



citrate synthase siRNA (m): sc-142349

BACKGROUND

Citrate synthase (CS) is a 466 amino acid mitochondrial matrix protein that functions as the first and rate-limiting enzyme of the tricarboxylic acid cycle. Essential in mitochondrial respiration and involved in the conversion of glucose to lipid, citrate synthase is found the great majority of cells that are capable of oxidative metabolism. The gene encoding citrate synthase maps to human chromosome 12q13.2, which is transcribed into two alternatively spliced variants designated CSa and CSb. Human chromosome 12 encodes over 1,100 genes, comprises approximately 4.5% of the human genome and is associated with a variety of diseases and afflictions, including hypochondrogenesis, achondrogenesis, Kniest dysplasia, Noonan syndrome and trisomy 12p, which causes facial developmental defects and seizure disorders.

REFERENCES

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2. Van Heyningen, V., et al. 1973. Genetic control of mitochondrial enzymes in human-mouse somatic cell hybrids. *Nature* 242: 509-512.
3. Wijnen, L.M., et al. 1977. Direct assignment of citrate synthase (CS) gene to human chromosome 12 in man-mouse somatic cell hybrids. *Hum. Genet.* 39: 339-344.
4. Herbschleb-Voogt, E., et al. 1978. Chromosomal assignment and regional localization of CS, ENO2, GAPDH, LDHB, PEPB, and TPI in man-rodent cell hybrids. *Cytogenet. Cell Genet.* 22: 482-486.
5. Goldenthal, M.J., et al. 1998. Cloning and molecular analysis of the human citrate synthase gene. *Genome* 41: 733-738.
6. Siu, P.M., et al. 2003. Citrate synthase expression and enzyme activity after endurance training in cardiac and skeletal muscles. *J. Appl. Physiol.* 94: 555-560.
7. Schlichtholz, B., et al. 2005. Enhanced citrate synthase activity in human pancreatic cancer. *Pancreas* 30: 99-104.

CHROMOSOMAL LOCATION

Genetic locus: Cs (mouse) mapping to 10 D3.

PRODUCT

citrate synthase 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see citrate synthase shRNA Plasmid (m): sc-142349-SH and citrate synthase shRNA (m) Lentiviral Particles: sc-142349-V as alternate gene silencing products.

For independent verification of citrate synthase (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-142349A, sc-142349B and sc-142349C.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

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 μ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330 μ l of RNase-free water makes a 10 μ M solution in a 10 μ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

citrate synthase siRNA (m) is recommended for the inhibition of citrate synthase 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 μ M in 66 μ 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

citrate synthase (G-3): sc-390693 is recommended as a control antibody for monitoring of 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-IgG κ BP-HRP: sc-516102 or m-IgG κ 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-IgG κ BP-FITC: sc-516140 or m-IgG κ 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 citrate synthase gene expression knockdown using RT-PCR Primer: citrate synthase (m)-PR: sc-142349-PR (20 μ l, 586 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.