SANTA CRUZ BIOTECHNOLOGY, INC.

SEMA5B siRNA (h): sc-63002

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. SEMA5B (semaphorin-5B), also known as SEMAG, is a 1,151 amino acid member of the semaphorin family. Localized to the membrane, SEMA5B is a single-pass type III protein that functions to convey positive axonal guidance cues and can induce calpain-mediated cleavage of calcineurin. Three isoforms exist due to alternative splicing events.

REFERENCES

1. Online Mendelian Inheritance in Man, OMIM™. 2005. Johns Hopkins University, Baltimore, MD. MIM Number: 609298. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
2. Liverman, C.S., Kaftan, H.A., Cui, L., Hersperger, S.G., Taboada, E., Klein, R.M. and Berman, N.E. 2006. Altered expression of pro-inflammatory and developmental genes in the fetal brain in a mouse model of maternal infection. Neurosci. Lett. 399: 220-225.
3. Hirota, E., Yan, L., Tsunoda, T., Ashida, S., Fujime, M., Shuin, T., Miki, T., Nakamura, Y. and Katagiri, T. 2006. Genome-wide gene expression profiles of clear cell renal cell carcinoma: identification of molecular targets for treatment of renal cell carcinoma. Int. J. Oncol. 29: 799-827.
4. To, K.C., Church, J. and O'Connor, T.P. 2007. Combined activation of calpain and calcineurin during ligand-induced growth cone collapse. Mol. Cell. Neurosci. 36: 425-434.
5. Sun, Q., Nawabi-Ghasimi, F. and Basile, J.R. 2008. Semaphorins in vascular development and head and neck squamous cell carcinoma-induced angiogenesis. Oral Oncol. 44: 523-531.

CHROMOSOMAL LOCATION

Genetic locus: SEMA5B (human) mapping to 3q21.1.

PRODUCT

SEMA5B 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 SEMA5B shRNA Plasmid (h): sc-63002-SH and SEMA5B shRNA (h) Lentiviral Particles: sc-63002-V as alternate gene silencing products.

For independent verification of SEMA5B (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-63002A, sc-63002B and sc-63002C.

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

SEMA5B siRNA (h) is recommended for the inhibition of SEMA5B 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 SEMA5B gene expression knockdown using RT-PCR Primer: SEMA5B (h)-PR: sc-63002-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Corsino, P., Horenstein, N., Ostrov, D., Rowe, T., Law, M., Barrett, A., Aslanidi, G., Cress, W.D. and Law, B. 2009. A novel class of cyclin-dependent kinase inhibitors identified by molecular docking act through a unique mechanism. J. Biol. Chem. 284: 29945-29955.

PROTOCOLS

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