

# citrate synthase (S-18): sc-242445

## 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

1. Craig, I. 1973. A procedure for the analysis of citrate synthase (E.C. 4.1.3.7) in somatic cell hybrids. *Biochem. Genet.* 9: 351-358.
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. Schlichholz, B., et al. 2005. Enhanced citrate synthase activity in human pancreatic cancer. *Pancreas* 30: 99-104.

## CHROMOSOMAL LOCATION

Genetic locus: CS (human) mapping to 12q13.3; Cs (mouse) mapping to 10 D3.

## SOURCE

citrate synthase (S-18) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of citrate synthase of human origin.

## PRODUCT

Each vial contains 100 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-242445 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

## RESEARCH USE

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

## APPLICATIONS

citrate synthase (S-18) is recommended for detection of citrate synthase of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

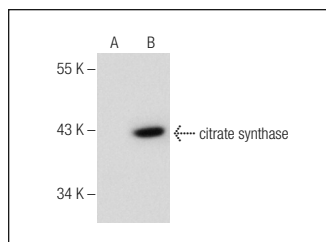
citrate synthase (S-18) is also recommended for detection of citrate synthase in additional species, including equine, canine, bovine, porcine and avian.

Suitable for use as control antibody for citrate synthase siRNA (h): sc-96228, citrate synthase siRNA (m): sc-142349, citrate synthase shRNA Plasmid (h): sc-96228-SH, citrate synthase shRNA Plasmid (m): sc-142349-SH, citrate synthase shRNA (h) Lentiviral Particles: sc-96228-V and citrate synthase shRNA (m) Lentiviral Particles: sc-142349-V.

Molecular Weight of citrate synthase: 52 kDa.

Positive Controls: citrate synthase (m): 293T Lysate: sc-110205.

## DATA



citrate synthase (S-18): sc-242445. Western blot analysis of citrate synthase expression in non-transfected: sc-117752 (A) and mouse citrate synthase transfected: sc-110205 (B) 293T whole cell lysates.

## STORAGE

Store at 4° C, **\*\*DO NOT FREEZE\*\***. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

## PROTOCOLS

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



Try **citrate synthase (G-3): sc-390693**, our highly recommended monoclonal alternative to citrate synthase (S-18). Also, for AC, HRP, FITC, PE, Alexa Fluor<sup>®</sup> 488 and Alexa Fluor<sup>®</sup> 647 conjugates, see **citrate synthase (G-3): sc-390693**.