SANTA CRUZ BIOTECHNOLOGY, INC.

CPTI (N-17): sc-20514

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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.

CHROMOSOMAL LOCATION

Genetic locus: CPT1A (human) mapping to 11q13.3, CPT1B (human) mapping to 22q13.33; Cpt1a (mouse) mapping to 19 A, Cpt1b (mouse) mapping to 15 E3.

SOURCE

CPTI (N-17) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an N-terminal cytoplasmic domain of CPTI 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.

Blocking peptide available for competition studies, sc-20514 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

CPTI (N-17) is recommended for detection of CPTI, liver isoform (CPTI-L) and muscle isoform (CPTI-M) of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), 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).

CPTI (N-17) is also recommended for detection of CPTI, liver isoform (CPTI-L) and muscle isoform (CPTI-M) in additional species, including equine, canine, bovine, porcine and avian.

Suitable for use as control antibody for CPTI siRNA (h): sc-40376, CPTI siRNA (m): sc-40377, CPTI shRNA Plasmid (h): sc-40376-SH, CPTI shRNA Plasmid (m): sc-40377-SH, CPTI shRNA (h) Lentiviral Particles: sc-40376-V and CPTI shRNA (m) Lentiviral Particles: sc-40377-V.

Molecular Weight of CPTI: 86/90-94 kDa.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (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) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

SELECT PRODUCT CITATIONS

1. De Souza, C.T., et al. 2005. Short-term inhibition of peroxisome proliferator-activated receptor-γ coactivator-1α expression reverses diet-induced diabetes mellitus and hepatic steatosis in mice. Diabetologia 48: 1860-1871.
2. Cintra, D.E., et al. 2008. Interleukin-10 is a protective factor against diet-induced Insulin resistance in liver. J. Hepatol. 48: 628-637.
3. Kobayashi, Y., et al. 2010. Ameliorative effects of mulberry *(Morus alba* L.) leaves on hyperlipidemia in rats fed a high-fat diet: induction of fatty acid oxidation, inhibition of lipogenesis, and suppression of oxidative stress. Biosci. Biotechnol. Biochem. 74: 2385-2395.
4. Dong, Y.M., et al. 2011. High dietary intake of medium-chain fatty acids during pregnancy in rats prevents later-life obesity in their offspring. J. Nutr. Biochem. 22: 791-797.
5. Kobayashi, Y., et al. 2012. Facilitative effects of *Eucommia ulmoides* on fatty acid oxidation in hypertriglyceridaemic rats. J. Sci. Food Agric. 92: 358-365.
6. Cintra, D.E., et al. 2012. Unsaturated fatty acids revert diet-induced hypothalamic inflammation in obesity. PLoS ONE 7: e30571.

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.