SANTA CRUZ BIOTECHNOLOGY, INC.

SEMA7A siRNA (m): sc-63011

BACKGROUND

Semaphorins comprise 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, many 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. These semaphorin proteins regulate the growth of the axons during embryogenesis by repelling growth cones from regions of high semaphorin expression. Semaphorin 7A (SEMA7A), also designated CD108, promotes axonal growth in the central nervous system and plays a critical role in negative regulation of T cell activation and function.

REFERENCES

1. Mudad, R., et al. 1995. Evidence that CDw108 membrane protein bears the JMH blood group antigen. Transfusion 35: 566-570.
2. Angelisova, P., et al. 1999. Characterization of the human leukocyte GPI-anchored glycoprotein CDw108 and its relation to other similar molecules. Immunobiology 200: 234-245.
3. Mine, T., et al. 2000. CDw108 expression during T cell development. Tissue Antigens 55: 429-436.
4. Holmes, S., et al. 2002. SEMA7A is a potent monocyte stimulator. Scand. J. Immunol. 56: 270-275.
5. Elhabazi, A., et al. 2003. Structure and function of the immune semaphorin CD100/SEMA4D. Crit. Rev. Immunol. 23: 65-81.
6. Pasterkamp, R.J., et al. 2003. Semaphorin 7A promotes axon outgrowth through integrins and MAPKs. Nature 424: 398-405.
7. Lallier, T.E., et al. 2004. Semaphorin profiling of periodontal fibroblasts and osteoblasts. J. Dent. Res. 83: 677-682.

CHROMOSOMAL LOCATION

Genetic locus: Sema7a (mouse) mapping to 9 B.

PRODUCT

SEMA7A siRNA (m) 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 SEMA7A shRNA Plasmid (m): sc-63011-SH and SEMA7A shRNA (m) Lentiviral Particles: sc-63011-V as alternate gene silencing products.

For independent verification of SEMA7A (m) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-63011A, sc-63011B and sc-63011C.

PROTOCOLS

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

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

SEMA7A siRNA (m) is recommended for the inhibition of SEMA7A expression in mouse 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

SEMA7A (C-6): sc-374432 is recommended as a control antibody for monitoring of SEMA7A 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 SEMA7A gene expression knockdown using RT-PCR Primer: SEMA7A (m)-PR: sc-63011-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.