SANTA CRUZ BIOTECHNOLOGY, INC.

SID-2 siRNA (m): sc-72283

BACKGROUND

SID-1 and SID-2 belong to the systemic RNA interference defective-1 (SID1) family of transmembrane proteins. SID-1, originally identified in *C. elegans*, is an 827 amino acid long protein. It localizes to the cell membrane and contains 11 transmembrane domains. This suggests that SID-1 possibly functions as a channel protein. The overexpression of SID-1 enhances double stranded RNA (dsRNA) uptake in pancreatic ductal adenocarcinoma cells. SID-2, also first identified in *C. elegans*, is an 832 amino acid long protein with multiple transmembrane domains. At least two isoforms exist for SID-2 due to alternative splicing. Isoform 2 contains an additional 21 amino acids after residue 387 and has an alternate sequence that is eight amino acids shorter for residues 814 to 832 of isoform 1.

REFERENCES

1. Winston, W.M., et al. 2002. Systemic RNAi in *C. elegans* requires the putative transmembrane protein SID-1. Science 295: 2456-2459.
2. Feinberg, E.H. and Hunter, C.P. 2003. Transport of dsRNA into cells by the transmembrane protein SID-1. Science 301: 1545-1547.
3. Duxbury, M.S., et al. 2005. RNA interference: a mammalian SID-1 homologue enhances siRNA uptake and gene silencing efficacy in human cells. Biochem. Biophys. Res. Commun. 331: 459-463.
4. Kim, J.K., et al. 2005. Functional genomic analysis of RNA interference in *C. elegans*. Science 308: 1164-1167.
5. Tokue, I., et al. 2005. Vibrational energies for the X1A1, A1B1, and B1A1 states of SiH2/SID-2 and related transition probabilities based on global potential energy surfaces. J. Chem. Phys. 122: 144307.
6. Tsang, S.Y., et al. 2007. Ectopic expression of systemic RNA interference defective protein in embryonic stem cells. Biochem. Biophys. Res. Commun. 357: 480-486.
7. Winston, W.M., et al. 2007. *Caenorhabditis elegans* SID-2 is required for environmental RNA interference. Proc. Natl. Acad. Sci. USA 104: 10565-10570.

CHROMOSOMAL LOCATION

Genetic locus: Sidt2 (mouse) mapping to 9 A5.2.

PRODUCT

SID-2 siRNA (m) 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 SID-2 shRNA Plasmid (m): sc-72283-SH and SID-2 shRNA (m) Lentiviral Particles: sc-72283-V as alternate gene silencing products.

For independent verification of SID-2 (m) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-72283A, sc-72283B and sc-72283C.

RESEARCH USE

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

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

SID-2 siRNA (m) is recommended for the inhibition of SID-2 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 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 SID-2 gene expression knockdown using RT-PCR Primer: SID-2 (m)-PR: sc-72283-PR (20 µl). 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.