

# PPC Synthetase siRNA (m): sc-152406

## BACKGROUND

PPC Synthetase, also known as PPCS (phosphopantothenoylcysteine synthetase) or COAB, is a 311 amino acid protein that belongs to the PPC Synthetase family. Moderately conserved, PPC Synthetase exists as a dimer with identical monomers. Some components of the monomer fold resemble a group of NAD-dependent enzymes, while other components resemble the ribokinase fold. In contrast to the *E. coli* ortholog, mammalian PPC Synthetase exhibits a preference for ATP over CTP. PPC Synthetase catalyzes the first step in the biosynthesis of coenzyme A (CoA) from pantothenic acid (vitamin B5), where cysteine is conjugated to 4'-phosphopantothenate to form 4-phosphopantothenoylcysteine. Inhibition research with GTP and UTP, as well as product inhibition research with CMP and AMP, suggest that human PPC Synthetase lacks strong nucleotide selectivity. The gene that encodes PPC Synthetase maps to human chromosome 1p34.2.

## REFERENCES

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2. Strauss, E., Kinsland, C., Ge, Y., McLafferty, F.W. and Begley, T.P. 2001. Phosphopantothenoylcysteine synthetase from *Escherichia coli*. Identification and characterization of the last unidentified coenzyme A biosynthetic enzyme in bacteria. *J. Biol. Chem.* 276: 13513-13516.
3. Daugherty, M., Polanuyer, B., Farrell, M., Scholle, M., Lykidis, A., de Crecy-Lagard, V. and Osterman, A. 2002. Complete reconstitution of the human coenzyme A biosynthetic pathway via comparative genomics. *J. Biol. Chem.* 277: 21431-21439.
4. Strauss, E. and Begley, T.P. 2002. The antibiotic activity of N-pentylpantothenamide results from its conversion to ethyldethia-coenzyme a, a coenzyme a antimetabolite. *J. Biol. Chem.* 277: 48205-48209.
5. Manoj, N., Strauss, E., Begley, T.P. and Ealick, S.E. 2003. Structure of human phosphopantothenoylcysteine synthetase at 2.3 Å resolution. *Structure* 11: 927-936.
6. Genschel, U. 2004. Coenzyme A biosynthesis: reconstruction of the pathway in archaea and an evolutionary scenario based on comparative genomics. *Mol. Biol. Evol.* 21: 1242-1251.

## CHROMOSOMAL LOCATION

Genetic locus: *Ppcs* (mouse) mapping to 4 D2.1.

## PRODUCT

PPC Synthetase siRNA (m) is a pool of 2 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 PPC Synthetase shRNA Plasmid (m): sc-152406-SH and PPC Synthetase shRNA (m) Lentiviral Particles: sc-152406-V as alternate gene silencing products.

For independent verification of PPC Synthetase (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-152406A and sc-152406B.

## 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

PPC Synthetase siRNA (m) is recommended for the inhibition of PPC Synthetase 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  $\mu$ 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.

## RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor PPC Synthetase gene expression knockdown using RT-PCR Primer: PPC Synthetase (m)-PR: sc-152406-PR (20  $\mu$ l). 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](http://www.scbt.com) for detailed protocols and support products.