

MESDC2 siRNA (h): sc-90278

BACKGROUND

MESDC2 (mesoderm development candidate 2), also known as BOCA or MESD, is a 234 amino acid endoplasmic reticulum protein belonging to the MESD family. Considered a chaperone protein, MESDC2 specifically assists in folding β -propeller/EGF modules within the family of low-density lipoprotein receptors (LDLRs) through N- and C-terminal unstructured regions. MESDC2 modulates the Wnt pathway by chaperoning coreceptors LRP5 and LRP6 to the plasma membrane, and is essential for mesoderm induction and embryonic polarity. The gene encoding MESDC2 maps to human chromosome 15, which houses over 700 genes and comprises nearly 3% of the human genome. Angelman syndrome, Prader-Willi syndrome, Tay-Sachs disease and Marfan syndrome are all associated with defects in chromosome 15-localized genes.

REFERENCES

1. Nagase, T., Miyajima, N., Tanaka, A., Sazuka, T., Seki, N., Sato, S., Tabata, S., Ishikawa, K., Kawarabayashi, Y. and Kotani, H. 1995. Prediction of the coding sequences of unidentified human genes. III. The coding sequences of 40 new genes (KIAA0081-KIAA0120) deduced by analysis of cDNA clones from human cell line KG-1. *DNA Res.* 2: 37-43.
2. Wines, M.E., Lee, L., Katari, M.S., Zhang, L., DeRossi, C., Shi, Y., Perkins, S., Feldman, M., McCombie, W.R. and Holdener, B.C. 2001. Identification of mesoderm development (mesd) candidate genes by comparative mapping and genome sequence analysis. *Genomics* 72: 88-98.
3. Culi, J. and Mann, R.S. 2003. Boca, an endoplasmic reticulum protein required for wingless signaling and trafficking of LDL receptor family members in *Drosophila*. *Cell* 112: 343-354.
4. Hsieh, J.C., Lee, L., Zhang, L., Wefer, S., Brown, K., DeRossi, C., Wines, M.E., Rosenquist, T. and Holdener, B.C. 2003. Mesd encodes an LRP5/6 chaperone essential for specification of mouse embryonic polarity. *Cell* 112: 355-367.
5. Veltman, I.M., Vreede, L.A., Cheng, J., Looijenga, L.H., Janssen, B., Schoenmakers, E.F., Yeh, E.T. and van Kessel, A.G. 2005. Fusion of the SUMO/Sentrin-specific protease 1 gene SENP1 and the embryonic polarity-related mesoderm development gene MESDC2 in a patient with an infantile teratoma and a constitutional t(12;15)(q13;q25). *Hum. Mol. Genet.* 14: 1955-1963.
6. Li, Y., Lu, W., He, X. and Bu, G. 2006. Modulation of LRP6-mediated Wnt signaling by molecular chaperone Mesd. *FEBS Lett.* 580: 5423-5428.
7. Köhler, C., Andersen, O.M., Diehl, A., Krause, G., Schmieder, P. and Oschkinat, H. 2006. The solution structure of the core of mesoderm development (MESD), a chaperone for members of the LDLR-family. *J. Struct. Funct. Genomics* 7: 131-138.
8. Chen, J., Liu, C.C., Li, Q., Nowak, C., Bu, G. and Wang, J. 2011. Two structural and functional domains of MESD required for proper folding and trafficking of LRP5/6. *Structure* 19: 313-323.

CHROMOSOMAL LOCATION

Genetic locus: MESDC2 (human) mapping to 15q25.1.

PRODUCT

MESDC2 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 MESDC2 shRNA Plasmid (h): sc-90278-SH and MESDC2 shRNA (h) Lentiviral Particles: sc-90278-V as alternate gene silencing products.

For independent verification of MESDC2 (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-90278A, sc-90278B and sc-90278C.

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

MESDC2 siRNA (h) is recommended for the inhibition of MESDC2 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 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 MESDC2 gene expression knockdown using RT-PCR Primer: MESDC2 (h)-PR: sc-90278-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.