SANTA CRUZ BIOTECHNOLOGY, INC.

APRT siRNA (m): sc-141179

BACKGROUND

APRT (adenine phosphoribosyltransferase) is a 180 amino acid protein that localizes to the cytoplasm and belongs to the purine/pyrimidine phosphoribosyltransferase family. Existing as a homodimer, APRT functions to catalyze the formation of inorganic pyrophosphate and AMP from adenine and 5-phosphoribosyl-1-pyrophosphate (PRPP), a reaction that is essential for both purine metabolism and AMP biosynthesis. Defects in the gene encoding APRT are the cause of APRT deficiency, also known as 2,8-dihydroxyadenine urolithiasis, which is an autosomal recessive disease that results in renal failure. The gene encoding APRT maps to human chromosome 16q24.3, which encodes over 900 genes and comprises nearly 3% of the human genome. The GAN gene is located on chromosome 16 and, with mutation, may lead to giant axonal neuropathy, a nervous system disorder characterized by increasing malfunction with growth. The rare disorder Rubinstein-Taybi syndrome is also associated with chromosome 16, as is Crohn's disease, which is a gastrointestinal inflammatory condition.

REFERENCES

1. Holden, J.A., et al. 1979. Human adenine phosphoribosyltransferase. Affinity purification, subunit structure, amino acid composition, and peptide mapping. J. Biol. Chem. 254: 6951-6955.
2. Hidaka, Y., et al. 1987. Nucleotide sequence of the human APRT gene. Nucleic Acids Res. 15: 9086.
3. Broderick, T.P., et al. 1987. Comparative anatomy of the human APRT gene and enzyme: nucleotide sequence divergence and conservation of a non-random CpG dinucleotide arrangement. Proc. Natl. Acad. Sci. USA 84: 3349-3353.
4. Kamatani, N., et al. 1989. Detection of an amino acid substitution in the mutant enzyme for a special type of adenine phosphoribosyltransferase (APRT) deficiency by sequence-specific protein cleavage. Am. J. Hum. Genet. 45: 325-331.
5. Chen, J., et al. 1991. Identification of a single missense mutation in the adenine phosphoribosyltransferase (APRT) gene from five Icelandic patients and a British patient. Am. J. Hum. Genet. 49: 1306-1311.
6. Menardi, C., et al. 1997. Human APRT deficiency: indication for multiple origins of the most common Caucasian mutation and detection of a novel type of mutation involving intrastrand-templated repair. Hum. Mutat. 10: 251-255.

CHROMOSOMAL LOCATION

Genetic locus: Aprt (mouse) mapping to 8 E1.

PRODUCT

APRT siRNA (m) is a target-specific 19-25 nt siRNA 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 APRT shRNA Plasmid (m): sc-141179-SH and APRT shRNA (m) Lentiviral Particles: sc-141179-V as alternate gene silencing products.

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

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

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor APRT gene expression knockdown using RT-PCR Primer: APRT (m)-PR: sc-141179-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.