

MRP-L51 siRNA (m): sc-149612

BACKGROUND

Mammalian mitochondrial ribosomes (mitoribosomes) are responsible for protein synthesis within the mitochondrion. The mitoribosomes are composed of a 4:1 ratio of protein to RNA, with the proteins forming two subunits, the 28S subunit and the 39S subunit. Across species, the proteins that make up the mitoribosome subunits vary greatly in sequence, preventing easy recognition by sequence homology. MRP-L51 (mitochondrial ribosomal protein L51), also known as CDA09, MRP64, bMRP64 or HSPC241, is a 128 amino acid mitochondrial ribosomal protein. MRP-L51 is a component of the mitochondrial ribosome large subunit (39S) which consists of a 16S rRNA and about 50 distinct proteins.

REFERENCES

1. Pietromonaco, S.F., Denslow, N.D. and O'Brien, T.W. 1991. Proteins of mammalian mitochondrial ribosomes. *Biochimie* 73: 827-835.
2. Graack, H.R. and Wittmann-Liebold, B. 1998. Mitochondrial ribosomal proteins (MRPs) of yeast. *Biochem. J.* 329 : 433-448.
3. Graack, H.R., Bryant, M.L. and O'Brien, T.W. 1999. Identification of mammalian mitochondrial ribosomal proteins (MRPs) by N-terminal sequencing of purified bovine MRPs and comparison to data bank sequences: the large subribosomal particle. *Biochemistry* 38: 16569-16577.
4. Suzuki, T., Terasaki, M., Takemoto-Hori, C., Hanada, T., Ueda, T., Wada, A. and Watanabe, K. 2001. Proteomic analysis of the mammalian mitochondrial ribosome. Identification of protein components in the 28S small subunit. *J. Biol. Chem.* 276: 33181-33195.
5. Koc, E.C., Burkhart, W., Blackburn, K., Moyer, M.B., Schlatzer, D.M., Moseley, A. and Spemulli, L.L. 2001. The large subunit of the mammalian mitochondrial ribosome. Analysis of the complement of ribosomal proteins present. *J. Biol. Chem.* 276: 43958-43969.
6. Gan, X., Kitakawa, M., Yoshino, K., Oshiro, N., Yonezawa, K. and Isono, K. 2002. Tag-mediated isolation of yeast mitochondrial ribosome and mass spectrometric identification of its new components. *Eur. J. Biochem.* 269: 5203-5214.
7. O'Brien, T.W. 2003. Properties of human mitochondrial ribosomes. *IUBMB Life* 55: 505-513.
8. 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.
9. Smith, T.F., Lee, J.C., Gutell, R.R. and Hartman, H. 2008. The origin and evolution of the ribosome. *Biol. Direct.* 3: 16.

CHROMOSOMAL LOCATION

Genetic locus: Mrpl51 (mouse) mapping to 6 F3.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.

PRODUCT

MRP-L51 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-L51 shRNA Plasmid (m): sc-149612-SH and MRP-L51 shRNA (m) Lentiviral Particles: sc-149612-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 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-L51 siRNA (m) is recommended for the inhibition of MRP-L51 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor MRP-L51 gene expression knockdown using RT-PCR Primer: MRP-L51 (m)-PR: sc-149612-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.