SANTA CRUZ BIOTECHNOLOGY, INC.

NIPBL siRNA (h): sc-75921

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The Power to Question

BACKGROUND

NIPBL (Nipped-B-like protein), also known as IDN3, Delangin or CDLS, is a 2,804 amino acid nuclear protein that is the mammalian homolog of the *Drosophila* Nipped-B gene product, a protein that plays a role in developmental regulation by facilitating the communication between promoters and transcriptional enhancers. Widely expressed with particularly high levels present in skeletal muscle, heart, liver and kidney, NIPBL contains five HEAT repeats and interacts with HP1α, possibly playing a role in sister chromatid adhesion and in the maintenance of proper chromatin structure. NIPBL exists as three isoforms and is subject to DNA damage-dependent phosphorylation, probably by ATM or ATR. Mutations in the gene encoding NIPBL are the cause of Cornelia de Lange syndrome type 1 (CDLS1), a developmental disorder that is characterized by facial dysmorphisms, abnormal hands and feet, growth delay, cognitive retardation and various other malformations, including gastroesophageal dysfunction and cardiac, ophthalmologic and genitourinary anomalies.

REFERENCES

1. Krantz, I.D., et al. 2001. Exclusion of linkage to the CDL1 gene region on chromosome 3q26.3 in some familial cases of Cornelia de Lange syndrome. Am. J. Med. Genet. 101: 120-129.
2. Gillis, L.A., et al. 2004. NIPBL mutational analysis in 120 individuals with Cornelia de Lange syndrome and evaluation of genotype-phenotype correlations. Am. J. Hum. Genet. 75: 610-623.
3. Borck, G., et al. 2004. NIPBL mutations and genetic heterogeneity in Cornelia de Lange syndrome. J. Med. Genet. 41: e128.
4. Rollins, R.A., et al. 2004. *Drosophila* nipped-B protein supports sister chromatid cohesion and opposes the stromalin/Scc3 cohesion factor to facilitate long-range activation of the cut gene. Mol. Cell. Biol. 24: 3100-3111.
5. Krantz, I.D., et al. 2004. Cornelia de Lange syndrome is caused by mutations in NIPBL, the human homolog of *Drosophila melanogaster* Nipped-B. Nat. Genet. 36: 631-635.
6. Tonkin, E.T., et al. 2004. NIPBL, encoding a homolog of fungal Scc2-type sister chromatid cohesion proteins and fly Nipped-B, is mutated in Cornelia de Lange syndrome. Nat. Genet. 36: 636-641.

CHROMOSOMAL LOCATION

Genetic locus: NIPBL (human) mapping to 5p13.2.

PRODUCT

NIPBL 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 NIPBL shRNA Plasmid (h): sc-75921-SH and NIPBL shRNA (h) Lentiviral Particles: sc-75921-V as alternate gene silencing products.

For independent verification of NIPBL (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-75921A, sc-75921B and sc-75921C.

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

NIPBL siRNA (h) is recommended for the inhibition of NIPBL 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

NIPBL (C-9): sc-374625 is recommended as a control antibody for monitoring of NIPBL 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 NIPBL gene expression knockdown using RT-PCR Primer: NIPBL (h)-PR: sc-75921-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.