SANTA CRUZ BIOTECHNOLOGY, INC.

PEPCK-C (F-11): sc-377027

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.

CHROMOSOMAL LOCATION

Genetic locus: PCK1 (human) mapping to 20q13.31; Pck1 (mouse) mapping to 2 H3.

SOURCE

PEPCK-C (F-11) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 189-221 within an internal region of PEPCK-C of human origin.

PRODUCT

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

PEPCK-C (F-11) is available conjugated to agarose (sc-377027 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-377027 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-377027 PE), fluorescein (sc-377027 FITC), Alexa Fluor® 488 (sc-377027 AF488), Alexa Fluor® 546 (sc-377027 AF546), Alexa Fluor® 594 (sc-377027 AF594) or Alexa Fluor® 647 (sc-377027 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-377027 AF680) or Alexa Fluor® 790 (sc-377027 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-377027 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

APPLICATIONS

PEPCK-C (F-11) is recommended for detection of 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).

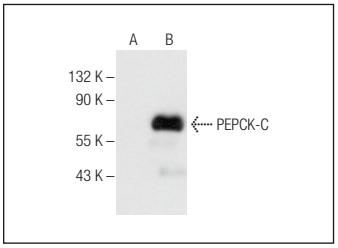
Suitable for use as control antibody for PEPCK-C siRNA (h): sc-76106, PEPCK-C siRNA (m): sc-76107, PEPCK-C shRNA Plasmid (h): sc-76106-SH, PEPCK-C shRNA Plasmid (m): sc-76107-SH, PEPCK-C shRNA (h) Lentiviral Particles: sc-76106-V and PEPCK-C shRNA (m) Lentiviral Particles: sc-76107-V.

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

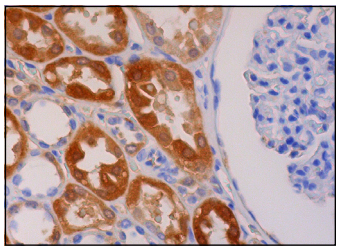
STORAGE

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

DATA



PEPCK-C (F-11): sc-377027. Western blot analysis of PEPCK-C expression in non-transfected: sc-117752 (**A**) and mouse PEPCK-C transfected: sc-127314 (**B**) 293T whole cell lysates.



PEPCK-C (F-11): sc-377027. Immunoperoxidase staining of formalin fixed, paraffin-embedded human kidney tissue showing cytoplasmic staining of cells in tubules.

SELECT PRODUCT CITATIONS

1. Furukawa, F., et al. 2015. Induction of phosphoenolpyruvate carboxykinase (PEPCK) during acute acidosis and its role in acid secretion by V-ATPase-expressing ionocytes. Int. J. Biol. Sci. 11: 712-725.
2. Perry, R.J., et al. 2018. Mechanisms by which a very-low-calorie diet reverses hyperglycemia in a rat model of type 2 diabetes. Cell Metab. 27: 210-217.e3.
3. Zhu, X., et al. 2019. lncRNA MEG3 promotes hepatic Insulin resistance by serving as a competing endogenous RNA of miR-214 to regulate ATF4 expression. Int. J. Mol. Med. 43: 345-357.
4. Chen, Y.S., et al. 2019. Ursodeoxycholic acid regulates hepatic energy homeostasis and white adipose tissue macrophages polarization in leptin-deficiency obese mice. Cells 8: 253.
5. Chen, J., et al. 2019. Protective effects of melatonin on sepsis-induced liver injury and dysregulation of gluconeogenesis in rats through activating SIRT1/STAT3 pathway. Biomed. Pharmacother. 117: 109150.
6. Stevanovic-Silva, J., et al. 2022. Exercise performed during pregnancy positively modulates liver metabolism and promotes mitochondrial biogenesis of female offspring in a rat model of diet-induced gestational diabetes. Biochim. Biophys. Acta Mol. Basis Dis. 1868: 166526.
7. Stevanovic-Silva, J., et al. 2023. Gestational exercise antagonises the impact of maternal high-fat high-sucrose diet on liver mitochondrial alterations and quality control signalling in male offspring. Int. J. Environ. Res. Public Health 20: 1388.
8. Mutlu, B., et al. 2024. Small molecules targeting selective PCK1 and PGC-1α lysine acetylation cause anti-diabetic action through increased lactate oxidation. Cell Chem. Biol. 31: 1772-1786.e5.

RESEARCH USE

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