SANTA CRUZ BIOTECHNOLOGY, INC.

CPTI (E-7): sc-393070

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. and Parvin, R. 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 (E-7) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 665-688 within a C-terminal cytoplasmic domain of CPTI of human origin.

PRODUCT

Each vial contains 200 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

CPTI (E-7) is available conjugated to agarose (sc-393070 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-393070 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-393070 PE), fluorescein (sc-393070 FITC), Alexa Fluor® 488 (sc-393070 AF488), Alexa Fluor® 546 (sc-393070 AF546), Alexa Fluor® 594 (sc-393070 AF594) or Alexa Fluor® 647 (sc-393070 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-393070 AF680) or Alexa Fluor® 790 (sc-393070 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-393070 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

STORAGE

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

APPLICATIONS

CPTI (E-7) 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 1:100, 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) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

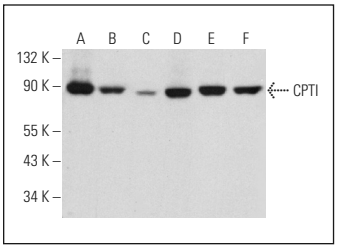
CPTI (E-7) is also recommended for detection of CPTI, liver isoform (CPTI-L) and muscle isoform (CPTI-M) in additional species, including equine, canine, bovine and porcine.

Suitable for use as control antibody for CPTI siRNA (h): sc-40376, CPTI siRNA (m): sc-40377, CPTI siRNA (r): sc-156134, CPTI shRNA Plasmid (h): sc-40376-SH, CPTI shRNA Plasmid (m): sc-40377-SH, CPTI shRNA Plasmid (r): sc-156134-SH, CPTI shRNA (h) Lentiviral Particles: sc-40376-V, CPTI shRNA (m) Lentiviral Particles: sc-40377-V and CPTI shRNA (r) Lentiviral Particles: sc-156134-V.

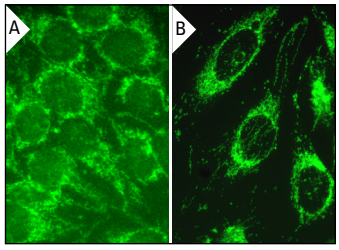
Molecular Weight of CPTI: 86/90-94 kDa.

Positive Controls: Hep G2 cell lysate: sc-2227, MCF7 whole cell lysate: sc-2206 or RAT2 whole cell lysate: sc-364198.

DATA



CPTI (E-7): sc-393070. Western blot analysis of CPTI expression in MCF7 (**A**), Hep G2 (**B**), AMJ2-C8 (**C**), c4 (**D**), NRK (**E**) and RAT2 (**F**) whole cell lysates.



CPTI (E-7): sc-393070. Immunofluorescence staining of formalin-fixed HeLa cells showing mitochrondrial localization (**A**,**B**).

SELECT PRODUCT CITATIONS

1. Lin, B., et al. 2017. Culture in glucose-depleted medium supplemented with fatty acid and 3,3',5-triiodo-L-thyronine facilitates purification and maturation of human pluripotent stem cell-derived cardiomyocytes. Front. Endocrinol. 8: 253.
2. Cangelosi, D., et al. 2019. A proteomic analysis of GSD-1a in mouse livers: evidence for metabolic reprogramming, inflammation, and macrophage polarization. J. Proteome Res. 18: 2965-2978.
3. Monsalves-Alvarez, M., et al. 2020. β-hydroxybutyrate increases exercise capacity associated with changes in mitochondrial function in skeletal muscle. Nutrients 12: 1930.
4. Chiang, D.Y., et al. 2021. Phosphorylation-dependent interactome of ryanodine receptor type 2 in the heart. Proteomes 9: 27.

RESEARCH USE

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