

MFSD3 siRNA (m): sc-149408

BACKGROUND

The Major facilitator superfamily consists of presumed carbohydrate transporters with 10-12 membrane-spanning domains. MFSD3 (Major facilitator superfamily domain-containing protein 3) is a 412 amino acid multi-pass membrane protein that is likely a carrier that transports small solutes by using chemiosmotic ion gradients. Significantly, a related protein, MFSD2, may play a role in placenta morphogenesis and may also be involved in adaptive thermogenesis. The gene encoding MFSD3 maps to chromosome 8, which is made up of nearly 146 million bases and encodes about 800 genes. Translocation of portions of chromosome 8 with amplifications of the c-Myc gene are found in some leukemias and lymphomas, and are typically associated with a poor prognosis. Portions of chromosome 8 have been linked to schizophrenia and bipolar disorder. Chromosome 8 is also associated with Pfeiffer syndrome, congenital hypothyroidism and Waardenburg syndrome.

REFERENCES

1. Wildenauer, D.B. and Schwab, S.G. 1999. Chromosomes 8 and 10 workshop. *Am. J. Med. Genet.* 88: 239-243.
2. Kashino, G., Kodama, S., Suzuki, K., Oshimura, M. and Watanabe, M. 2001. Preferential expression of an intact WRN gene in Werner syndrome cell lines in which a normal chromosome 8 has been introduced. *Biochem. Biophys. Res. Commun.* 289: 111-115.
3. Selicorni, A., Gueneri, S., Ratti, A. and Pizzuti, A. 2002. Cytogenetic mapping of a novel locus for type II Waardenburg syndrome. *Hum. Genet.* 110: 64-67.
4. Nusbaum, C., Mikkelsen, T.S., Zody, M.C., Asakawa, S., Taudien, S., Garber, M., Kodira, C.D., Schueler, M.G., Shimizu, A., Whittaker, C.A., Chang, J.L., Cuomo, C.A., Dewar, K., Fitzgerald, M.G., Yang, X., Allen, N.R., et al. 2006. DNA sequence and analysis of human chromosome 8. *Nature* 439: 331-335.
5. Angers, M., Uldry, M., Kong, D., Gimble, J.M. and Jetten, A.M. 2008. MFSD2a encodes a novel major facilitator superfamily domain-containing protein highly induced in brown adipose tissue during fasting and adaptive thermogenesis. *Biochem. J.* 416: 347-355.
6. Fluman, N. and Bibi, E. 2009. Bacterial multidrug transport through the lens of the major facilitator superfamily. *Biochim. Biophys. Acta* 1794: 738-747.
7. Sigal, N., Fluman, N., Siemion, S. and Bibi, E. 2009. The secondary multidrug/proton antiporter MdfA tolerates displacements of an essential negatively charged side chain. *J. Biol. Chem.* 284: 6966-6971.

CHROMOSOMAL LOCATION

Genetic locus: *Mfsd3* (mouse) mapping to 15 D3.

PRODUCT

MFSD3 siRNA (m) is a target-specific 19-25 nt siRNA 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 MFSD3 shRNA Plasmid (m): sc-149408-SH and MFSD3 shRNA (m) Lentiviral Particles: sc-149408-V as alternate gene silencing 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

MFSD3 siRNA (m) is recommended for the inhibition of MFSD3 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 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 MFSD3 gene expression knockdown using RT-PCR Primer: MFSD3 (m)-PR: sc-149408-PR (20 μ l). 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.

PROTOCOLS

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