SANTA CRUZ BIOTECHNOLOGY, INC.

p-ACCα (F-2): sc-271965

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Acetyl-CoA carboxylase (ACC) is a complex multifunctional enzyme system which catalyzes the carboxylation of acetyl-CoA to malonyl-CoA, the rate-limiting step in fatty acid synthesis. Exercise diminishes the activity of acetyl-CoA carboxylase in human muscle. ACCα (ACC1) is the rate-limiting enzyme in the biogenesis of long-chain fatty acids, and ACCβ (ACC2) may control mitochondrial fatty acid oxidation. These two isoforms of ACC control the amount of fatty acids in the cells. The catalytic function of ACCα is regulated by phosphorylation (inactive) and dephosphorylation (active) of targeted serine residues and by allosteric transformation by citrate or palmitoyl-CoA, which serve as the enzyme's short-term regulatory mechanism. The gene encoding ACCα maps to human chromosome 17q12 and encodes a form of ACC, which is the major ACC in lipogenic tissues. The catalytic core of ACCβ is homologous to that of the ACCα, except for an additional peptide of about 150 amino acids at the N-terminus.

REFERENCES

1. Kim, K.H. 1997. Regulation of mammalian acetyl-coenzyme A carboxylase. Annu. Rev. Nutr. 17: 77-99.
2. Abu-Elheiga, L., et al. 2000. The subcellular localization of acetyl-CoA carboxylase 2. Proc. Natl. Acad. Sci. USA 97: 1444-1449.

CHROMOSOMAL LOCATION

Genetic locus: ACACA (human) mapping to 17q12; Acaca (mouse) mapping to 11 C.

SOURCE

p-ACCα (F-2) is a mouse monoclonal antibody raised against a short amino acid sequence containing Ser 78 and Ser 80 phosphorylated ACCα 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.

p-ACCα (F-2) is available conjugated to agarose (sc-271965 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-271965 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-271965 PE), fluorescein (sc-271965 FITC), Alexa Fluor® 488 (sc-271965 AF488), Alexa Fluor® 546 (sc-271965 AF546), Alexa Fluor® 594 (sc-271965 AF594) or Alexa Fluor® 647 (sc-271965 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-271965 AF680) or Alexa Fluor® 790 (sc-271965 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-271965 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.

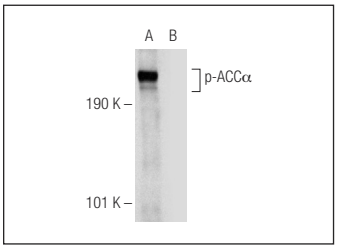
APPLICATIONS

p-ACCα (F-2) is recommended for detection of Ser 78 and Ser 80 dually phosphorylated ACCα 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 ACCα siRNA (h): sc-40312, ACCα siRNA (m): sc-40313, ACCα shRNA Plasmid (h): sc-40312-SH, ACCα shRNA Plasmid (m): sc-40313-SH, ACCα shRNA (h) Lentiviral Particles: sc-40312-V and ACCα shRNA (m) Lentiviral Particles: sc-40313-V.

Molecular Weight of p-ACCα: 265 kDa.

DATA



p-ACCα (F-2): sc-271965. Western blot analysis of ACCα phosphorylation in untreated (**A**) and lambda protein phosphatase (sc-200312A) treated (**B**) rat heart tissue extracts.

SELECT PRODUCT CITATIONS

1. Wakamiya, T., et al. 2014. Elevated expression of fatty acid synthase and nuclear localization of carnitine palmitoyltransferase 1C are common among human gliomas. Neuropathology 34: 465-474.
2. Chaube, B., et al. 2015. AMPK maintains energy homeostasis and survival in cancer cells via regulating p38/PGC-1α-mediated mitochondrial biogenesis. Cell Death Discov. 1: 15063.
3. Kim, Y., et al. 2016. Anti-obesity effects of boiled tuna extract in mice with obesity induced by a high-fat diet. Int. J. Mol. Med. 38: 1281-1288.
4. Ruegsegger, G.N., et al. 2017. 5-aminoimidazole-4-carboxamide ribonucleotide prevents fat gain following the cessation of voluntary physical activity. Exp. Physiol. 102: 1474-1485.
5. Xiao, Z., et al. 2018. SDHB downregulation facilitates the proliferation and invasion of colorectal cancer through AMPK functions excluding those involved in the modulation of aerobic glycolysis. Exp. Ther. Med. 15: 864-872.
6. Yang, S., et al. 2020. Tectorigenin attenuates diabetic nephropathy by improving vascular endothelium dysfunction through activating AdipoR1/2 pathway. Pharmacol. Res. 153: 104678.

RESEARCH USE

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