

## PKM2 Protein, Mouse (Baculovirus, His-Myc)

<b>Cat. No.:</b>	HY-P72053
<b>Synonyms:</b>	Pkm; Pk3; Pkm2; PykmPyruvate kinase PKM; EC 2.7.1.40; Pyruvate kinase muscle isozyme
<b>Species:</b>	Mouse
<b>Source:</b>	Sf9 insect cells
<b>Accession:</b>	P52480 (M1-P531)
<b>Gene ID:</b>	18746
<b>Molecular Weight:</b>	Approximately 61.8 kDa

### PROPERTIES

#### AA Sequence

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M P K P H S E A G T   A F I Q T Q Q L H A   A M A D T F L E H M   C R L D I D S A P I
T A R N T G I I C T   I G P A S R S V E M   L K E M I K S G M N   V A R L N F S H G T
H E Y H A E T I K N   V R E A T E S F A S   D P I L Y R P V A V   A L D T K G P E I R
T G L I K G S G T A   E V E L K K G A T L   K I T L D N A Y M E   K C D E N I L W L D
Y K N I C K V V E V   G S K I Y V D D G L   I S L Q V K E K G A   D F L V T E V E N G
G S L G S K K G V N   L P G A A V D L P A   V S E K D I Q D L K   F G V E Q D V D M V
F A S F I R K A A D   V H E V R K V L G E   K G K N I K I I S K   I E N H E G V R R F
D E I L E A S D G I   M V A R G D L G I E   I P A E K V F L A Q   K M M I G R C N R A
G K P V I C A T Q M   L E S M I K K P R P   T R A E G S D V A N   A V L D G A D C I M
L S G E T A K G D Y   P L E A V R M Q H L   I A R E A E A A I Y   H L Q L F E E L R R
L A P I T S D P T E   A A A V G A V E A S   F K C C S G A I I V   L T K S G R S A H Q
V A R Y R P R A P I   I A V T R N P Q T A   R Q A H L Y R G I F   P V L C K D A V L N
A W A E D V D L R V   N L A M D V G K A R   G F F K K G D V V I   V L T G W R P G S G
F T N T M R V V P V   P
  
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**Biological Activity** The enzyme activity of this recombinant protein is testing in progress, we cannot offer a guarantee yet.

**Appearance** Lyophilized powder.

**Formulation** Lyophilized from a 0.2 µm solution of Tris-based buffer, 50% Glycerol.

**Endotoxin Level** <1 EU/µg, determined by LAL method.

**Reconstitution** It is not recommended to reconstitute to a concentration less than 100 µg/mL in ddH<sub>2</sub>O.

**Storage & Stability** Stored at -20°C for 2 years. After reconstitution, it is stable at 4°C for 1 week or -20°C for longer (with carrier protein). It is recommended to freeze aliquots at -20°C or -80°C for extended storage.

**Shipping** Room temperature in continental US; may vary elsewhere.

## DESCRIPTION

### Background

The PKM2 protein assumes a multifaceted role in cellular processes, catalyzing the final rate-limiting step of glycolysis by mediating the transfer of a phosphoryl group from phosphoenolpyruvate (PEP) to ADP, generating ATP. The dynamic balance between its highly active tetrameric form and nearly inactive dimeric form dictates whether glucose carbons are directed towards biosynthetic processes or utilized for glycolytic ATP production, thereby contributing to the control of glycolysis. This transition between forms holds crucial significance for tumor cell proliferation and survival. An isoform expressed specifically during embryogenesis exhibits low pyruvate kinase activity by itself and necessitates allosteric activation by D-fructose 1,6-bisphosphate (FBP). Beyond its cytoplasmic pyruvate kinase activity, PKM2 functions as a transcriptional regulator in the nucleus, acting as a protein kinase. Upon translocation into the nucleus in response to various signals, such as EGF receptor activation, it homodimerizes, transforming into a protein threonine- and tyrosine-protein kinase. PKM2 also catalyzes the phosphorylation of STAT3 and histone H3, contributing to transcriptional activation. Its role in cancer cells involves promoting cell proliferation and tumorigenesis, along with regulating the expression of immune checkpoint proteins. Additionally, PKM2 acts as a translation regulator for specific mRNAs independently of its pyruvate kinase activity, associating with endoplasmic reticulum-associated ribosomes and promoting translation of endoplasmic reticulum-destined mRNAs. Furthermore, PKM2 plays a role in caspase-independent cell death in tumor cells. The diverse functionalities of PKM2 underscore its central position in coordinating crucial cellular processes with implications for metabolism, growth, and disease.

**Caution: Product has not been fully validated for medical applications. For research use only.**

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