SANTA CRUZ BIOTECHNOLOGY, INC.

PFKFB4 (A-1): sc-514792

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. PFK-2 tes (6PF-2-K/Fru-2,6-P2ASE testis-type isozyme), also known as PFKFB4 (6-phosphofructo-2-kinase/fructose-2,6-biphosphatase 4) is a 469 amino acid cytoplasmic enzyme that is involved in the degradation and synthesis of fructose 2,6-bisphosphate. Specifically expressed in testis, PFK-2 tes functions as a homodimer and is regulated via phosphorylation. Expression of PFK-2 tes is upregulated in response to hypoxic conditions in a HIF-1α dependent mechanism. Significantly, expression of PFK-2 tes is observed in a variety of cancer cell lines, suggesting that it may play a role in the Warburg effect, the observation that malignant cells produce ATP via glycolysis followed by lactic acid fermentation in the cytosol, rather than via pyruvate in the mitochondria.

REFERENCES

1. Sakai, A., et al. 1996. Cloning of cDNA encoding for a novel isozyme of fructose 6-phosphate, 2-kinase/fructose 2,6-bisphosphatase from human placenta. J. Biochem. 119: 506-511.
2. Manzano, A., et al. 1999. Cloning, expression and chromosomal localization of a human testis 6-phosphofructo-2-kinase/fructose-2,6-bisphosphatase gene. Gene 229: 83-89.
3. Online Mendelian Inheritance in Man, OMIM™. 2000. Johns Hopkins University, Baltimore, MD. MIM Number: 605320. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
4. Minchenko, O.H., et al. 2005. Expression and hypoxia-responsiveness of 6-phosphofructo-2-kinase/fructose-2,6-bisphosphatase 4 in mammary gland malignant cell lines. Acta Biochim. Pol. 52: 881-888.
5. Minchenko, O.H., et al. 2005. Overexpression of 6-phosphofructo-2-kinase/fructose-2,6-bisphosphatase-4 in the human breast and colon malignant tumors. Biochimie 87: 1005-1010.
6. Gómez, M., et al. 2005. Specific expression of pfkfb4 gene in spermatogonia germ cells and analysis of its 5'-flanking region. FEBS Lett. 579: 357-362.
7. Minchenko, O.H., et al. 2005. Splice isoform of 6-phosphofructo-2-kinase/fructose-2,6-bisphosphatase-4: expression and hypoxic regulation. Mol. Cell. Biochem. 280: 227-234.

CHROMOSOMAL LOCATION

Genetic locus: PFKFB4 (human) mapping to 3p21.31.

SOURCE

PFKFB4 (A-1) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 181-196 within an internal region of PFKFB4 of human origin.

STORAGE

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

PRODUCT

Each vial contains 200 µg IgG_3 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-514792 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

APPLICATIONS

PFKFB4 (A-1) is recommended for detection of PFKFB4 of 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 PFKFB4 siRNA (h): sc-78392, PFKFB4 shRNA Plasmid (h): sc-78392-SH and PFKFB4 shRNA (h) Lentiviral Particles: sc-78392-V.

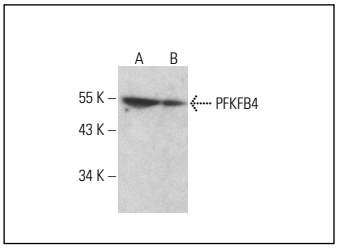
Molecular Weight of PFKFB4: 55 kDa.

Positive Controls: PFKFB4 (h3): 293T Lysate: sc-176517, Raji whole cell lysate: sc-364236 or MOLT-4 cell lysate: sc-2233.

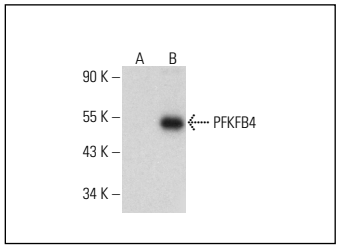
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

DATA



PFKFB4 (A-1): sc-514792. Western blot analysis of PFKFB4 expression in Raji (**A**) and MOLT-4 (**B**) whole cell lysates.



PFKFB4 (A-1): sc-514792. Western blot analysis of PFKFB4 expression in non-transfected: sc-117752 (**A**) and human PFKFB4 transfected: sc-176517 (**B**) 293T cell lysates.

RESEARCH USE

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