SANTA CRUZ BIOTECHNOLOGY, INC.

ACP1 siRNA (m): sc-44359

BACKGROUND

Regulation of intracellular concentrations of flavoenzymes and flavin coenzymes is essential for proper cell homeostasis. Red cell acid phosphatase, known as ACP1, catalyzes the transfer of phosphate from phosphate ester substrates to suitable acceptor alcohols such as methanol and glycerol. ACP is a genetically polymorphic, cytoplasmic low-molecular-weight flavin mononucleotide phosphatase that regulates the intracellular concentrations of flavin coenzymes. The human ACP1 gene maps to chromosome 2p25.3 and encodes a pair of isozymes, Bfα and Bsβ. The ACP1 α and β isozymes are not glycosylated. Both ACP1-α and ACP1-β isozymes are 157 amino acids in length; however the two forms differ in sequence over an internal 34 residue segment. The two isoforms are believed to differ in substrate specificity.

REFERENCES

1. Golden, V.L. and Sensabaugh, G.F. 1986. Phenotypic variation in the phosphotransferase activity of human red cell acid phosphatase (ACP1). Hum. Genet. 72: 340-343.
2. Dissing, J. and Sensabaugh, G.F. 1987. Human red cell acid phosphatase (ACP1): evidence for differences in the primary structure of the two isozymes encoded by the ACP1*B allele. Biochem. Genet. 25: 919-927.
3. Dissing, J., et al. 1991. Human red cell acid phosphatase (ACP1). The amino acid sequence of the two isozymes Bf and Bs encoded by the ACP1*B allele. J. Biol. Chem. 266: 20619-20625.
4. Wo, Y.Y., et al. 1992. Sequencing, cloning, and expression of human red cell-type acid phosphatase, a cytoplasmic phosphotyrosyl protein phosphatase. J. Biol. Chem. 267: 10856-10865.
5. Dissing, J. and Johnsen, A.H. 1992. Human red cell acid phosphatase (ACP1): the primary structure of the two pairs of isozymes encoded by the ACP1*A and ACP1*C alleles. Biochim. Biophys. Acta 1121: 261-268.
6. Lazaruk, K.D., et al. 1993. Exon structure at the human ACP1 locus supports alternative splicing model for f and s isozyme generation. Biochem. Biophys. Res. Commun. 196: 440-446.

CHROMOSOMAL LOCATION

Genetic locus: Acp1 (mouse) mapping to 12 A2.

PRODUCT

ACP1 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 ACP1 shRNA Plasmid (m): sc-44359-SH and ACP1 shRNA (m) Lentiviral Particles: sc-44359-V as alternate gene silencing products.

For independent verification of ACP1 (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-44359A, sc-44359B and sc-44359C.

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

ACP1 siRNA (m) is recommended for the inhibition of ACP1 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

ACP1 (D-3): sc-390190 is recommended as a control antibody for monitoring of ACP1 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 ACP1 gene expression knockdown using RT-PCR Primer: ACP1 (m)-PR: sc-44359-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.