SANTA CRUZ BIOTECHNOLOGY, INC.

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

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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-biphosphatase 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.

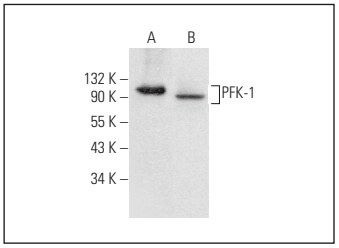
Molecular Weight of PFK-1: 85 kDa.

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 FXYD1 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.