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SANTA CRUZ BIOTECHNOLOGY, INC.

PRPS1L1 siRNA (m): sc-152501

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

PRPS (phosphoribosyl pyrophosphate synthetase) proteins catalyze the synthesis of phosphoribosyl pyrophosphate (PRPP). Three human PRPS isoforms exist and are encoded by three different genes. PRPS1 and PRPS2 (also known as PRS1 and PRS2, respectively) are ubiquitously expressed, while PRPS3 (also known as PRPS1L1) is specific to the testis. PRPP is an important substrate synthesized from MgATP and ribose-5-phosphate in a reaction that requires inorganic phosphate and magnesium as a cofactor. PRPP is essential in the synthesis of nearly all nucleotides, implying that PRPS1/2 play an important role in nucleotide biosynthesis and purine metabolism. A mutation in the gene encoding PRPS1 may result in PRPS superactivity, a disease characterized by gout and the overproduction of purine nucleotides, uric acid and PRPP. PRPS1 mutations can also lead to a reduction in PRPS1 activity resulting in ARTS syndrome or CMTX5 (Charcot-Marie-Tooth disease X-linked recessive type 5).

REFERENCES

1. Kunjara, S., et al. 1992. Phosphoribosyl pyrophosphate formation in the rat adrenal gland in relation to adrenal growth in experimental diabetes. Diabetes 41: 1429-1435.
2. Ishizuka, T., et al. 1992. Promoter regions of the human X-linked housekeeping genes PRPS1 and PRPS2 encoding phosphoribosylpyrophosphate synthetase subunit I and II isoforms. Biochim. Biophys. Acta 1130: 139-148.
3. Fujimori, S. 1996. PRPP synthetase superactivity. Nippon Rinsho 54: 3309-3314.
4. Ahmed, M., et al. 1999. Accelerated transcription of PRPS1 in X-linked overactivity of normal human phosphoribosylpyrophosphate synthetase. J. Biol. Chem. 274: 7482-7488.
5. García-Pavía, P., et al. 2003. Phosphoribosylpyrophosphate synthetase overactivity as a cause of uric acid overproduction in a young woman. Arthritis Rheum. 48: 2036-2041.
6. Tang, W., et al. 2006. Expression, purification, crystallization and preliminary X-ray diffraction analysis of human phosphoribosyl pyrophosphate synthetase 1 (PRS1). Acta Crystallogr. Sect. F Struct. Biol. Cryst. Commun. 62: 432-434.

CHROMOSOMAL LOCATION

Genetic locus: Prps1l1 (mouse) mapping to 12 A3.

PRODUCT

PRPS1L1 siRNA (m) 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 PRPS1L1 shRNA Plasmid (m): sc-152501-SH and PRPS1L1 shRNA (m) Lentiviral Particles: sc-152501-V as alternate gene silencing products.

For independent verification of PRPS1L1 (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-152501A, sc-152501B and sc-152501C.

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

PRPS1L1 siRNA (m) is recommended for the inhibition of PRPS1L1 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.

GENE EXPRESSION MONITORING

PRPS1L1 (5E10): sc-517154 is recommended as a control antibody for monitoring of PRPS1L1 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 PRPS1L1 gene expression knockdown using RT-PCR Primer: PRPS1L1 (m)-PR: sc-152501-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.