SANTA CRUZ BIOTECHNOLOGY, INC.

Dim1 (B-9): sc-390839

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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; Txnl4a (mouse) mapping to 18 E3.

SOURCE

Dim1 (B-9) is a mouse monoclonal antibody raised against amino acids 1-142 representing full length Dim1 of human origin.

PRODUCT

Each vial contains 200 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

Dim1 (B-9) is recommended for detection of Dim1 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Dim1 (B-9) is also recommended for detection of Dim1 in additional species, including equine, canine, bovine, porcine and avian.

Suitable for use as control antibody for Dim1 siRNA (h): sc-77145, Dim1 siRNA (m): sc-143039, Dim1 shRNA Plasmid (h): sc-77145-SH, Dim1 shRNA Plasmid (m): sc-143039-SH, Dim1 shRNA (h) Lentiviral Particles: sc-77145-V and Dim1 shRNA (m) Lentiviral Particles: sc-143039-V.

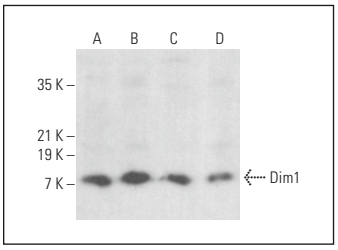
Molecular Weight of Dim1: 15 kDa.

Positive Controls: F9 cell lysate: sc-2245, HeLa nuclear extract: sc-2120 or NIH/3T3 nuclear extract: sc-2138.

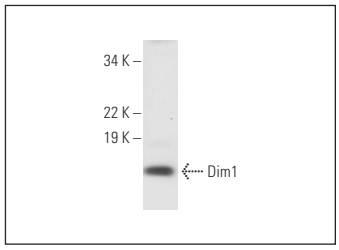
RECOMMENDED SUPPORT REAGENTS

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) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) 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.

DATA



Dim1 (B-9): sc-390839. Western blot analysis of Dim1 expression in Jurkat (**A**), HeLa (**B**) and NIH/3T3 (**C**) nuclear extracts and F9 whole cell lysate (**D**).



Dim1 (B-9): sc-390839. Western blot analysis of Dim1 expression in Hep G2 nuclear extract.

STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

RESEARCH USE

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