SANTA CRUZ BIOTECHNOLOGY, INC.

MRRF siRNA (h): sc-92847

BACKGROUND

The termination of protein synthesis is carried out by a variety of auxiliary factors that ensure the proper release of newly formed proteins. Once translation is complete, mRNA and P-site deacylated tRNA remain attached to the ribosome in a post-termination complex (post-TC) that must be dissociated and recycled in order for another round of translation to take place. MRRF (mitochondrial ribosome recycling factor), also known as RRF, MRFF or MTRRF, is a 262 amino acid protein that belongs to the RRF (ribosome recycling factor) family. Localized to mitochondria, MRRF is required for the release of ribosomes from mRNA at the end of protein biosynthesis. Via its ability to recycle ribosomes throughout translation, MRRF may actually increase overall translational efficiency, thereby playing an important role in the rate of protein synthesis. Multiple isoforms of MRRF are expressed due to alternative splicing events.

REFERENCES

1. Zhang, Y. and Spremulli, L.L. 1998. Identification and cloning of human mitochondrial translational release factor 1 and the ribosome recycling factor. Biochim. Biophys. Acta 1443: 245-250.
2. Hansen, L.L., et al. 2000. Assignment of the human mitochondrial translational release factor 1 (MTRF1) to chromosome 13q14.1→q14.3 and of the human mitochondrial ribosome recycling factor (MRRF) to chromosome 9q32→q34.1 with radiation hybrid mapping. Cytogenet. Cell Genet. 88: 91-92.
3. Online Mendelian Inheritance in Man, OMIM™. 2001. Johns Hopkins University, Baltimore, MD. MIM Number: 604602. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
4. Hirokawa, G., et al. 2002. Binding of ribosome recycling factor to ribosomes, comparison with tRNA. J. Biol. Chem. 277: 35847-35852.
5. Hirokawa, G., et al. 2005. The role of ribosome recycling factor in dissociation of 70S ribosomes into subunits. RNA 11: 1317-1328.
6. Pisarev, A.V., et al. 2007. Recycling of eukaryotic posttermination ribosomal complexes. Cell 131: 286-299.
7. Weixlbaumer, A., et al. 2007. Crystal structure of the ribosome recycling factor bound to the ribosome. Nat. Struct. Mol. Biol. 14: 733-737.

CHROMOSOMAL LOCATION

Genetic locus: MRRF (human) mapping to 9q33.2.

PRODUCT

MRRF siRNA (h) is a pool of 3 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 MRRF shRNA Plasmid (h): sc-92847-SH and MRRF shRNA (h) Lentiviral Particles: sc-92847-V as alternate gene silencing products.

For independent verification of MRRF (h) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-92847A, sc-92847B and sc-92847C.

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

MRRF siRNA (h) is recommended for the inhibition of MRRF expression in human 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.

GENE EXPRESSION MONITORING

MRRF (J-Q7): sc-100969 is recommended as a control antibody for monitoring of MRRF 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-IgGκ BP-HRP: sc-516102 or m-IgGκ 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-IgGκ BP-FITC: sc-516140 or m-IgGκ 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 MRRF gene expression knockdown using RT-PCR Primer: MRRF (h)-PR: sc-92847-PR (20 µl). 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.