SANTA CRUZ BIOTECHNOLOGY, INC.

SEMA3E siRNA (h): sc-61520

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. Secreted and cell-bound semaphorins chemically attract and repel the growth of neural axons, guiding the development of intricate networks of neural tissue. SEMA3E is a secreted semaphorin with 775 amino acids. Mutations in the SEMA3E gene are associated with CHARGE syndrome, a disorder characterized by cranial nerve dysfunction, coloboma of the eye, choanal atresia, inner and external ear abnormalities, cardiac anomalies, genitourinary abnormalities, and growth retardation.

REFERENCES

1. Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 608166. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
2. Steinbach, K., et al. 2002. Semaphorin 3E/collapsin-5 inhibits growing retinal axons. Exp. Cell Res. 279: 52-61.
3. Lalani, S.R., et al. 2004. SEMA3E mutation in a patient with CHARGE syndrome. J. Med. Genet. 41: e94.
4. Sahay, A., et al. 2005. Secreted semaphorins modulate synaptic transmission in the adult hippocampus. J. Neurosci. 25: 3613-3620.
5. Christensen, C., et al. 2005. Proteolytic processing converts the repelling signal SEMA3E into an inducer of invasive growth and lung metastasis. Cancer Res. 65: 6167-6177.
6. Gu, C., et al. 2005. Semaphorin 3E and plexin-D1 control vascular pattern independently of neuropilins. Science 307: 265-268.
7. Potiron, V., et al. 2005. Class 3 semaphorin signaling: the end of a dogma. Sci. STKE 2005: pe24.

CHROMOSOMAL LOCATION

Genetic locus: SEMA3E (human) mapping to 7q21.11.

PRODUCT

SEMA3E 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 SEMA3E shRNA Plasmid (h): sc-61520-SH and SEMA3E shRNA (h) Lentiviral Particles: sc-61520-V as alternate gene silencing products.

For independent verification of SEMA3E (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-61520A, sc-61520B and sc-61520C.

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

SEMA3E siRNA (h) is recommended for the inhibition of SEMA3E 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 SEMA3E gene expression knockdown using RT-PCR Primer: SEMA3E (h)-PR: sc-61520-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. Wei, J., et al. 2025. PlexinD1 is a driver and a therapeutic target in advanced prostate cancer. EMBO Mol. Med. 17: 336-364.

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.