

PFK-1 (G-20): sc-31711

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).

REFERENCES

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 Ser 530, Arg 292, and His 662 in the allosteric behavior of rabbit muscle phosphofructokinase. *Biochem. Biophys. Res. Commun.* 290: 670-675.
3. Zeitschel, U., et al. 2002. Changes in activity and expression of phosphofructokinase in different rat brain regions after basal forebrain cholinergic lesion. *J. Neurochem.* 83: 371-380.
4. Su, Y., et al. 2003. The α -subunit of the V-type H⁺-ATPase interacts with phosphofructokinase-1 in humans. *J. Biol. Chem.* 278: 20013-20018.
5. Sotgia, F., et al. 2003. Phosphofructokinase muscle-specific isoform requires caveolin-3 expression for plasma membrane recruitment and caveolar targeting: implications for the pathogenesis of caveolin-related muscle diseases. *Am. J. Pathol.* 163: 2619-2634.
6. Haller, R.G., et al. 2004. No spontaneous second wind in muscle phosphofructokinase deficiency. *Neurology* 62: 82-86.
7. Martin, S.R., et al. 2004. Interaction of calmodulin with the phosphofructokinase target sequence. *FEBS Lett.* 577: 284-288.
8. Yamada, S., et al. 2004. Novel testis- and embryo-specific isoforms of the phosphofructokinase-1 muscle type gene. *Biochem. Biophys. Res. Commun.* 316: 580-587.

SOURCE

PFK-1 (G-20) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of PFK-1 of human origin.

PRODUCT

Each vial contains 200 μ g IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-31711 P, (100 μ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

PFK-1 (G-20) is recommended for detection of muscle, liver and platelet PFK-1 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), 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).

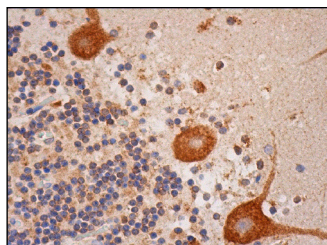
PFK-1 (G-20) is also recommended for detection of muscle, liver and platelet PFK-1 in additional species, including equine, canine, bovine, porcine and avian.

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.

DATA



PFK-1 (G-20): sc-31711. Immunoperoxidase staining of formalin fixed, paraffin-embedded human cerebellum tissue showing cytoplasmic staining of Purkinje cells and cells in granular layer.

STORAGE

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

RESEARCH USE

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

PROTOCOLS

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

MONOS
Satisfaction
Guaranteed

Try **PFK-1 (E-4): sc-377346** or **PFK-1 (G-11): sc-166722**, our highly recommended monoclonal alternatives to PFK-1 (G-20).