

SMPDL3A siRNA (h): sc-95596

BACKGROUND

Acid sphingomyelinases are lysosomal proteins that hydrolyze sphingomyelin to ceramide and phosphocholine. SMPDL3A (acid sphingomyelinase-like phosphodiesterase 3a) is a 453 amino acid secreted protein that binds to DBC1, a protein that contains a 5' CpG island which, when hypermethylated, leads to silencing in 50% of bladder cancer cell lines. Overexpression of DBC1 in human bladder tumor cells results in upregulation of SMPDL3A RNA and protein expression. SMPDL3A is differentially expressed in certain bladder tumors, suggesting that, along with DBC1, is involved in the process of bladder tumorigenesis. The gene encoding SMPDL3A maps to human chromosome 6, which contains 170 million base pairs and comprises nearly 6% of the human genome. Deletion of a portion of the q arm of chromosome 6 is associated with early onset intestinal cancer, suggesting the presence of a cancer susceptibility locus. Additionally, Porphyria cutanea tarda, Parkinson's disease, Stickler syndrome and a susceptibility to bipolar disorder are all associated with genes that map to chromosome 6.

REFERENCES

1. Habuchi, T., et al. 1998. Structure and methylation-based silencing of a gene (DBCCR1) within a candidate bladder cancer tumor suppressor region at 9q32-q33. *Genomics* 48: 277-288.
2. Gilbert, F. 2002. Chromosome 6. *Genet. Test.* 6: 341-358.
3. Wright, K.O., et al. 2002. Increased expression of the acid sphingomyelinase-like protein ASML3a in bladder tumors. *J. Urol.* 168: 2645-2649.
4. Mungall, A.J., et al. 2003. The DNA sequence and analysis of human chromosome 6. *Nature* 425: 805-811.
5. Wright, K.O., et al. 2004. DBCCR1 mediates death in cultured bladder tumor cells. *Oncogene* 23: 82-90.

CHROMOSOMAL LOCATION

Genetic locus: SMPDL3A (human) mapping to 6q22.31.

PRODUCT

SMPDL3A 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see SMPDL3A shRNA Plasmid (h): sc-95596-SH and SMPDL3A shRNA (h) Lentiviral Particles: sc-95596-V as alternate gene silencing products.

For independent verification of SMPDL3A (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-95596A, sc-95596B and sc-95596C.

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.

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 μ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330 μ l of RNase-free water makes a 10 μ M solution in a 10 μ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

SMPDL3A siRNA (h) is recommended for the inhibition of SMPDL3A expression in human cells.

SSUPPORT 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 μ M in 66 μ l. 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 SMPDL3A gene expression knockdown using RT-PCR Primer: SMPDL3A (h)-PR: sc-95596-PR (20 μ l). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.