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SANTA CRUZ BIOTECHNOLOGY, INC.

MRP-L22 siRNA (m): sc-149590

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 2 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-L22 (mitochondrial ribosomal protein L22), also known as L22mt, RPML25, HSPC158 or MRP-L25, is a 206 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. Belonging to the ribosomal protein L22P family, MRP-L22 is encoded by a gene located on human chromosome 5, which contains 181 million base pairs and comprises nearly 6% of the human genome.

REFERENCES

1. Graack, H.R., et al. 1998. Mitochondrial ribosomal proteins (MRPs) of yeast. Biochem. J. 329: 433-448.
2. Kenmochi, N., et al. 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., et al. 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. Gan, X., et al. 2002. Tag-mediated isolation of yeast mitochondrial ribosome and mass spectrometric identification of its new components. Eur. J. Biochem. 269: 5203-5214.
5. Gerhard, D.S., et al. 2004. The status, quality, and expansion of the NIH full-length cDNA project: the Mammalian Gene Collection (MGC). Genome Res. 14: 2121-2127.
6. Hillier, L.W., et al. 2005. Generation and annotation of the DNA sequences of human chromosomes 2 and 4. Nature 434: 724-731.
7. O'Brien, T.W., et al. 2005. Nuclear MRP genes and mitochondrial disease. Gene 354: 147-151.

CHROMOSOMAL LOCATION

Genetic locus: Mrpl22 (mouse) mapping to 11 B1.3.

PRODUCT

MRP-L22 siRNA (m) is a pool of 2 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 MRP-L22 shRNA Plasmid (m): sc-149590-SH and MRP-L22 shRNA (m) Lentiviral Particles: sc-149590-V as alternate gene silencing products.

For independent verification of MRP-L22 (m) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-149590A and sc-149590B.

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

MRP-L22 siRNA (m) is recommended for the inhibition of MRP-L22 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 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 MRP-L22 gene expression knockdown using RT-PCR Primer: MRP-L22 (m)-PR: sc-149590-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

PROTOCOLS

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