SANTA CRUZ BIOTECHNOLOGY, INC.

mrnp41 siRNA (h): sc-75825

BACKGROUND

Mrnp41 (mRNA-binding protein, 41-KD), also known as Rae1 protein homolog and mRNA export factor, is a 368 amino acid protein that binds mRNA and is involved in nucleocytoplasmic transport. Though characterized in both the nucleus and cytoplasm, mrnp41 is primarily localized to the nuclear pore complex in the nuclear envelope. Mutations in mrnp41 may result in the accumulation of poly(A)-containing mRNA in the nucleus, further supporting the role of mrnp41 as a primary nuclear exporter of mRNA. Along with Nup98, mrnp41 has been shown to regulate E-cadherin, an activating subunit of the anaphase-promoting complex complex, which results in the prevention of securin degradation, therefore suggesting that mrnp41 may play a potential role in maintaining euploidy. Also, during mitosis, both mrnp41 and NuMA have been shown to be required for bipolar spindle formation.

REFERENCES

1. Bharathi, A., et al. 1997. The human Rae-1 gene is a functional homologue of *Schizosaccharomyces pombe* Rae-1 gene involved in nuclear export of Poly(A)+ RNA. Gene 198: 251-258.
2. Kraemer, D. and Blobel, G. 1997. mRNA binding protein mrnp 41 localizes to both nucleus and cytoplasm. Proc. Natl. Acad. Sci. USA 94: 9119-9124.
3. Kraemer, D., et al. 2001. Mrnp41 (Rae-1p) associates with microtubules in HeLa cells and in neurons. Eur. J. Cell Biol. 80: 733-740.
4. Zenklusen, D. and Stutz, F. 2001. Nuclear export of mRNA. FEBS Lett. 498: 150-156.
5. Jeganathan, K.B., et al. 2005. The Rae-1-Nup98 complex prevents aneuploidy by inhibiting securin degradation. Nature 438: 1036-1039.
6. Wong, R.W., et al. 2006. Rae-1 interaction with NuMA is required for bipolar spindle formation. Proc. Natl. Acad. Sci. USA 103: 19783-19787.
7. Baker, D.J., et al. 2007. Mitotic regulation of the anaphase-promoting complex. Cell. Mol. Life Sci. 64: 589-600.
8. Satterly, N., et al. 2007. Influenza virus targets the mRNA export machinery and the nuclear pore complex. Proc. Natl. Acad. Sci. USA 104: 1853-1858.

CHROMOSOMAL LOCATION

Genetic locus: RAE1 (human) mapping to 20q13.31.

PRODUCT

mrnp41 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 mrnp41 shRNA Plasmid (h): sc-75825-SH and mrnp41 shRNA (h) Lentiviral Particles: sc-75825-V as alternate gene silencing products.

For independent verification of mrnp41 (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-75825A, sc-75825B and sc-75825C.

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

mrnp41 siRNA (h) is recommended for the inhibition of mrnp41 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

mrnp41 (H-3): sc-393252 is recommended as a control antibody for monitoring of mrnp41 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 mrnp41 gene expression knockdown using RT-PCR Primer: mrnp41 (h)-PR: sc-75825-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.