SANTA CRUZ BIOTECHNOLOGY, INC.

CPTI-L (H-95): sc-20669

BACKGROUND

The mitochondrial β-oxidation of long-chain fatty acids is initiated by the sequential action of carnitine palmitoyltransferase (CPT) I (outer membrane and detergent labile) and II (inner membrane and detergent stable), together with carnitine carrier. CPTI catalyzes the first reaction in the transport of long-chain fatty acids from the cytoplasm to the mitochondrion, a rate-limiting step in β-oxidation. Two types of CPTI are known, the liver (CPTIA) and muscle (CPTIB) isoforms. The muscle type protein is specially expressed in heart and skeletal muscle. Membrane-bound CPTI, but not CPTII, is inhibited reversibly by malonyl-coenzyme A (CoA). Unlike CPTII, CPTI requires membrane integrity for catalytic function. In addition, glutamic acid 3 and histidine 5 are necessary for malonyl CoA inhibition and binding to liver CPTI, but not for catalytic activity.

REFERENCES

1. Pande, S.V., et al. 1976. Characterization of carnitine acylcarnitine translocase system of heart mitochondria. J. Biol. Chem. 251: 6683-6691.
2. McGarry, J.D., et al. 1989. Regulation of ketogenesis and the renaissance of carnitine palmitoyltransferase. Diabetes Metab. Rev. 5: 271-284.
3. Woeltje, K.F., et al. 1990. Inter-tissue and inter-species characteristics of the mitochondrial carnitine palmitoyltransferase enzyme system. J. Biol. Chem. 265: 10714-10719.
4. Britton, C.H., et al. 1995. Human liver mitochondrial carnitine palmitoyltransferase I: characterization of its cDNA and chromosomal localization and partial analysis of the gene. Proc. Natl. Acad. Sci. USA 92: 1984-1988.
5. Yamazaki, N., et al. 1996. Isolation and characterization of cDNA and genomic clones encoding human muscle type carnitine palmitoyltransferase I. Biochim. Biophys. Acta 1307: 157-161.
6. Zhu, H., et al. 1997. Functional studies of yeast-expressed human heart muscle carnitine palmitoyltransferase I. Arch. Biochem. Biophys. 347: 53-61.
7. Yamazaki, N., et al. 1997. Structural features of the gene encoding human muscle type carnitine palmitoyltransferase I. FEBS Lett. 409: 401-406.
8. Woldegiorgis, G., et al. 2000. Functional characterization of mammalian mitochondrial carnitine palmitoyltransferases I and II expressed in the yeast *Pichia pastoris*. J. Nutr. 130: 310-314.

CHROMOSOMAL LOCATION

Genetic locus: CPT1A (human) mapping to 11q13.3; Cpt1a (mouse) mapping to 19 A.

SOURCE

CPTI-L (H-95) is a rabbit polyclonal antibody raised against amino acids 36-130 mapping near the N-terminus of CPTI-L of human origin.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

CPTI-L (H-95) is recommended for detection of CPTI-L 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).

Suitable for use as control antibody for CPTI-L siRNA (h): sc-40380, CPTI-L shRNA Plasmid (h): sc-40380-SH and CPTI-L shRNA (h) Lentiviral Particles: sc-40380-V.

Molecular Weight of CPTI-L: 90-94 kDa.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-rabbit IgG-HRP: sc-2004 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible goat anti-rabbit IgG-HRP: sc-2030 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use goat anti-rabbit IgG-FITC: sc-2012 (dilution range: 1:100-1:400) or goat anti-rabbit IgG-TR: sc-2780 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

SELECT PRODUCT CITATIONS

1. Takami, G., et al. 2010. Effects of atypical antipsychotics and haloperidol on PC12 cells: only aripiprazole phosphorylates AMP-activated protein kinase. J. Neural. Transm. 117: 1139-1153.

STORAGE

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

RESEARCH USE

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

PROTOCOLS

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