

## PKM2 (E-12): sc-65178

### 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 PKM2 (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.
7. Butterfield, D.A., et al. 2006. Redox proteomics identification of oxidatively modified hippocampal proteins in mild cognitive impairment: insights into the development of Alzheimer's disease. *Neurobiol. Dis.* 22: 223-232.
8. Lee, J., et al. 2007. Pyruvate kinase isozyme type M2 (PKM2) interacts and cooperates with Oct-4 in regulating transcription. *Int. J. Biochem. Cell Biol.* 40: 1043-1054.
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### CHROMOSOMAL LOCATION

Genetic locus: PKM2 (human) mapping to 15q23.

### SOURCE

PKM2 (E-12) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of PKM2 of rat origin.

### PRODUCT

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

Blocking peptide available for competition studies, sc-65178 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

### APPLICATIONS

PKM2 (E-12) is recommended for detection of PKM2 of human and rat 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) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

PKM2 (E-12) is also recommended for detection of PKM2 in additional species, including canine, bovine and porcine.

Suitable for use as control antibody for PKM2 siRNA (h): sc-62820, PKM2 shRNA Plasmid (h): sc-62820-SH and PKM2 shRNA (h) Lentiviral Particles: sc-62820-V.

Molecular Weight of PKM2 M1-type monomer: 58 kDa.

Molecular Weight of PKM2 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.

### RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

### 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](http://www.scbt.com) or our catalog for detailed protocols and support products.



Try **PKM2 (C-11): sc-365684** or **PKM2 (YY-3): sc-100538**, our highly recommended monoclonal alternatives to PKM2 (E-12). Also, for AC, HRP, FITC, PE, Alexa Fluor® 488 and Alexa Fluor® 647 conjugates, see **PKM2 (C-11): sc-365684**.