SANTA CRUZ BIOTECHNOLOGY, INC.

p-ACCβ (Ser 219/Ser 221)-R: sc-30446-R

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) is thought to control mitochondrial fatty acid oxidation. These two isoforms of ACC control the amount of fatty acids in the cells. ACC-β is thought to control fatty acid oxidation by means of the ability of malonyl-CoA to inhibit carnitine-palmitoyl-CoA transferase I, the rate-limiting step in fatty acid uptake and oxidation by mitochondria. The gene encoding ACCβ maps to human chromosome 12 and encodes a mitochondiral protein exressed in heart and skeletal muscle. 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. Ha, J., et al. 1996. Cloning of human acetyl-CoA carboxylase-β and its unique features. Proc. Natl. Acad. Sci. USA 93: 11466-11470.
2. Kim, K.H. 1997. Regulation of mammalian acetyl-coenzyme A carboxylase. Annu. Rev. Nutr. 17: 77-99.
3. Dean, D., et al. 2000. Exercise diminishes the activity of acetyl-CoA carboxylase in human muscle. Diabetes 49: 1295-1300.
4. Abu-Elheiga, L., et al. 2000. The subcellular localization of acetyl-CoA carboxylase 2. Proc. Natl. Acad. Sci. USA 97: 1444-1449.
5. Lee, J.J., et al. 2001. Cloning of human acetyl-CoA carboxylase-β promoter and its regulation by muscle regulatory factors. J. Biol. Chem. 276: 2576-2585.

CHROMOSOMAL LOCATION

Genetic locus: ACACB (human) mapping to 12q24.11; Acacb (mouse) mapping to 5 F.

SOURCE

p-ACCβ (Ser 219/Ser 221)-R is a rabbit polyclonal antibody raised against a short amino acid sequence containing Ser 219 and Ser 221 phosphorylated ACCβ 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-3044 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

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.

APPLICATIONS

p-ACCβ (Ser 219/Ser 221)-R is recommended for detection of Ser 219 and Ser 221 dually phosphorylated ACCβ of mouse, rat and human origin by Western Blotting (starting dilution 1:200, 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).

p-ACCβ (Ser 219/Ser 221)-R is also recommended for detection of correspondingly phosphorylated ACCβ in additional species, including canine, bovine and porcine.

Suitable for use as control antibody for ACCβ siRNA (h): sc-43597, ACCβ siRNA (m): sc-140800, ACCβ shRNA Plasmid (h): sc-43597-SH, ACCβ shRNA Plasmid (m): sc-140800-SH, ACCβ shRNA (h) Lentiviral Particles: sc-43597-V and ACCβ shRNA (m) Lentiviral Particles: sc-140800-V.

Molecular Weight of p-ACCβ: 275-280 kDa.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western blotting: use goat anti-rabbit IgG-HRP: sc-2004 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible goat anti-rabbit IgG-HRP: sc-2030 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto B Blocking Reagent: sc-2335 (use 50 mM NaF, sc-24988, as diluent), Western Blotting Luminol Reagent: sc-2048 and Lambda Phosphatase: sc-200312A. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use goat anti-rabbit IgG-FITC: sc-2012 (dilution range: 1:100-1:400) or goat anti-rabbit IgG-TR: sc-2780 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

SELECT PRODUCT CITATIONS

1. Choi, C.S., et al. 2008. Paradoxical effects of increased expression of PGC-1α on muscle mitochondrial function and Insulin-stimulated muscle glucose metabolism. Proc. Natl. Acad. Sci. USA 105: 19926-19931.
2. Jang, T., et al. 2010. 5'-AMP-activated protein kinase activity is elevated early during primary brain tumor development in the rat. Int. J. Cancer 128: 2230-2239.
3. Birkenfeld, A.L., et al. 2011. Deletion of the mammalian INDY homolog mimics aspects of dietary restriction and protects against adiposity and Insulin resistance in mice. Cell Metab. 14: 184-195.

PROTOCOLS

See our web site at www.scbt.com or our catalog for detailed protocols and support products.