SANTA CRUZ BIOTECHNOLOGY, INC.

# PEPCK (F-3): sc-271029

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.

## CHROMOSOMAL LOCATION

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

## SOURCE

PEPCK (F-3) 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.

PEPCK (F-3) is available conjugated to agarose (sc-271029 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-271029 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-271029 PE), fluorescein (sc-271029 FITC), Alexa Fluor® 488 (sc-271029 AF488), Alexa Fluor® 546 (sc-271029 AF546), Alexa Fluor® 594 (sc-271029 AF594) or Alexa Fluor® 647 (sc-271029 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-271029 AF680) or Alexa Fluor® 790 (sc-271029 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.



## APPLICATIONS

PEPCK (F-3) 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: A-431 whole cell lysate: sc-2201, ZR-75-1 cell lysate: sc-2241 or Caki-1 cell lysate: sc-2224.

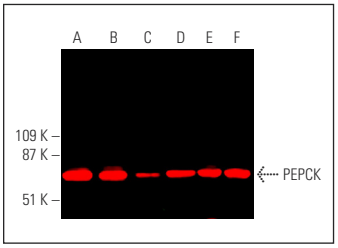
## RESEARCH USE

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

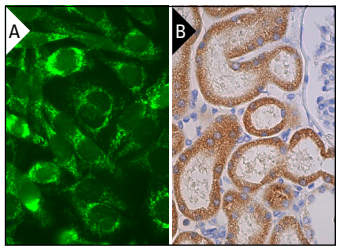
## STORAGE

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

## DATA




PEPCK (F-3): sc-271029. Near-infrared western blot analysis of PEPCK expression in A-431 (**A**), ZR-75-1 (**B**), Caki-1 (**C**), NIH/3T3 (**D**) and c4 (**E**) whole cell lysates and rat liver tissue extract (**F**). Blocked with UltraCruz® Blocking Reagent: sc-516214. Detection reagent used: m-IgGκ BP-CFL 790: sc-516181.




PEPCK (F-3) Alexa Fluor® 488: sc-271029 AF488. Direct immunofluorescence staining of formalin-fixed SW480 cells showing mitochondrial localization. Blocked with UltraCruz® Blocking Reagent: sc-516214 (**A**). PEPCK (F-3): sc-271029. Immunoperoxidase staining of formalin fixed, paraffin-embedded human kidney tissue showing cytoplasmic staining of cells in tubules (**B**).

## SELECT PRODUCT CITATIONS

1. Neal, R.E., et al. 2016. Developmental cigarette smoke exposure II: hepatic proteome profiles in 6 month old adult offspring. Reprod. Toxicol. 65: 414-424.
2. Luna-Vital, D.A. and Gonzalez de Mejia, E. 2018. Anthocyanins from purple corn activate free fatty acid-receptor 1 and glucokinase enhancing *in vitro* Insulin secretion and hepatic glucose uptake. PLoS ONE 13: e0200449.
3. Mo, J., et al. 2019. Ginsenoside Rg1 ameliorates palmitic acid-induced Insulin resistance in Hep G2 cells in association with modulating Akt and JNK activity. Pharmacol. Rep. 71: 1160-1167.
4. Sharma, R., et al. 2020. Phosphoenolpyruvate carboxykinase in urine exosomes reflect impairment in renal gluconeogenesis in early Insulin resistance and diabetes. Am. J. Physiol. Renal Physiol. 318: F720-F731.
5. Zhang, X., et al. 2021. Arsenic trioxide induces differentiation of cancer stem cells in hepatocellular carcinoma through inhibition of LIF/JAK1/Stat3 and NFκB signaling pathways synergistically. Clin. Transl. Med. 11: e335.
6. Xu, M., et al. 2022. The E3 ubiquitin-protein ligase Trim31 alleviates non-alcoholic fatty liver disease by targeting Rhbdf2 in mouse hepatocytes. Nat. Commun. 13: 1052.
7. Kapadia, B., et al. 2023. PIMT regulates hepatic gluconeogenesis in mice. iScience 26: 106120.
8. Li, Z., et al. 2024. Protopanaxadiol derivative: a plant origin of novel selective glucocorticoid receptor modulator with anti-inflammatory effect. Eur. J. Pharmacol. 983: 176901.

## PROTOCOLS

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