

DSCR 2 siRNA (h): sc-91490

BACKGROUND

An extra copy of chromosome 21, the smallest human autosome chromosome, results in Down syndrome. The Down syndrome critical region (DSCR) maps specifically to chromosome 21q22.2 and includes several genes which are likely associated with the pathogenesis of Down syndrome. DSCR 2 (down syndrome critical region protein 2), also known as Proteasome assembly chaperone 1, is a 288 amino acid protein that acts as a 20S proteasome-assembling chaperone and forms heterodimers with 20S proteasome precursors. Interestingly, DSCR 2 inhibits transcription of PPAR β and co-expression of these two proteins leads to the formation of DSCR 2 aggregates. With expression in adult colon, leukocytes, brain, testis and breast, DSCR 2 is localized to the endoplasmic reticulum and cytoplasm. There are two isoforms of DSCR 2 that exist as a result of alternative splicing events.

REFERENCES

1. Vidal-Taboada, J.M., Sanz, S., Egea, A., Scartezzini, P. and Oliva, R. 1998. Identification and characterization of a new gene from human chromosome 21 between markers D21S343 and D21S268 encoding a leucine-rich protein. *Biochem. Biophys. Res. Commun.* 250: 547-554.
2. Vidal-Taboada, J.M., Lu, A., Pique, M., Pons, G., Gil, J. and Oliva, R. 2000. Down syndrome critical region gene 2: expression during mouse development and in human cell lines indicates a function related to cell proliferation. *Biochem. Biophys. Res. Commun.* 272: 156-163.
3. Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 605296. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>
4. Possik, P.A., Sommer, C.A., Issa Hori, J., Machado-Santelli, G.M., Jamur, M.C. and Henrique-Silva, F. 2004. DSCR2, a Down syndrome critical region protein, is localized to the endoplasmic reticulum of mammalian cells. *Eur. J. Histochem.* 48: 267-272.
5. Vesa, J., Brown, Y., Greenfield, D. and Korenberg, J.R. 2005. Molecular and cellular characterization of the Down syndrome critical region protein 2. *Biochem. Biophys. Res. Commun.* 328: 235-242.
6. Hirano, Y., Hendil, K.B., Yashiroda, H., Iemura, S., Nagane, R., Hioki, Y., Natsume, T., Tanaka, K. and Murata, S. 2005. A heterodimeric complex that promotes the assembly of mammalian 20S proteasomes. *Nature* 437: 1381-1385.
7. Le Tallec, B., Barrault, M.B., Courbeyrette, R., Guerois, R., Marsolier-Kergoat, M.C. and Peyroche, A. 2007. 20S proteasome assembly is orchestrated by two distinct pairs of chaperones in yeast and in mammals. *Mol. Cell* 27: 660-674.
8. Einfeld, S., Götz, J. and Holsinger, R.M. 2008. Pathogenetic mechanisms in Down syndrome. *J. Intellect. Disabil. Res.* 52: 813.

CHROMOSOMAL LOCATION

Genetic locus: PSMG1 (human) mapping to 21q22.2.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

PRODUCT

DSCR 2 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 DSCR 2 shRNA Plasmid (h): sc-91490-SH and DSCR 2 shRNA (h) Lentiviral Particles: sc-91490-V as alternate gene silencing products.

For independent verification of DSCR 2 (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-91490A, sc-91490B and sc-91490C.

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

DSCR 2 siRNA (h) is recommended for the inhibition of DSCR 2 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 DSCR 2 gene expression knockdown using RT-PCR Primer: DSCR 2 (h)-PR: sc-91490-PR (20 μ l). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

PROTOCOLS

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