SANTA CRUZ BIOTECHNOLOGY, INC.

MTHFSD siRNA (h): sc-75840

BACKGROUND

MTHFSD (methenyltetrahydrofolate synthetase domain-containing protein) is a 383 amino acid protein that contains one RRM (RNA recognition motif) domain, which suggests that MTHFSD functions as a RNA-binding protein. The RRM domain consists of four strands and two helices arranged in an α/β sandwich. The gene encoding MTHFSD maps to human chromosome 16, which encodes over 900 genes and comprises nearly 3% of the human genome. The GAN gene is located on chromosome 16 and, with mutation, may lead to giant axonal neuropathy, a nervous system disorder characterized by increasing malfunction with growth. The rare disorder Rubinstein-Taybi syndrome is also associated with chromosome 16, as is Crohn's disease, which is a gastrointestinal inflammatory condition. There are two isoforms of MTHFSD that are produced as a result of alternative splicing events.

REFERENCES

1. Gilbert, F. 1999. Disease genes and chromosomes: disease maps of the human genome. Chromosome 16. Genet. Test. 3: 243-254.
2. Martin, J., Han, C., Gordon, L.A., Terry, A., Prabhakar, S., She, X., Xie, G., Hellsten, U., Chan, Y.M., Altherr, M., Couronne, O., Aerts, A., Bajorek, E., Black, S., Blumer, H., Branscomb, E., et al. 2004. The sequence and analysis of duplication-rich human chromosome 16. Nature 432: 988-994.
3. Maris, C., Dominguez, C. and Allain, F.H. 2005. The RNA recognition motif, a plastic RNA-binding platform to regulate post-transcriptional gene expression. FEBS J. 272: 2118-2131.
4. Clery, A., Blatter, M. and Allain, F.H. 2008. RNA recognition motifs: boring? Not quite. Curr. Opin. Struct. Biol. 18: 290-298.
5. Shaw-Smith, C. 2010. Genetic factors in esophageal atresia, tracheo-esophageal fistula and the VACTERL association: roles for FOXF1 and the 16q24.1 FOX transcription factor gene cluster, and review of the literature. Eur. J. Med. Genet. 53: 6-13.

CHROMOSOMAL LOCATION

Genetic locus: MTHFSD (human) mapping to 16q24.1.

PRODUCT

MTHFSD 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 MTHFSD shRNA Plasmid (h): sc-75840-SH and MTHFSD shRNA (h) Lentiviral Particles: sc-75840-V as alternate gene silencing products.

For independent verification of MTHFSD (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-75840A, sc-75840B and sc-75840C.

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

MTHFSD siRNA (h) is recommended for the inhibition of MTHFSD 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 MTHFSD gene expression knockdown using RT-PCR Primer: MTHFSD (h)-PR: sc-75840-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.