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# ATP-citrate synthase shRNA (h) Lentiviral Particles: sc-45206-V

## 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, YA., 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.
6. Tosukhowong, P., et al. 2005. Effects of potassium-magnesium citrate supplementation on cytosolic ATP-citrate lyase and mitochondrial aconitase activity in leukocytes: A window on renal citrate metabolism. *Int. J. Urol.* 12: 140-144.

## CHROMOSOMAL LOCATION

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

## PRODUCT

ATP-citrate synthase shRNA (h) Lentiviral Particles is a pool of concentrated, transduction-ready viral particles containing 3 target-specific constructs that encode 19-25 nt (plus hairpin) shRNA designed to knock down gene expression. Each vial contains 200  $\mu$ l frozen stock containing  $1.0 \times 10^6$  infectious units of virus (IFU) in Dulbecco's Modified Eagle's Medium with 25 mM HEPES pH 7.3. Suitable for 10-20 transductions. Also see ATP-citrate synthase siRNA (h): sc-45206 and ATP-citrate synthase shRNA Plasmid (h): sc-45206-SH as alternate gene silencing products.

## STORAGE

Store lentiviral particles at  $-80^\circ$  C. Stable for at least one year from the date of shipment. Once thawed, particles can be stored at  $4^\circ$  C for up to one week. Avoid repeated freeze thaw cycles.

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) or our catalog for detailed protocols and support products.

## APPLICATIONS

ATP-citrate synthase shRNA (h) Lentiviral Particles is recommended for the inhibition of ATP-citrate synthase expression in human cells.

## SUPPORT REAGENTS

Control shRNA Lentiviral Particles: sc-108080. Available as 200  $\mu$ l frozen viral stock containing  $1.0 \times 10^6$  infectious units of virus (IFU); contains an shRNA construct encoding a scrambled sequence that will not lead to the specific degradation of any known cellular mRNA.

## GENE EXPRESSION MONITORING

ATP-citrate synthase (C-20): sc-30538 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 (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

## 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  $\mu$ l). Annealing temperature for the primers should be  $55-60^\circ$  C and the extension temperature should be  $68-72^\circ$  C.

## BIOSAFETY

Lentiviral particles can be employed in standard Biosafety Level 2 tissue culture facilities (and should be treated with the same level of caution as with any other potentially infectious reagent). Lentiviral particles are replication-incompetent and are designed to self-inactivate after transduction and integration of shRNA constructs into genomic DNA of target cells.

## RESEARCH USE

The purchase of this product conveys to the buyer the nontransferable right to use the purchased amount of the product and all replicates and derivatives for research purposes conducted by the buyer in his laboratory only (whether the buyer is an academic or for-profit entity). The buyer cannot sell or otherwise transfer (a) this product (b) its components or (c) materials made using this product or its components to a third party, or otherwise use this product or its components or materials made using this product or its components for Commercial Purposes.