SANTA CRUZ BIOTECHNOLOGY, INC.

ATP-citrate synthase siRNA (h): sc-45206

BACKGROUND

ATP-citrate synthase, also designated ATP-citrate lyase or citrate cleavage enzyme, is a cytoplasmic homotetramer belonging to the succinate/malate CoA ligase family. The gene coding for this protein maps against chromosome 17q21.2. ATP-citrate synthase catalyses the formation of acetyl-CoA and oxaloacetate from citrate and CoA. This product, acetyl-CoA, is necessary for both fatty acid and cholesterol biosynthesis. ATP citrate-lyase is important in the biosynthesis of acetylcholine in nervous tissue.

REFERENCES

1. Lord, K.A., et al. 1997. Variant cDNA sequences of human ATP-citrate lyase: cloning, expression and purification from baculovirus-infected insect cells. Protein Expr. Purif. 9: 133-141.
2. Sato, R., et al. 2000. Transcriptional regulation of the ATP-citrate lyase gene by sterol regulatory element-binding proteins. J. Biol. Chem. 275: 12497-12502.
3. Berwick, D.C., et al. 2002. The identification of ATP-citrate lyase as a protein kinase B (Akt) substrate in primary adipocytes. J. Biol. Chem. 277: 33895-33900.
4. Moon, Y.A., et al. 2002. Characterization of *cis*-acting elements in the rat ATP-citrate lyase gene promoter. Exp. Mol. Med. 34: 60-68.
5. Beigneux, A.P., et al. 2004. ATP-citrate lyase deficiency in the mouse. J. Biol. Chem. 279: 9557-9564.

CHROMOSOMAL LOCATION

Genetic locus: ACLY (human) mapping to 17q21.2.

PRODUCT

ATP-citrate synthase 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 ATP-citrate synthase shRNA Plasmid (h): sc-45206-SH and ATP-citrate synthase shRNA (h) Lentiviral Particles: sc-45206-V as alternate gene silencing products.

For independent verification of ATP-citrate synthase (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-45206A, sc-45206B and sc-45206C.

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

ATP-citrate synthase siRNA (h) is recommended for the inhibition of ATP-citrate synthase 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

ATP-citrate synthase (5F8D11): sc-517267 is recommended as a control antibody for monitoring of ATP-citrate synthase 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 ATP-citrate synthase gene expression knockdown using RT-PCR Primer: ATP-citrate synthase (h)-PR: sc-45206-PR (20 µl, 600 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Cap, K.C., et al. 2020. Distinct dual roles of p-Tyr42 RhoA GTPase in tau phosphorylation and ATP citrate lyase activation upon different Aβ concentrations. Redox Biol. 32: 101446.

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.