

PFK-2 car (D-1): sc-377416

BACKGROUND

Phosphofructokinases (PFK) are regulatory glycolytic enzymes that convert fructose 6-phosphate and ATP into fructose 1,6-bisphosphate (through PFK-1), fructose 2,6-bisphosphate (through PFK-2) and ADP. Human PFK-1 is tetrameric and isoenzymes include PFK-1 muscle (PFKM, PFK-A), PFK-1 liver (PFKL, PFK-B) and PFK-1 platelet (PFKP, PFK-C, PFKF). PFK-1 is inhibited by ATP and citrate (from the tricarboxylic acid cycle). PFK-1 undergoes activation in the presence of elevated AMP, and the most potent activator is fructose-2,6-bisphosphate, which is produced by PFK-2 from the same substrate, fructose 6-phosphate. PFK-2 is bifunctional and a key regulator for PFK-1. PFK-2 catalyzes the synthesis of fructose-2,6-bisphosphate, and contains fructose-2,6-bisphosphatase activity that catalyzes the degradation of fructose-2,6-bisphosphate. PFK-2 is dimeric and isoenzymes include PFK-2 liver (PFKFB1, PFRX), PFK-2 cardiac (PFKFB2), PFK-2 placental (PFKFB3, inducible PFK-2) and PFK-2 testis (PFKFB4).

REFERENCE

1. Tsuura, Y., et al. 1998. Endogenous nitric oxide inhibits glucose-induced Insulin secretion by suppression of phosphofructokinase activity in pancreatic islets. *Biochem. Biophys. Res. Commun.* 252: 34-38.
2. Chang, S.H., et al. 2002. Role of Ser530, Arg292, and His662 in the allosteric behavior of rabbit muscle phosphofructokinase. *Biochem. Biophys. Res. Commun.* 290: 670-675.

CHROMOSOMAL LOCATION

Genetic locus: PFKFB2 (human) mapping to 1q32.2; Pfkfb2 (mouse) mapping to 1 E4.

SOURCE

PFK-2 car (D-1) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 75-105 near the N-terminus of PFK-2 car of human origin.

PRODUCT

Each vial contains 200 µg IgG₁ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

PFK-2 car (D-1) is available conjugated to agarose (sc-377416 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-377416 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-377416 PE), fluorescein (sc-377416 FITC), Alexa Fluor[®] 488 (sc-377416 AF488), Alexa Fluor[®] 546 (sc-377416 AF546), Alexa Fluor[®] 594 (sc-377416 AF594) or Alexa Fluor[®] 647 (sc-377416 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor[®] 680 (sc-377416 AF680) or Alexa Fluor[®] 790 (sc-377416 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-377416 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

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RESEARCH USE

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

APPLICATIONS

PFK-2 car (D-1) is recommended for detection of PFK-2 car 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).

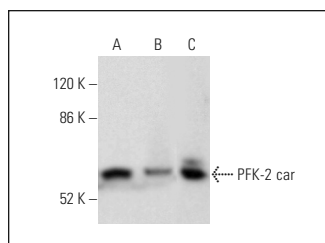
PFK-2 car (D-1) is also recommended for detection of PFK-2 car in additional species, including equine, canine, bovine and porcine.

Suitable for use as control antibody for PFK-2 car siRNA (h): sc-44675, PFK-2 car siRNA (m): sc-44676, PFK-2 car shRNA Plasmid (h): sc-44675-SH, PFK-2 car shRNA Plasmid (m): sc-44676-SH, PFK-2 car shRNA (h) Lentiviral Particles: sc-44675-V and PFK-2 car shRNA (m) Lentiviral Particles: sc-44676-V.

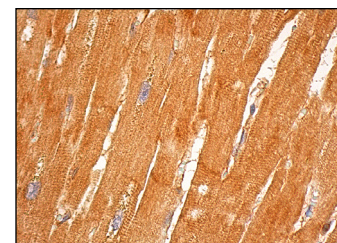
Molecular Weight of PFK-2 car: 58 kDa.

Positive Controls: SK-BR-3 cell lysate: sc-2218, Caco-2 cell lysate: sc-2262 or human heart extract: sc-363763.

DATA



PFK-2 car (D-1): sc-377416. Western blot analysis of PFK-2 car expression in SK-BR-3 (A) and Caco-2 (B) whole cell lysates and human heart tissue extract (C).



PFK-2 car (D-1): sc-377416. Immunoperoxidase staining of formalin fixed, paraffin-embedded human heart muscle tissue showing cytoplasmic staining of myocytes.

SELECT PRODUCT CITATIONS

1. Ma, F., et al. 2016. Emodin decreases hepatic hypoxia-inducible factor-1 α by inhibiting its biosynthesis. *Am. J. Chin. Med.* 44: 997-1008.
2. Lee, J.H., et al. 2018. EGFR-phosphorylated platelet isoform of phosphofructokinase 1 promotes PI3K activation. *Mol. Cell* 70: 197-210.e7.
3. Aguilar, E., et al. 2019. UCP2 deficiency increases colon tumorigenesis by promoting lipid synthesis and depleting NADPH for antioxidant defenses. *Cell Rep.* 28: 2306-2316.e5.
4. Lim, J.S., et al. 2022. Mutual regulation between phosphofructokinase 1 platelet isoform and VEGF promotes glioblastoma tumor growth. *Cell Death Dis.* 13: 1002.

STORAGE

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