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LAP2 shRNA (h) Lentiviral Particles: sc-43386-V

BACKGROUND

The nuclear envelope separates the nucleoplasm from the cytoplasm in eukaryotic cells and includes the outer and inner nuclear membrane, nuclear pore complexes and the nuclear lamina. The nuclear lamina contains intermediate filament-type proteins called lamins that form a dense network to strengthen and stabilize the nuclear envelope. Lamina-associated polypeptide 2 (LAP2) is also known as thymopoietin. LAP2 is a nuclear envelope protein and contains an amino-terminal region called the LAP2-emerin-MAN1 or LEM motif. LAP2 also contains a unique DNA-binding amino-terminal domain. Alternative splicing produces six isoforms (α - γ) of mammalian LAP2 and three isoforms in *Xenopus* LAP2. LAP2 α and LAP2 β associate with chromosomal barrier-to-autointegration factor (BAF) and may play a role in stabilizing chromatin structure. LAP2 β also binds to lamin B. LAP2 α is a non-membrane isoform of LAP2 that associates with the internal nucleoskeleton and binds lamin A. The gene encoding human LAP2 maps to chromosome 12q23.1.

REFERENCES

1. Harris, C.A., et al. 1995. Structure and mapping of the human thymopoietin (TMPO) gene and relationship of human TMPO β to rat lamin-associated polypeptide 2. *Genomics* 28: 198-205.
2. Lin, F., et al. 2000. MAN1, an inner nuclear membrane protein that shares the LEM domain with lamina-associated polypeptide 2 and emerlin. *J. Biol. Chem.* 275: 4840-4847.
3. Dechat, T., et al. 2000. Review: lamina-associated polypeptide 2 isoforms and related proteins in cell cycle-dependent nuclear structure dynamics. *J. Struct. Biol.* 129: 335-345.
4. Dechat, T., et al. 2000. Lamina-associated polypeptide 2 α binds intranuclear A-type lamins. *J. Cell Sci.* 113: 3473-3484.
5. Cai, M., et al. 2001. Solution structure of the constant region of nuclear envelope protein LAP2 reveals two LEM-domain structures: one binds BAF and the other binds DNA. *EMBO J.* 20: 4399-4407.

CHROMOSOMAL LOCATION

Genetic locus: TMPO (human) mapping to 12q23.1.

PRODUCT

LAP2 shRNA (h) Lentiviral Particles is a pool of concentrated, transduction-ready viral particles containing 3 target-specific constructs that encode 19-25 nt (plus hairpin) shRNA designed to knock down gene expression. Each vial contains 200 μ l frozen stock containing 1.0×10^6 infectious units of virus (IFU) in Dulbecco's Modified Eagle's Medium with 25 mM HEPES pH 7.3. Suitable for 10-20 transductions. Also see LAP2 siRNA (h): sc-43386 and LAP2 shRNA Plasmid (h): sc-43386-SH as alternate gene silencing products.

STORAGE

Store lentiviral particles at -80°C . Stable for at least one year from the date of shipment. Once thawed, particles can be stored at 4°C for up to one week. Avoid repeated freeze thaw cycles.

APPLICATIONS

LAP2 shRNA (h) Lentiviral Particles is recommended for the inhibition of LAP2 expression in human cells.

SUPPORT REAGENTS

Control shRNA Lentiviral Particles: sc-108080. Available as 200 μ l frozen viral stock containing 1.0×10^6 infectious units of virus (IFU); contains an shRNA construct encoding a scrambled sequence that will not lead to the specific degradation of any known cellular mRNA.

GENE EXPRESSION MONITORING

LAP2 (Y-20): sc-19783 is recommended as a control antibody for monitoring of LAP2 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 (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker[™] compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker[™] Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz[™] Mounting Medium: sc-24941.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor LAP2 gene expression knockdown using RT-PCR Primer: LAP2 (h)-PR: sc-43386-PR (20 μ l, 524 bp). Annealing temperature for the primers should be $55-60^\circ\text{C}$ and the extension temperature should be $68-72^\circ\text{C}$.

BIOSAFETY

Lentiviral particles can be employed in standard Biosafety Level 2 tissue culture facilities (and should be treated with the same level of caution as with any other potentially infectious reagent). Lentiviral particles are replication-incompetent and are designed to self-inactivate after transduction and integration of shRNA constructs into genomic DNA of target cells.

RESEARCH USE

The purchase of this product conveys to the buyer the nontransferable right to use the purchased amount of the product and all replicates and derivatives for research purposes conducted by the buyer in his laboratory only (whether the buyer is an academic or for-profit entity). The buyer cannot sell or otherwise transfer (a) this product (b) its components or (c) materials made using this product or its components to a third party, or otherwise use this product or its components or materials made using this product or its components for Commercial Purposes.

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