# SANTA CRUZ BIOTECHNOLOGY, INC.

# CPTI (E-7): sc-393070



### BACKGROUND

The mitochondrial  $\beta$ -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  $\beta$ -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

- 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  $\mu g\, lg G_1$  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<sup>®</sup> 488 (sc-393070 AF488), Alexa Fluor<sup>®</sup> 546 (sc-393070 AF546), Alexa Fluor<sup>®</sup> 594 (sc-393070 AF594) or Alexa Fluor<sup>®</sup> 647 (sc-393070 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor<sup>®</sup> 680 (sc-393070 AF680) or Alexa Fluor<sup>®</sup> 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  $\mu$ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

Alexa Fluor® is a trademark of Molecular Probes, Inc., Oregon, USA

## **STORAGE**

Store at 4° C, \*\*D0 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

- 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. Chiang, D.Y., et al. 2021. Phosphorylation-dependent interactome of ryanodine receptor type 2 in the heart. Proteomes 9: 27.
- 3. Filon, M.J., et al. 2022. Prostate cancer cells demonstrate unique metabolism and substrate adaptability acutely after androgen deprivation therapy. Prostate 82: 1547-1557.
- Oh, M.J., et al. 2023. Anti-obesity effects of red pepper (*Capsicum annuum* L.) leaf extract on 3T3-L1 preadipocytes and high fat diet-fed mice. Food Funct. 14: 292-304.

## **RESEARCH USE**

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