SANTA CRUZ BIOTECHNOLOGY, INC.

SID-1 siRNA (m): sc-72281

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 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 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 8 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/SiD2 and related transition probabilities based on global potential energy surfaces. J. Chem. Phys. 122: 144307-144307.
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.
8. Hunter, C.P., et al. 2007. Systemic RNAi in *Caenorhabditis elegans*. Cold Spring Harb. Symp. Quant. Biol. 71: 95-100.

CHROMOSOMAL LOCATION

Genetic locus: Sidt1 (mouse) mapping to 16 B4.

PRODUCT

SID-1 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-1 shRNA Plasmid (m): sc-72281-SH and SID-1 shRNA (m) Lentiviral Particles: sc-72281-V as alternate gene silencing products.

For independent verification of SID-1 (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-72281A, sc-72281B and sc-72281C.

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-1 siRNA (m) is recommended for the inhibition of SID-1 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.

GENE EXPRESSION MONITORING

SID-1 (F-12): sc-390015 is recommended as a control antibody for monitoring of SID-1 gene expression knockdown by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) or immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-mouse IgG-HRP: sc-2005 (dilution range: 1:2000-1:32,000) or Cruz Marker™ compatible goat anti-mouse IgG-HRP: sc-2031 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use goat anti-mouse IgG-FITC: sc-2010 (dilution range: 1:100-1:400) or goat anti-mouse IgG-TR: sc-2781 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor SID-1 gene expression knockdown using RT-PCR Primer: SID-1 (m)-PR: sc-72281-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.