SANTA CRUZ BIOTECHNOLOGY, INC.

CPTII (G-5): sc-377294

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.

CHROMOSOMAL LOCATION

Genetic locus: CPT2 (human) mapping to 1p32.3; Cpt2 (mouse) mapping to 4 C7.

SOURCE

CPTII (G-5) is a mouse monoclonal antibody raised against amino acids 51-350 of CPTII 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.

CPTII (G-5) is available conjugated to agarose (sc-377294 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-377294 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-377294 PE), fluorescein (sc-377294 FITC), Alexa Fluor® 488 (sc-377294 AF488), Alexa Fluor® 546 (sc-377294 AF546), Alexa Fluor® 594 (sc-377294 AF594) or Alexa Fluor® 647 (sc-377294 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-377294 AF680) or Alexa Fluor® 790 (sc-377294 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

CPTII (G-5) is recommended for detection of CPTII 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).

Suitable for use as control antibody for CPTII siRNA (h): sc-40378, CPTII siRNA (m): sc-40379, CPTII shRNA Plasmid (h): sc-40378-SH, CPTII shRNA Plasmid (m): sc-40379-SH, CPTII shRNA (h) Lentiviral Particles: sc-40378-V and CPTII shRNA (m) Lentiviral Particles: sc-40379-V.

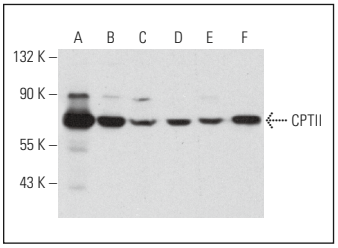
Molecular Weight of CPTII: 67 kDa.

Positive Controls: Hep G2 cell lysate: sc-2227, c4 whole cell lysate: sc-364186 or NIH/3T3 whole cell lysate: sc-2210.

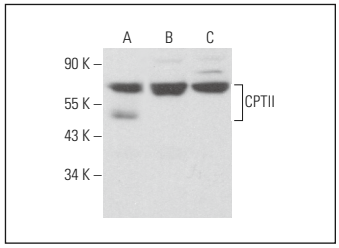
STORAGE

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

DATA



CPTII (G-5): sc-377294. Western blot analysis of CPTII expression in LNCaP (**A**), HT-1080 (**B**), c4 (**C**), NIH/3T3 (**D**), NRK (**E**) and RIN-m5F (**F**) whole cell lysates.



CPTII (G-5): sc-377294. Western blot analysis of CPTII expression in Hep G2 (**A**), NIH/3T3 (**B**) and RAW 264.7 (**C**) whole cell lysates.

SELECT PRODUCT CITATIONS

1. Halama, A., et al. 2018. Accelerated lipid catabolism and autophagy are cancer survival mechanisms under inhibited glutaminolysis. Cancer Lett. 430: 133-147.
2. Han, S., et al. 2019. CPT1A/2-mediated FAO enhancement—a metabolic target in radioresistant breast cancer. Front. Oncol. 9: 1201.
3. Liu, L., et al. 2020. Low-level saturated fatty acid palmitate benefits liver cells by boosting mitochondrial metabolism via CDK1-SIRT3-CPT2 cascade. Dev. Cell 52: 196-209.e9.
4. Cao, K., et al. 2020. *Herba houttuyniae* extract benefits hyperlipidemic mice via activation of the AMPK/PGC-1α/Nrf2 cascade. Nutrients 12: 164.
5. Liu, R., et al. 2020. Tead1 is essential for mitochondrial function in cardiomyocytes. Am. J. Physiol. Heart Circ. Physiol. 319: H89-H99.
6. Tao, S., et al. 2021. Bixin attenuates high-fat diet-caused liver steatosis and inflammatory injury through Nrf2/PPARα signals. Oxid. Med. Cell. Longev. 2021: 6610124.
7. Shi, D., et al. 2021. An isocaloric moderately high-fat diet extends lifespan in male rats and *Drosophila.* Cell Metab. 33: 581-597.e9.
8. Jiang, N., et al. 2022. Fatty acid oxidation fuels glioblastoma radioresistance with CD47-mediated immune evasion. Nat. Commun. 13: 1511.
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10. Nagayama, S., et al. 2023. Improvement of low-intensity long-time running performance in rats by intake of glucosyl hesperidin. Physiol. Rep. 11: e15413.

RESEARCH USE

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