SANTA CRUZ BIOTECHNOLOGY, INC.

Lamin B1 siRNA (h): sc-29386

BACKGROUND

A unique family of cysteine proteases has been described that differs in sequence, structure and substrate specificity from any previously described protease family. This family, termed Ced-3/ICE, function as key components of the apoptotic machinery and act to destroy specific target proteins which are critical to cellular longevity. Nuclear Lamins are critical to maintaining the integrity of the nuclear envelope and cellular morphology as components of the nuclear lamina, a fibrous layer on the nucleoplasmic side of the inner nuclear membrane which is thought to provide a framework for the nuclear envelope and may also interact with chromatin. B-type Lamins, such as Lamin B1, undergo a series of modifications, such as farnesylation and phosphorylation. Lamin B1 is a 586 amino acid protein that is encoded by a gene which, when mutated, is involved in the pathogenesis of autosomal dominant adult-onset leukodystrophy (ADLD), a disease characterized by cerebellar dysfunction and symmetric demyelination of the central nervous system.

REFERENCES

1. Moir, R.D., et al. 1995. The dynamic properties and possible functions of nuclear Lamins. Int. Rev. Cytol. 162B: 141-182.
2. Duan, H., et al. 1996. ICE-LAP3, a novel mammalian homologue of the *Caenorhabditis elegans* cell death protein Ced-3 is activated during FAS- and tumor necrosis factor-induced apoptosis. J. Biol. Chem. 271: 1621-1625.
3. Duan, H., et al. 1996. ICE-LAP6, a novel member of the ICE/Ced-3 gene family, is activated by the cytotoxic T cell protease granzyme B. J. Biol. Chem. 271: 16720-16724.
4. Fernandes-Alnemri, T.F., et al. 1996. *In vitro* activation of CPP32 and MCH-3 by MCH-4, a novel human apoptotic cysteine protease containing two FADD-like domains. Proc. Natl. Acad. Sci. USA 93: 7464-7469.

CHROMOSOMAL LOCATION

Genetic locus: LMNB1 (human) mapping to 5q23.2.

PRODUCT

Lamin B1 siRNA (h) is a target-specific 19-25 nt siRNA 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 Lamin B1 shRNA Plasmid (h): sc-29386-SH and Lamin B1 shRNA (h) Lentiviral Particles: sc-29386-V as alternate gene silencing products.

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

Lamin B1 siRNA (h) is recommended for the inhibition of Lamin B1 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.

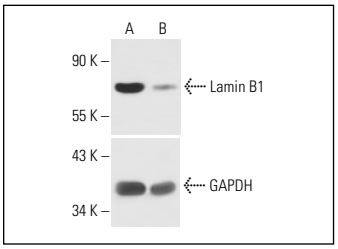
GENE EXPRESSION MONITORING

Lamin B1 (A-11): sc-377000 is recommended as a control antibody for monitoring of Lamin B1 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).

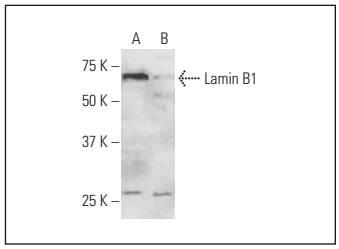
RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor Lamin B1 gene expression knockdown using RT-PCR Primer: Lamin B1 (h)-PR: sc-29386-PR (20 µl, 425 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

DATA



Lamin B1 siRNA (h): sc-29386. Western blot analysis of Lamin B1 expression in non-transfected control (**A**) and Lamin B1 siRNA transfected (**B**) Jurkat cells. Blot probed with Lamin B (C-20): sc-6216. GAPDH (FL-335): sc-25778 used as specificity and loading control.



Lamin B1 siRNA (h): sc-29386. Western blot analysis of Lamin B1 expression in non-transfected control (**A**) and Lamin B1 siRNA transfected (**B**) HeLa cells. Blot probed with Lamin B (M-20): sc-6217.

SELECT PRODUCT CITATIONS

1. Tang, C.W., et al. 2008. The integrity of a Lamin-B1-dependent nucleoskeleton is a fundamental determinant of RNA synthesis in human cells. J. Cell Sci. 121: 1014-1024.

RESEARCH USE

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