SANTA CRUZ BIOTECHNOLOGY, INC.

SEMA6B siRNA (h): sc-63006

BACKGROUND

Semaphorins are a family of cell surface and secreted proteins involved in neural development that are conserved from insects to humans. Members of this family 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. The transmembrane semaphorins are characterized by an additional 80 amino acid transmembrane domain and an 80-110 amino acid cytoplasmic domain. SEMA6B, also known as SEMA Z, is a single pass type-I transmembrane protein highly expressed in adult brain and heart. It contains a proline-rich cytoplasmic domain with SH3 domain binding sites. SEMA6B functions as a repellent for sympathetic ganglion axons and suppresses neurite outgrowth. This activity is propagated through its receptor, plexin-A4. In addition, SEMA6B may play a role in tumor progression.

REFERENCES

1. Kikuchi, K., et al. 1998. Molecular cloning of a novel member of semaphorin family genes, semaphorin Z. Brain Res. Mol. Brain Res. 51: 229-237.
2. Eckhardt, F., et al. 1998. A novel transmembrane semaphorin can bind c-Src. Mol. Cell. Neurosci. 9: 409-419.
3. Correa, R.G., et al. 2001. Human semaphorin 6B [(HSA)SEMA6B., a novel human class 6 semaphorin gene: alternative splicing and all-*trans*-retinoic acid-dependent downregulation in glioblastoma cell lines. Genomics 73: 343-348.
4. Qu, X., et al. 2002. Identification, characterization, and functional study of the two novel human members of the semaphorin gene family. J. Biol. Chem. 277: 35574-35585.
5. Collet, P., et al. 2004. The human semaphorin 6B gene is downregulated by PPARs. Genomics 83: 1141-1150.
6. Chedotal, A., et al. 2005. The brain within the tumor: new roles for axon guidance molecules in cancers. Cell Death Differ. 12: 1044-1056.

CHROMOSOMAL LOCATION

Genetic locus: SEMA6B (human) mapping to 19p13.3.

PRODUCT

SEMA6B 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 SEMA6B shRNA Plasmid (h): sc-63006-SH and SEMA6B shRNA (h) Lentiviral Particles: sc-63006-V as alternate gene silencing products.

For independent verification of SEMA6B (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-63006A, sc-63006B and sc-63006C.

RESEARCH USE

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

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

SEMA6B siRNA (h) is recommended for the inhibition of SEMA6B 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.

GENE EXPRESSION MONITORING

SEMA6B (G-7): sc-390928 is recommended as a control antibody for monitoring of SEMA6B 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 reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor SEMA6B gene expression knockdown using RT-PCR Primer: SEMA6B (h)-PR: sc-63006-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

PROTOCOLS

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