SANTA CRUZ BIOTECHNOLOGY, INC.

PEPCK (E-1): sc-271204

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 3: 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.

CHROMOSOMAL LOCATION

Genetic locus: PCK1 (human) mapping to 20q13.31, PCK2 (human) mapping to 14q11.2; Pck1 (mouse) mapping to 2 H3, Pck2 (mouse) mapping to 14 C3.

SOURCE

PEPCK (E-1) is a mouse monoclonal antibody raised against amino acids 341-640 mapping at the C-terminus of PEPCK-M 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.

STORAGE

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

APPLICATIONS

PEPCK (E-1) is recommended for detection of PEPCK-M and PEPCK-C 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), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

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

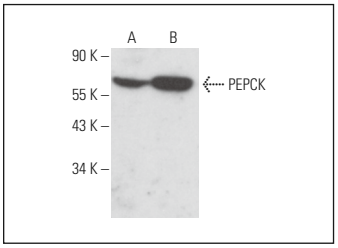
Molecular Weight of PEPCK-M isoforms 1/2/3: 71/48/56.

Positive Controls: KNRK whole cell lysate: sc-2214, Hep G2 cell lysate: sc-2227 or Caki-1 cell lysate: sc-2224.

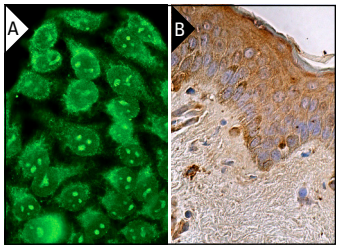
RECOMMENDED SUPPORT REAGENTS

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. 4) Immunohistochemistry: use m-IgGκ BP-HRP: sc-516102 with DAB, 50X: sc-24982 and Immunohistomount: sc-45086, or Organo/Limonene Mount: sc-45087.

DATA



PEPCK (E-1): sc-271204. Western blot analysis of PEPCK expression in KNRK (**A**) and Hep G2 (**B**) whole cell lysates.



PEPCK (E-1): sc-271204. Immunofluorescence staining of methanol-fixed HeLa cells showing cytoplasmic, nuclear and nucleolar localization (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human skin tissue showing cytoplasmic staining of epidermal cells (**B**).

SELECT PRODUCT CITATIONS

1. da Rocha, A.L., et al. 2015. Downhill running-based overtraining protocol improves hepatic Insulin signaling pathway without concomitant decrease of inflammatory proteins. PLoS ONE 10: e0140020.
2. Zhang, H.M., et al. 2016. Beneficial effect of farnesoid X receptor activation on metabolism in a diabetic rat model. Mol. Med. Rep. 13: 2135-2142.
3. Muñoz, V.R., et al. 2017. Physical exercise reduces pyruvate carboxylase (PCB) and contributes to hyperglycemia reduction in obese mice. J. Physiol. Sci. 68: 493-501.
4. Yang, F., et al. 2018. Deficiency of type 2 iodothyronine deiodinase reduces necroptosis activity and oxidative stress responses in retinas of Leber congenital amaurosis model mice. FASEB J. 32: fj201800484RR.

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.