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### SZABO-SCANDIC HandelsgmbH

Quellenstraße 110, A-1100 Wien

T. +43(0)1 489 3961-0

F. +43(0)1 489 3961-7

[mail@szabo-scandic.com](mailto:mail@szabo-scandic.com)

[www.szabo-scandic.com](http://www.szabo-scandic.com)

[linkedin.com/company/szaboscandic](https://www.linkedin.com/company/szaboscandic) 

# 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.
6. Tosukh Wong, 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.
7. Fatland, B.L., et al. 2005. Reverse genetic characterization of cytosolic acetyl-CoA generation by ATP-citrate lyase in arabidopsis. *Plant Cell* 17: 182-203.

## 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  $\mu$ M 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.

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) for detailed protocols and support 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  $\mu$ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330  $\mu$ l of RNase-free water makes a 10  $\mu$ M solution in a 10  $\mu$ M 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  $\mu$ M in 66  $\mu$ l. 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).

## 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, 600 bp). 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.