

MRP-L36 siRNA (m): sc-149598

BACKGROUND

Mitochondrial ribosomes consist of a large 39S subunit and a small 28S subunit, both of which are comprised of multiple mitochondrial ribosomal proteins (MRPs) that are encoded by nuclear genes and are essential for protein synthesis within mitochondria. MRP-L36 (mitochondrial ribosomal protein L36), also known as BRIP1 (BRCA1-interacting protein 1), is a 103 amino acid protein that localizes to the mitochondrion, where it exists as a component of the 39S ribosomal subunit and works in conjunction with other MRPs to mediate protein synthesis. Overexpression of MRP-L36 seems to increase efficiency of mitochondrial translation. Association between LETM1 and MRP-L36 contributes to the regulation of mitochondrial ATP production and necrotic cell death. The gene encoding MRP-L36 maps to human chromosome 5, which contains 181 million base pairs and comprises nearly 6% of the human genome.

REFERENCES

1. Graack, H.R. and Wittmann-Liebold, B. 1998. Mitochondrial ribosomal proteins (MRPs) of yeast. *Biochem. J.* 329: 433-448.
2. Kenmochi, N., Suzuki, T., Uechi, T., Magoori, M., Kuniba, M., Higa, S., Watanabe, K. and Tanaka, T. 2001. The human mitochondrial ribosomal protein genes: mapping of 54 genes to the chromosomes and implications for human disorders. *Genomics* 77: 65-70.
3. Suzuki, T., Terasaki, M., Takemoto-Hori, C., Hanada, T., Ueda, T., Wada, A. and Watanabe, K. 2001. Structural compensation for the deficit of rRNA with proteins in the mammalian mitochondrial ribosome. Systematic analysis of protein components of the large ribosomal subunit from mammalian mitochondria. *J. Biol. Chem.* 276: 21724-21736.
4. Zhang, Z. and Gerstein, M. 2003. Identification and characterization of over 100 mitochondrial ribosomal protein pseudogenes in the human genome. *Genomics* 81: 468-480.
5. Williams, E.H., Perez-Martinez, X. and Fox, T.D. 2004. MrpL36p, a highly diverged L31 ribosomal protein homolog with additional functional domains in *Saccharomyces cerevisiae* mitochondria. *Genetics* 167: 65-75.
6. O'Brien, T.W., O'Brien, B.J. and Norman, R.A. 2005. Nuclear MRP genes and mitochondrial disease. *Gene* 354: 147-151.
7. Online Mendelian Inheritance in Man, OMIM[™]. 2008. Johns Hopkins University, Baltimore, MD. MIM Number: 611842. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>
8. Piao, L., Li, Y., Kim, S.J., Byun, H.S., Huang, S.M., Hwang, S.K., Yang, K.J., Park, K.A., Won, M., Hong, J., Hur, G.M., Seok, J.H., Shong, M., Cho, M.H., Brazil, D.P., Hemmings, B.A. and Park, J. 2009. Association of LETM1 and MRPL36 contributes to the regulation of mitochondrial ATP production and necrotic cell death. *Cancer Res.* 69: 3397-3404.
9. Prestele, M., Vogel, F., Reichert, A.S., Herrmann, J.M. and Ott, M. 2009. MRP-L36 is important for generation of assembly competent proteins during mitochondrial translation. *Mol. Biol. Cell* 20: 2615-2625.

CHROMOSOMAL LOCATION

Genetic locus: MrpL36 (mouse) mapping to 13 C1.

PRODUCT

MRP-L36 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-L36 shRNA Plasmid (m): sc-149598-SH and MRP-L36 shRNA (m) Lentiviral Particles: sc-149598-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-L36 siRNA (m) is recommended for the inhibition of MRP-L36 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-L36 gene expression knockdown using RT-PCR Primer: MRP-L36 (m)-PR: sc-149598-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.

PROTOCOLS

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