

citrate synthase (G-3): sc-390693

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 12q13.3, 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.

CHROMOSOMAL LOCATION

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

SOURCE

citrate synthase (G-3) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 259-292 of citrate synthase of human origin.

PRODUCT

Each vial contains 200 µg IgG₁ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

citrate synthase (G-3) is available conjugated to agarose (sc-390693 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-390693 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-390693 PE), fluorescein (sc-390693 FITC), Alexa Fluor® 488 (sc-390693 AF488), Alexa Fluor® 546 (sc-390693 AF546), Alexa Fluor® 594 (sc-390693 AF594) or Alexa Fluor® 647 (sc-390693 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-390693 AF680) or Alexa Fluor® 790 (sc-390693 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-390693 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

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STORAGE

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

APPLICATIONS

citrate synthase (G-3) is recommended for detection of citrate synthase of mouse, rat and human origin by Western Blotting (starting dilution 1:100, 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), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

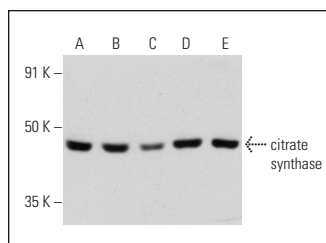
citrate synthase (G-3) is also recommended for detection of citrate synthase in additional species, including equine, canine, bovine, porcine and avian.

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.

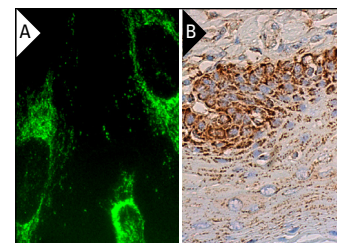
Molecular Weight of citrate synthase: 52 kDa.

Positive Controls: Hep G2 cell lysate: sc-2227, A-673 cell lysate: sc-2414 or mouse brain extract: sc-2253.

DATA



citrate synthase (G-3): sc-390693. Western blot analysis of citrate synthase expression in Hep G2 (A), HeLa (B), Caco-2 (C) and A-673 (D) whole cell lysates and mouse brain tissue extract (E).



citrate synthase (G-3): sc-390693. Immunofluorescence staining of methanol-fixed HeLa cells showing mitochondrial localization (A). Immunoperoxidase staining of formalin fixed, paraffin-embedded human esophagus tissue showing cytoplasmic staining of squamous epithelial cells (B).

SELECT PRODUCT CITATIONS

1. Sadhukhan, S., et al. 2016. Metabolomics-assisted proteomics identifies succinylation and SIRT5 as important regulators of cardiac function. *Proc. Natl. Acad. Sci. USA* 113: 4320-4325.
2. Chang, C.H., et al. 2019. Changes in hypothermal stress-induced hepatic mitochondrial metabolic patterns between fresh water- and seawater-acclimated milkfish, *Chanos chanos*. *Sci. Rep.* 9: 18502.
3. Arc-Chagnaud, C., et al. 2020. Evaluation of an antioxidant and anti-inflammatory cocktail against human hypoactivity-induced skeletal muscle deconditioning. *Front. Physiol.* 11: 71.

RESEARCH USE

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