SANTA CRUZ BIOTECHNOLOGY, INC.

DES2 siRNA (h): sc-92300

BACKGROUND

DES2 (sphingolipid Δ(4)-desaturase/C4-hydroxylase DES2), also known as DEGS2, C14orf66 or degenerative spermatocyte homolog 2, is a 323 amino acid protein belonging to the fatty acid desaturase family and the DEGS subfamily. DES2, a bifunctional enzyme which acts as both a sphingolipid Δ(4)-desaturase and a sphingolipid C4-hydroxylase, is involved in membrane lipid metabolism and sphingolipid biosynthesis. DES2 is up-regulated during keratinocyte differentiation. Not expressed at day 0 or day 3 after differentiation, DES2 is detectable by day 6 and has increased expression by day 9. Localized to the endoplasmic reticulum membrane, DES2 is highly expressed in skin, intestine and kidney.

REFERENCES

1. Simons, K. and Ikonen, E. 1997. Functional rafts in cell membranes. Nature 387: 569-572.
2. Sperling, P., Ternes, P., Moll, H., Franke, S., Zähringer, U. and Heinz, E. 2001. Functional characterization of sphingolipid C4-hydroxylase genes from *Arabidopsis thaliana*. FEBS Lett. 494: 90-94.
3. Ternes, P., Franke, S., Zähringer, U., Sperling, P. and Heinz, E. 2002. Identification and characterization of a sphingolipid Δ4-desaturase family. J. Biol. Chem. 277: 25512-25518.
4. Omae, F., Miyazaki, M., Enomoto, A., Suzuki, M., Suzuki, Y. and Suzuki, A. 2004. DES2 protein is responsible for phytoceramide biosynthesis in the mouse small intestine. Biochem. J. 379: 687-695.
5. Mizutani, Y., Kihara, A. and Igarashi, Y. 2004. Identification of the human sphingolipid C4-hydroxylase, hDES2, and its up-regulation during keratinocyte differentiation. FEBS Lett. 563: 93-97.
6. Omae, F., Miyazaki, M., Enomoto, A. and Suzuki, A. 2004. Identification of an essential sequence for dihydroceramide C-4 hydroxylase activity of mouse DES2. FEBS Lett. 576: 63-67.
7. Online Mendelian Inheritance in Man, OMIM™. 2007. Johns Hopkins University, Baltimore, MD. MIM Number: 610862. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/610862

CHROMOSOMAL LOCATION

Genetic locus: DEGS2 (human) mapping to 14q32.2.

PRODUCT

DES2 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 DES2 shRNA Plasmid (h): sc-92300-SH and DES2 shRNA (h) Lentiviral Particles: sc-92300-V as alternate gene silencing products.

For independent verification of DES2 (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-92300A, sc-92300B and sc-92300C.

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

DES2 siRNA (h) is recommended for the inhibition of DES2 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 DES2 gene expression knockdown using RT-PCR Primer: DES2 (h)-PR: sc-92300-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.

PROTOCOLS

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