

MRP-L12 siRNA (m): sc-149580

BACKGROUND

MRP-L12 (mitochondrial ribosomal protein L12), also referred to as 5c5-2, L12mt, MRPL7 or RPML12, is a mammalian mitochondrial ribosomal protein that is involved in protein synthesis within the mitochondrion. MRP-L12 is enhanced in growth-stimulated cells as a result of transcriptional activation, suggesting that it may function as a translational regulator of mitochondrial mRNAs. Impairment of MRP-L12 leads to reduction in cell growth rate, decreased mitochondrial ATP production and abolition of mitochondrial oxidative phosphorylation. MRP-L12 is cleaved during its translocation across the mitochondrial membrane and it exists as dimers that bind the large ribosomal subunit. MRP-L12 is 198 amino acids in length, belongs to the ribosomal protein L12P family and is highly expressed in the colon.

REFERENCES

1. Marty, L. and Fort, P. 1996. A delayed-early response nuclear gene encoding MRP-L12, the mitochondrial homologue to the bacterial translational regulator L7/L12 protein. *J. Biol. Chem.* 271: 11468-11476.
2. Marty, L., Taviaux, S. and Fort, P. 1997. Expression and human chromosomal localization to 17q25 of the growth-regulated gene encoding the mitochondrial ribosomal protein MRP-L12. *Genomics* 41: 453-457.
3. Johnson, D.F., Hamon, M. and Fischel-Ghodsian, N. 1998. Characterization of the human mitochondrial ribosomal S12 gene. *Genomics* 52: 363-368.
4. Online Mendelian Inheritance in Man, OMIM[™]. 1998. Johns Hopkins University, Baltimore, MD. MIM Number: 602375. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>
5. Frei, C., Galloni, M., Hafen, E. and Edgar, B.A. 2005. The *Drosophila* mitochondrial ribosomal protein mRpl12 is required for Cyclin D/Cdk4-driven growth. *EMBO J.* 24: 623-634.
6. Wang, Z., Cotney, J. and Shadel, G.S. 2007. Human mitochondrial ribosomal protein MRP-L12 interacts directly with mitochondrial RNA polymerase to modulate mitochondrial gene expression. *J. Biol. Chem.* 282: 12610-12618.
7. SWISS-PROT/TrEMBL (P52815). World Wide Web URL: <http://www.expasy.ch/sprot/sprot-top.html>

CHROMOSOMAL LOCATION

Genetic locus: Mrpl12 (mouse) mapping to 11 E2.

PRODUCT

MRP-L12 siRNA (m) 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see MRP-L12 shRNA Plasmid (m): sc-149580-SH and MRP-L12 shRNA (m) Lentiviral Particles: sc-149580-V as alternate gene silencing products.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support 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 μ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330 μ l of RNase-free water makes a 10 μ M solution in a 10 μ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

MRP-L12 siRNA (m) is recommended for the inhibition of MRP-L12 expression in mouse 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 μ M in 66 μ l. 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

MRP-L12 (397.1): sc-100839 is recommended as a control antibody for monitoring of MRP-L12 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-IgG κ BP-HRP: sc-516102 or m-IgG κ 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-IgG κ BP-FITC: sc-516140 or m-IgG κ 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 MRP-L12 gene expression knockdown using RT-PCR Primer: MRP-L12 (m)-PR: sc-149580-PR (20 μ l). 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.