SANTA CRUZ BIOTECHNOLOGY, INC.

PEPCK-C (A-3): sc-373972

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Normal adjustment to changes in blood glucose levels depends on Insulin signaling as well as enzymes involved in the regulation of gluconeogenesis. Pathological changes to this process are central to the type 2 diabetes phenotype. Phosphoenolpyruvate carboxykinase (PEPCK) plays an important role in this process by stimulating hepatic glucose production. PEPCK expression increases in response to glucagon and glucocorticoids, while Insulin suppresses expression. Modulation of the signals governing PEPCK levels present a potential therapeutic approach to the treatment of Insulin resistance and consequently obesity. The cytosolic form of PEPCK, known as PEPCK-C, and the mitochondrial form, known as PEPCK-M, are encoded by two different nuclear genes in mouse, human and chicken.

REFERENCES

1. Beale, E.G., et al. 1986. Insulin decreases H4IIE cell PEPCK mRNA by a mechanism that does not involve cAMP. Diabetes 35: 546-549.
2. O'Brien, R.M., et al. 1990. Identification of a sequence in the PEPCK gene that mediates a negative effect of Insulin on transcription. Science 249: 533-537.
3. Wang, Y., et al. 1991. Insulin and other regulatory factors modulate the growth and the phosphoenolpyruvate carboxykinase (PEPCK) activity of primary rabbit kidney proximal tubule cells in serum free medium. J. Cell. Physiol. 147: 374-382.
4. Barthel, A., et al. 2003. Novel concepts in Insulin regulation of hepatic gluconeogenesis. Am. J. Physiol. Endocrinol. Metab. 285: 685-692.
5. Horikawa, Y., et al. 2003. Identification of a novel variant in the phosphoenolpyruvate carboxykinase gene promoter in Japanese patients with type 2 diabetes. Horm. Metab. Res. 35: 308-312.
6. Barthel, A., et al. 2003. Novel aspects in the mechanisms of steroid diabetes and the regulation of hepatic glucose production by Insulin and steroids. Med. Klin. 98: 283-286.
7. Shklyaev, S., et al. 2003. Sustained peripheral expression of transgene adiponectin offsets the development of diet-induced obesity in rats. Proc. Natl. Acad. Sci. USA 100: 14217-14222.
8. Inoue, E. and Yamauchi, J. 2006. AMP-activated protein kinase regulates PEPCK gene expression by direct phosphorylation of a novel zinc finger transcription factor. Biochem. Biophys. Res. Commun. 351: 793-799.

CHROMOSOMAL LOCATION

Genetic locus: PCK1 (human) mapping to 20q13.31.

SOURCE

PEPCK-C (A-3) is a mouse monoclonal antibody raised against amino acids 1-44 mapping at the N-terminus of PEPCK-C of human origin.

PRODUCT

Each vial contains 200 µg IgG_{2b} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

PEPCK-C (A-3) is recommended for detection of PEPCK-C of 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 PEPCK-C siRNA (h): sc-76106, PEPCK-C shRNA Plasmid (h): sc-76106-SH and PEPCK-C shRNA (h) Lentiviral Particles: sc-76106-V.

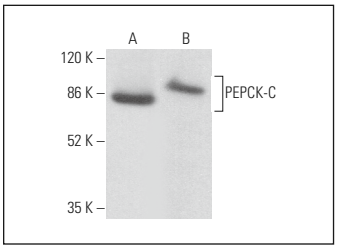
Molecular Weight of PEPCK-C isoforms 1/2: 70/34.

Positive Controls: HeLa whole cell lysate: sc-2200, Hep G2 cell lysate: sc-2227 or human liver extract: sc-363766.

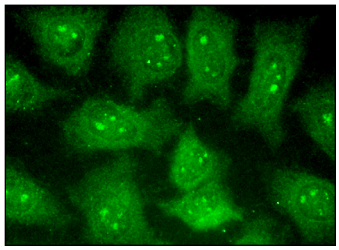
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

DATA



PEPCK-C (A-3): sc-373972. Western blot analysis of PEPCK-C expression in COLO 205 whole cell lysate (**A**) and human liver tissue extract (**B**).



PEPCK-C (A-3): sc-373972. Immunofluorescence staining of methanol-fixed HeLa cells showing nucleolar, nuclear and cytoplasmic localization.

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.

CONJUGATES

See **PEPCK (F-3): sc-271029** for PEPCK antibody conjugates, including AC, HRP, FITC, PE, and Alexa Fluor® 488, 546, 594, 647, 680 and 790.