SANTA CRUZ BIOTECHNOLOGY, INC.

PEPCK (F-2): sc-166778

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 (F-2) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 428-461 near the C-terminus of Phosphoenolpyruvate carboxykinase 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.

PEPCK (F-2) is available conjugated to agarose (sc-166778 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-166778 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-166778 PE), fluorescein (sc-166778 FITC), Alexa Fluor® 488 (sc-166778 AF488), Alexa Fluor® 546 (sc-166778 AF546), Alexa Fluor® 594 (sc-166778 AF594) or Alexa Fluor® 647 (sc-166778 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-166778 AF680) or Alexa Fluor® 790 (sc-166778 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-166778 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

PEPCK (F-2) 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.

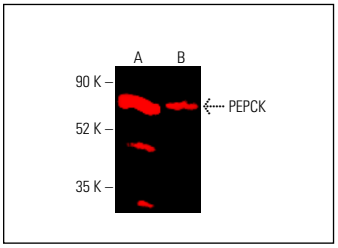
PEPCK (F-2) is also recommended for detection of PEPCK-M and PEPCK-C in additional species, including equine, canine, bovine, porcine and avian.

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

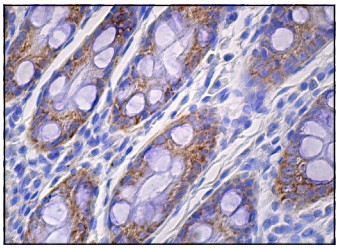
Molecular Weight of PEPCK-M isoforms 1/2/3: 71/48/56 kDa.

Positive Controls: KNRK whole cell lysate: sc-2214, Hep G2 cell lysate: sc-2227 or mouse kidney extract: sc-2255.

DATA



PEPCK (F-2): sc-166778. Near-Infrared western blot analysis of PEPCK expression in human liver tissue extract (**A**) and F9 whole cell lysate (**B**). Blocked with UltraCruz® Blocking Reagent: sc-516214. Detection reagent used: m-IgG_1 BP-CFL 790: sc-533666.



PEPCK (F-2): sc-166778. Immunoperoxidase staining of formalin fixed, paraffin-embedded human rectum tissue showing cytoplasmic staining of glandular cells.

SELECT PRODUCT CITATIONS

1. Wei, J., et al. 2014. Perinatal exposure to bisphenol A exacerbates nonalcoholic steatohepatitis-like phenotype in male rat offspring fed on a high-fat diet. J. Endocrinol. 222: 313-325.
2. Chen, C.C., et al. 2016. Cannabinoid receptor type 1 mediates high-fat diet-induced insulin resistance by increasing forkhead box O1 activity in a mouse model of obesity. Int. J. Mol. Med. 37: 743-754.
3. Al Dera, H., et al. 2017. Enhanced hepatic Insulin signaling in the livers of high altitude native rats under basal conditions and in the livers of low altitude native rats under Insulin stimulation: a mechanistic study. Arch. Physiol. Biochem. 13: 1-14.
4. Idrees, M., et al. 2019. The PPARδ agonist GW501516 improves lipolytic/lipogenic balance through CPT1 and PEPCK during the development of pre-implantation bovine embryos. Int. J. Mol. Sci. 20: 6066.
5. Ji, Y.X., et al. 2021. A kinome screen reveals that Nemo-like kinase is a key suppressor of hepatic gluconeogenesis. Cell Metab. 33: 1171-1186.e9.

RESEARCH USE

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