SANTA CRUZ BIOTECHNOLOGY, INC.

Lamin B receptor siRNA (h): sc-88544

BACKGROUND

Lamin B receptor, also known as LMN2R or LBR, is a 615 amino acid multi-pass membrane protein that localizes to the membrane of the nuclear envelope and belongs to the ERG4/ERG24 family. Interacting directly with HP1α, Lamin B receptor functions to anchor heterochromatin and lamina to the inner nuclear membrane and may also mediate interactions between Lamin B and chromatin. Posttranslational phosphorylation of Lamin B receptor is thought to determine the cell cycle phase during which Lamin B receptor exerts its regulatory effects. Defects in the gene encoding Lamin B receptor are a cause of Pelger-Huet anomaly (PHA) and hydrops-ectopic calcification-moth-eaten skeletal dysplasia (HEM), known more commonly as Greenberg skeletal dysplasia. While PHA is an autosomal dominant disorder characterized by developmental delay, epilepsy and skeletal abnormalities, Lamin B receptor is an autosomal recessive disorder characterized by fetal hydrops and short-limbed dwarfism.

REFERENCES

1. Duband-Goulet, I. and Courvalin, J.C. 2000. Inner nuclear membrane protein LBR preferentially interacts with DNA secondary structures and nucleosomal linker. Biochemistry 39: 6483-6488.
2. Hoffmann, K., et al. 2002. Mutations in the gene encoding the Lamin B receptor produce an altered nuclear morphology in granulocytes (Pelger-Huët anomaly). Nat. Genet. 31: 410-414.
3. Best, S., et al. 2003. Lamin B-receptor mutations in Pelger-Huët anomaly. Br. J. Haematol. 123: 542-544.
4. Shultz, L.D., et al. 2003. Mutations at the mouse ichthyosis locus are within the lamin B receptor gene: a single gene model for human Pelger-Huët anomaly. Hum. Mol. Genet. 12: 61-69.
5. Mylonis, I., et al. 2004. Temporal association of protamine 1 with the inner nuclear membrane protein Lamin B receptor during spermiogenesis. J. Biol. Chem. 279: 11626-11631.
6. Takano, M., et al. 2004. Regulation of binding of lamin B receptor to chromatin by SR protein kinase and Cdc2 kinase in *Xenopus* egg extracts. J. Biol. Chem. 279: 13265-13271.

CHROMOSOMAL LOCATION

Genetic locus: LBR (human) mapping to 1q42.12.

PRODUCT

Lamin B receptor 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 Lamin B receptor shRNA Plasmid (h): sc-88544-SH and Lamin B receptor shRNA (h) Lentiviral Particles: sc-88544-V as alternate gene silencing products.

For independent verification of Lamin B receptor (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-88544A, sc-88544B and sc-88544C.

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

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor Lamin B receptor gene expression knockdown using RT-PCR Primer: Lamin B receptor (h)-PR: sc-88544-PR (20 µl, 498 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Wesley, C.C., et al. 2023. Differentiation-dependent changes in Lamin B1 dynamics and Lamin B receptor localization. Mol. Biol. Cell 34: ar10.

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.