SANTA CRUZ BIOTECHNOLOGY, INC.

RPE siRNA (h): sc-94945

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The Power to Question

BACKGROUND

RPE (ribulose-5-phosphate-3-epimerase), also known as RPE2-1, is a 228 amino acid protein belonging to the ribulose phosphate binding superfamily. Ubiquitously expressed but found in highest levels in red blood cells, lymphocytes and fibroblasts, RPE exists as two alternatively spliced isoforms. RPE shares 96% sequence identity with the human protein rcRPE and is encoded by a gene located on human chromosome 2. Chromosome 2 houses over 1,400 genes and comprises nearly 8% of the human genome. Harlequin icthyosis, a rare and morbid skin deformity, is associated with mutations in the ABCA12 gene, while the lipid metabolic disorder sitosterolemia is associated with defects in the ABCG5 and ABCG8 genes. Additionally, an extremely rare recessive genetic disorder, Alström syndrome, is caused by mutations in the ALMS1 gene, which maps to chromosome 2.

REFERENCES

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2. Karmali, A., et al. 1983. Purification, properties and assay of D-ribulose 5-phosphate 3-epimerase from human erythrocytes. Biochem. J. 211: 617-623.
3. Dallapiccola, B., et al. 1988. Deletion 2q31.3—2q33.3: gene dosage effect of ribulose 5-phosphate 3-epimerase. Hum. Genet. 79: 92.
4. Ijdo, J.W., et al. 1991. Origin of human chromosome 2: an ancestral telomere-telomere fusion. Proc. Natl. Acad. Sci. USA 88: 9051-9055.
5. Avarello, R., et al. 1992. Evidence for an ancestral alphoid domain on the long arm of human chromosome 2. Hum. Genet. 89: 247-249.
6. Hu, L., et al. 2004. Initiation sites for human DNA replication at a putative ribulose-5-phosphate 3-epimerase gene. Biochem. Biophys. Res. Commun. 320: 648-655.
7. Akana, J., et al. 2006. D-ribulose 5-phosphate 3-epimerase: functional and structural relationships to members of the ribulose-phosphate binding (β/α)8-barrel superfamily. Biochemistry 45: 2493-2503.

CHROMOSOMAL LOCATION

Genetic locus: RPE (human) mapping to 2q34.

PRODUCT

RPE 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 RPE shRNA Plasmid (h): sc-94945-SH and RPE shRNA (h) Lentiviral Particles: sc-94945-V as alternate gene silencing products.

For independent verification of RPE (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-94945A, sc-94945B and sc-94945C.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

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

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

RPE (F-10): sc-393655 is recommended as a control antibody for monitoring of RPE 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 RPE gene expression knockdown using RT-PCR Primer: RPE (h)-PR: sc-94945-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.