

PKM (YY-3): sc-100538

BACKGROUND

In mammals, four different isoenzymes exist for pyruvate kinase. Based on their tissue distribution, the isoenzymes are designated L-type (for predominant expression in the liver), R-type (for predominant expression in red blood cells), M1-type (for predominant expression in muscle, brain and heart) and M2-type (for predominant expression in fetal tissues). Pyruvate kinases are responsible for catalyzing the final step in glycolysis: the conversion of phosphoenolpyruvate to pyruvate with the coinciding generation of ATP. The PKM (pyruvate kinase, muscle) gene encodes the M1- and M2-type isoenzymes through alternative splicing events. Both M1- and M2-type isoforms exist as tetramers and are stimulated by fructose 1,6-bisphosphate. In addition, both isoforms exhibit thyroid hormone binding activity and may be referred to as CTHBP (cytosolic thyroid hormone-binding protein) or THBP1. The M2-type isoform also interacts with Oct-4 via its C-terminal domain, functioning to enhance Oct-4 transcriptional activity.

REFERENCES

1. Parkison, C., et al. 1991. The monomer of pyruvate kinase, subtype M1, is both a kinase and a cytosolic thyroid hormone binding protein. *Biochem. Biophys. Res. Commun.* 179: 668-674.
2. Ashizawa, K., et al. 1991. *In vivo* regulation of monomer-tetramer conversion of pyruvate kinase subtype M2 by glucose is mediated via fructose 1,6-bisphosphate. *J. Biol. Chem.* 266: 16842-16846.
3. Li, Y., et al. 2005. High glucose upregulates pantothenate kinase 4 (PANK4) and thus affects M2-type pyruvate kinase (PKM2). *Mol. Cell. Biochem.* 277: 117-125.
4. Sugiura, K., et al. 2005. Oocyte control of metabolic cooperativity between oocytes and companion granulosa cells: energy metabolism. *Dev. Biol.* 279: 20-30.
5. Dombrackas, J.D., et al. 2005. Structural basis for tumor pyruvate kinase M2 allosteric regulation and catalysis. *Biochemistry* 44: 9417-9429.
6. Kansy, J.W., et al. 2006. Identification of pyruvate kinase as an antigen associated with Tourette syndrome. *J. Neuroimmunol.* 181: 165-176.

CHROMOSOMAL LOCATION

Genetic locus: PKM (human) mapping to 15q23; Pkm (mouse) mapping to 9 B.

SOURCE

PKM (YY-3) is a mouse monoclonal antibody raised against recombinant PKM of human origin.

PRODUCT

Each vial contains 200 µl ascites containing IgM with < 0.1% sodium azide.

PROTOCOLS

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

APPLICATIONS

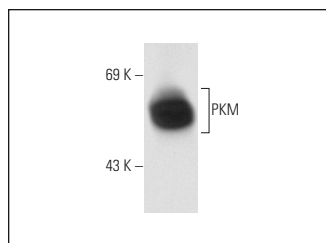
PKM (YY-3) is recommended for detection of PKM of mouse, rat and human origin by Western Blotting (starting dilution to be determined by researcher, dilution range 1:100-1:5000), immunoprecipitation [1-2 µl per 100-500 µg of total protein (1 ml of cell lysate)] and solid phase ELISA (starting dilution to be determined by researcher, dilution range 1:100-1:5000).

Suitable for use as control antibody for PKM siRNA (h): sc-62820, PKM siRNA (m): sc-62821, PKM shRNA Plasmid (h): sc-62820-SH, PKM shRNA Plasmid (m): sc-62821-SH, PKM shRNA (h) Lentiviral Particles: sc-62820-V and PKM shRNA (m) Lentiviral Particles: sc-62821-V.

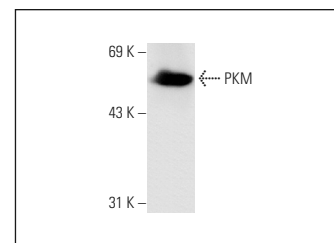
Molecular Weight of PKM M1/M2-type monomer: 58 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200, Jurkat whole cell lysate: sc-2204 or K-562 whole cell lysate: sc-2203.

DATA



PKM (YY-3): sc-100538. Western blot analysis of PKM expression in Jurkat whole cell lysate.



PKM (YY-3): sc-100538. Western blot analysis of PKM expression in HeLa whole cell lysate.

SELECT PRODUCT CITATIONS

1. Shang, Y., et al. 2017. CHIP/Stub1 regulates the Warburg effect by promoting degradation of PKM2 in ovarian carcinoma. *Oncogene* 36: 4191-4200.
2. Ren, J., et al. 2020. Shenqi Yizhi granules protect hippocampus of AD transgenic mice by modulating on multiple pathogenesis processes. *J. Ethnopharmacol.* 263: 112869.

STORAGE

For immediate and continuous use, store at 4° C for up to one month. For sporadic use, freeze in working aliquots in order to avoid repeated freeze/thaw cycles. If turbidity is evident upon prolonged storage, clarify solution by centrifugation.

RESEARCH USE

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



See **PKM (C-11): sc-365684** for PKM antibody conjugates, including AC, HRP, FITC, PE, and Alexa Fluor® 488, 546, 594, 647, 680 and 790.