610-614.

RESEARCH USE

For research use only, not for use in diagnostic procedures.