SANTA CRUZ BIOTECHNOLOGY, INC.

Ribosomal Protein S2 siRNA (h): sc-93184

BACKGROUND

Ribosomal subunits are synthesized in the nucleus, and mature 40S and 60S subunits are exported stoichiometrically into the cytoplasm. Both 40S and 60S subunits are composed of 4 RNA species and approximately 80 structurally distinct proteins. Mitochondrial ribosomes consist of a small 28S subunit and a large 39S subunit. Ribosomal proteins have the ability to pass through the nuclear envelope in the native state, making them the largest of the structures accommodated by the nuclear pore complexes. The nuclear export of ribosomal subunits is a unidirectional, saturable and energy-dependent process. Ribosomal Protein S2 is part of the 40S subunit that mediates aminoacyl-transfer RNA binding to the ribosome, thereby affecting the fidelity of mRNA translation. Ribosomal Protein S2 is methylated by protein arginine methyltransferase 3 (PRMT3), which may inhibit ubiquitin-mediated proteolysis of Ribosomal Protein S2. Ribosomal Protein S2 expression has been shown to be elevated in human premalignant leukoplakia, head and neck squamous cell carcinomas and colon and breast cancers, making it a potentially useful diagnostic marker for some human tumors.

REFERENCES

1. Suzuki, K., et al. 1991. Primary structure of rat Ribosomal Protein S2. A ribosomal protein with arginine-glycine tandem repeats and RGGF motifs that are associated with nucleolar localization and binding to ribonucleic acids. J. Biol. Chem. 266: 20007-20010.
2. Chiao, P.J., et al. 1992. Elevated expression of the Ribosomal Protein S2 gene in human tumors. Mol. Carcinog. 5: 219-231.
3. Vladimirov, S.N., et al. 1996. Characterization of the human small-ribosomal-subunit proteins by N-terminal and internal sequencing, and mass spectrometry. Eur. J. Biochem. 239: 144-149.
4. Kenmochi, N., et al. 1998. A map of 75 human ribosomal protein genes. Genome Res. 8: 509-523.
5. Kowalczyk, P., et al. 2002. Increased expression of Ribosomal Protein S2 in liver tumors, posthepactomized livers, and proliferating hepatocytes *in vitro*. Acta Biochim. Pol. 49: 615-624.
6. Bachand, F. and Silver, P.A. 2004. PRMT3 is a ribosomal protein methyltransferase that affects the cellular levels of ribosomal subunits. EMBO J. 23: 2641-2650.

CHROMOSOMAL LOCATION

Genetic locus: RPS2 (human) mapping to 16p13.3.

PRODUCT

Ribosomal Protein S2 siRNA (h) 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 Ribosomal Protein S2 shRNA Plasmid (h): sc-93184-SH and Ribosomal Protein S2 shRNA (h) Lentiviral Particles: sc-93184-V as alternate gene silencing products.

For independent verification of Ribosomal Protein S2 (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-93184A and sc-93184B.

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

Ribosomal Protein S2 siRNA (h) is recommended for the inhibition of Ribosomal Protein S2 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

Ribosomal Protein S2 (80-H): sc-130399 is recommended as a control antibody for monitoring of Ribosomal Protein S2 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 Ribosomal Protein S2 gene expression knockdown using RT-PCR Primer: Ribosomal Protein S2 (h)-PR: sc-93184-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.