SANTA CRUZ BIOTECHNOLOGY, INC.

Dim1 siRNA (h): sc-77145

BACKGROUND

The Dim protein family consists of two classes, Dim1 and Dim2, which share a common thioredoxin-like fold, but most likely function in different biological pathways. Dim1, also known as TXNL4A (thioredoxin-like protein 4A) or Spliceosomal U5 snRNP-specific 15 kDa protein, is a 142 amino acid protein that plays an essential role in pre-mRNA splicing. Due to a failure to express early zygotic transcripts, deletion of the gene encoding Dim1 in *Schizosaccharomyces pombe* leads to embryonal lethality during gastrulation. Since Dim1 shows sensitivity to a microtubule destabilizing drug, thiabendazole, it also may play a role in the formation of the mitotic spindle. This evidence demonstrates that Dim1 is essential for G_2/M progression of the cell cycle and chromosomal segregation during mitosis. Localized to the nucleus, Dim1 interacts with hnRNP F, hnRNP H2, Cas-L and PQBP-1 to effect gene expression.

REFERENCES

1. Berry, L.D. and Gould, K.L. 1997. Fission yeast Dim1$^+$ encodes a functionally conserved polypeptide essential for mitosis. J. Cell Biol. 137: 1337-1354.
2. Reuter, K., et al. 1999. Identification, characterization and crystal structure analysis of the human spliceosomal U5 snRNP-specific 15 kD protein. J. Mol. Biol. 294: 515-525.
3. Zhang, Y.Z., et al. 1999. The evolutionarily conserved Dim1 protein defines a novel branch of the thioredoxin fold superfamily. Physiol. Genomics 1: 109-118.
4. Zhang, Y., et al. 2000. Evidence that Dim1 associates with proteins involved in pre-mRNA splicing, and delineation of residues essential for Dim1 interactions with hnRNP F and Npw38/PQBP-1. Gene 257: 33-43.
5. Zhang, Y.Z., et al. 2003. Structure, stability, and function of hDim1 investigated by NMR, circular dichroism, and mutational analysis. Biochemistry 42: 9609-9618.
6. Carnahan, R.H., et al. 2005. Dim1p is required for efficient splicing and export of mRNA encoding lid1p, a component of the fission yeast anaphase-promoting complex. Eukaryot. Cell 4: 577-587.
7. Simeoni, F. and Divita, G. 2007. The Dim protein family: from structure to splicing. Cell. Mol. Life Sci. 64: 2079-2089.

CHROMOSOMAL LOCATION

Genetic locus: TXNL4A (human) mapping to 18q23.

PRODUCT

Dim1 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 Dim1 shRNA Plasmid (h): sc-77145-SH and Dim1 shRNA (h) Lentiviral Particles: sc-77145-V as alternate gene silencing products.

For independent verification of Dim1 (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-77145A, sc-77145B and sc-77145C.

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

Dim1 siRNA (h) is recommended for the inhibition of Dim1 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.

GENE EXPRESSION MONITORING

Dim1 (B-11): sc-514093 is recommended as a control antibody for monitoring of Dim1 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 reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor Dim1 gene expression knockdown using RT-PCR Primer: Dim1 (h)-PR: sc-77145-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.