

PFK-1 (G-11): sc-166722

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. 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).

CHROMOSOMAL LOCATION

Genetic locus: PFKM (human) mapping to 12q13.11; PfkM (mouse) mapping to 15 F1.

SOURCE

PFK-1 (G-11) is a mouse monoclonal antibody raised against amino acids 676-730 mapping near the C-terminus of PFK-1 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.

PFK-1 (G-11) is available conjugated to agarose (sc-166722 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-166722 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-166722 PE), fluorescein (sc-166722 FITC), Alexa Fluor[®] 488 (sc-166722 AF488), Alexa Fluor[®] 546 (sc-166722 AF546), Alexa Fluor[®] 594 (sc-166722 AF594) or Alexa Fluor[®] 647 (sc-166722 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor[®] 680 (sc-166722 AF680) or Alexa Fluor[®] 790 (sc-166722 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

PFK-1 (G-11) is recommended for detection of muscle type PFK-1 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) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for PFK-1 siRNA (h): sc-44561, PFK-1 siRNA (m): sc-44562, PFK-1 shRNA Plasmid (h): sc-44561-SH, PFK-1 shRNA Plasmid (m): sc-44562-SH, PFK-1 shRNA (h) Lentiviral Particles: sc-44561-V and PFK-1 shRNA (m) Lentiviral Particles: sc-44562-V.

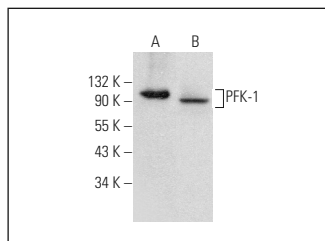
Molecular Weight of PFK-1: 85 kDa.

Positive Controls: rat skeletal muscle extract: sc-364810 or mouse brain extract: sc-2253.

STORAGE

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

DATA



PFK-1 (G-11): sc-166722. Western blot analysis of PFK-1 expression in rat skeletal muscle (A) and mouse brain (B) tissue extracts.

SELECT PRODUCT CITATIONS

1. McPhee, J.S., et al. 2011. Variability in the magnitude of response of metabolic enzymes reveals patterns of co-ordinated expression following endurance training in women. *Exp. Physiol.* 96: 699-707.
2. Thomassen, M., et al. 2013. Fibre type-specific change in FXD1 phosphorylation during acute intense exercise in humans. *J. Physiol.* 591: 1523-1533.
3. Skovgaard, C., et al. 2014. Concurrent speed endurance and resistance training improves performance, running economy, and muscle NHE1 in moderately trained runners. *J. Appl. Physiol.* 117: 1097-1109.
4. Nordsborg, N.B., et al. 2015. Oxidative capacity and glycogen content increase more in arm than leg muscle in sedentary women after intense training. *J. Appl. Physiol.* 119: 116-123.
5. Mohr, M., et al. 2016. Muscle variables of importance for physiological performance in competitive football. *Eur. J. Appl. Physiol.* 116: 251-262.
6. Hostrup, M., et al. 2018. Chronic β_2 -adrenoceptor agonist treatment alters muscle proteome and functional adaptations induced by high intensity training in young men. *J. Physiol.* 596: 231-252.
7. Gunnarsson, T.P., et al. 2019. Inclusion of sprints in moderate intensity continuous training leads to muscle oxidative adaptations in trained individuals. *Physiol. Rep.* 7: e13976.
8. Ogura, Y., et al. 2020. Ketogenic diet feeding improves aerobic metabolism property in extensor digitorum longus muscle of sedentary male rats. *PLoS ONE* 15: e0241382.
9. Shankar, T.S., et al. 2021. Cardiac-specific deletion of voltage dependent anion channel 2 leads to dilated cardiomyopathy by altering calcium homeostasis. *Nat. Commun.* 12: 4583.

RESEARCH USE

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

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