

PGK1/2 (A-2): sc-166432

BACKGROUND

Phosphoglycerate kinases 1/2 (PGK1/2, (ATP:3-phospho-D-glycerate 1-phosphotransferase, EC 2.7.2.3) are somatically expressed, glycolytic enzymes that catalyze the transfer of a phosphoryl group from the acyl phosphate of 1,3-bisphosphoglycerate to ADP, thereby forming ATP and 3-phosphoglycerate. The human PGK gene is interrupted by 10 introns and spans 23 kilobases and is X chromosome-linked at position Xp21.1, a region implicated in prostate cancer, androgen insensitivity, perineal hypospadias and other genetic abnormalities. In addition to influencing glycolysis, the PGK1 is secreted by tumor cells and contributes to proliferative angiogenic processes as a disulfide reductase. PGK1 mediated reduction of disulphide bonds in the serine proteinase plasmin initiates the release of the tumor blood vessel inhibitor angiostatin, an event that is critical for blood vessel formation or angiogenesis in tumor expansion and metastasis.

REFERENCES

1. Michelson, A.M., Blake, C.C., Evans, S.T. and Orkin, S.H. 1985. Structure of the human phosphoglycerate kinase gene and the intron-mediated evolution and dispersal of the nucleotide-binding domain. *Proc. Natl. Acad. Sci. USA* 82: 6965-6969.
2. Ogino, T., Iwama, M., Kinouchi, J., Shibagaki, Y., Tsukamoto, T. and Mizumoto, K. 1999. Involvement of a cellular glycolytic enzyme, phosphoglycerate kinase, in Sendai virus transcription. *J. Biol. Chem.* 274: 35999-36008.
3. Riley, D.E., Cho, I.R. and Krieger, J.N. 1999. A hemizygous short tandem repeat polymorphism 3' to the human phosphoglycerate kinase gene. *Mol. Biol. Rep.* 26: 159-165.
4. Lay, A.J., Jiang, X.M., Kisker, O., Flynn, E., Underwood, A., Condron, R. and Hogg, P.J. 2000. Phosphoglycerate kinase acts in tumour angiogenesis as a disulphide reductase. *Nature* 408: 869-873.
5. LocusLink Report (LocusID: 5230). <http://www.ncbi.nlm.nih.gov/LocusLink/>

CHROMOSOMAL LOCATION

Genetic locus: PGK1 (human) mapping to Xp21.1, PGK2 (human) mapping to 6p12.3; Pgk1 (mouse) mapping to X D, Pgk2 (mouse) mapping to 17 B2.

SOURCE

PGK1/2 (A-2) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 139-166 within an internal region of PGK1 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.

Blocking peptide available for competition studies, sc-166432 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

APPLICATIONS

PGK1/2 (A-2) is recommended for detection of PGK1 and PGK2 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).

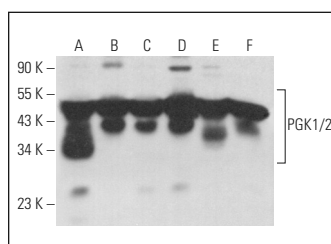
Molecular Weight of PGK1/2: 45 kDa.

Positive Controls: F9 cell lysate: sc-2245, JAR cell lysate: sc-2276 or NIH/3T3 whole cell lysate: sc-2210.

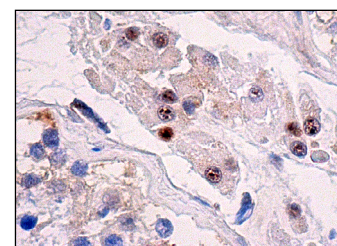
RECOMMENDED SUPPORT REAGENTS

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. 4) Immunohistochemistry: use m-IgGκ BP-HRP: sc-516102 with DAB, 50X: sc-24982 and Immunohistomount: sc-45086, or Organo/Limonene Mount: sc-45087.

DATA



PGK1/2 (A-2): sc-166432. Western blot analysis of PGK1/2 expression in A-431 (A), NIH/3T3 (B), F9 (C), L6 (D), A-10 (E) and JAR (F) whole cell lysates.



PGK1/2 (A-2): sc-166432. Immunoperoxidase staining of formalin fixed, paraffin-embedded human testis tissue showing nuclear staining of subset of Leydig cells.

SELECT PRODUCT CITATIONS

1. Nie, H., Ju, H., Fan, J., Shi, X., Cheng, Y., Cang, X., Zheng, Z., Duan, X. and Yi, W. 2020. O-GlcNAcylation of PGK1 coordinates glycolysis and TCA cycle to promote tumor growth. *Nat. Commun.* 11: 36.

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.