

## PKM2 Protein, Human, Recombinant (His)

### General Information

Synonyms:	pyruvate kinase, muscle;OIP3;CTHBP;PK3;THBP1;HEL-S-30;TCB;PKM2
Protein Construction:	A DNA sequence encoding the human PKM2 isoform M2 (P14618-1) (Ser 2-Pro 531) was expressed, with a polyhistidine tag at the N-terminus. Predicted N terminal: Met
Species:	Human
Expression Host:	E. coli
Accession:	P14618-1
Molecular Weight:	59 kDa (predicted); 59 kDa (reducing conditions)

### QC Testing

Biological Activity:	Kinase activity untested
Purity:	> 90 % as determined by SDS-PAGE
Endotoxin:	Please contact us for more information.
Formulation:	Supplied as sterile PBS, pH 7.0, 10% glycerol.

### Preparation and Storage

#### Reconstitution:

A Certificate of Analysis (CoA) containing reconstitution instructions is included with the products. Please refer to the CoA for detailed information.

#### Stability & Storage:

It is recommended to store the product under sterile conditions at -20°C to -80°C. Samples are stable for up to 12 months. Please avoid multiple freeze-thaw cycles and store products in aliquots.

*Actual storage temperature shall be subject to the COA.*

#### Shipping:

Proteins are shipped with blue ice.

### Protein Background

Pyruvate kinase isozymes M2 also known as pyruvate kinase muscle isozyme 2 (PKM2), pyruvate kinase type K, cytosolic thyroid hormone-binding protein (CTHBP), thyroid hormone-binding protein 1 (THBP1), or opa-interacting protein 3 (OIP3), is an isoenzyme of the glycolytic enzyme pyruvate kinase. Pyruvate kinase isozymes M2 / PKM2 is a protein involved in glycolysis. The encoded protein is a pyruvate kinase that catalyzes the transfer of a phosphoryl group from phosphoenolpyruvate to ADP, generating ATP and pyruvate. PKM2 has been shown to interact with thyroid hormone and may mediate cellular metabolic effects induced by thyroid hormones. PKM2 has been found to bind Opa protein, a bacterial outer membrane protein involved in gonococcal adherence to and invasion of human cells, suggesting a role of this protein in bacterial pathogenesis. Several alternatively spliced transcript variants encoding a few distinct isoforms have been reported. PKM2 functions as a glycolytic enzyme

that catalyzes the transfer of a phosphoryl group from phosphoenolpyruvate (PEP) to ADP, generating ATP. PKM2 may stimulate POU5F1-mediated transcriptional activation. This protein plays a general role in caspase independent cell death of tumor cells. The ratio between the highly active tetrameric form and nearly inactive dimeric form determines whether glucose carbons are channeled to biosynthetic processes or used for glycolytic ATP production. The transition between the 2 forms of PKM2 contributes to the control of glycolysis and is important for tumor cell proliferation and survival.

### Reference

Bluemlein K, et al. (2011) No evidence for a shift in pyruvate kinase PKM1 to PKM2 expression during tumorigenesis. *Oncotarget*. 2 (5): 393-400.

Gupta V, et al. (2010) Dominant Negative Mutations Affect Oligomerization of Human Pyruvate Kinase M2 Isozyme and Promote Cellular Growth and Polyploidy. *J Biol Chem*. 285 (22): 16864-73.

Eigenbrodt E, et al. (1992) Double role for pyruvate kinase type M2 in the expansion of phosphometabolite pools found in tumor cells. *Crit Rev Oncog*. 3 (1): 91-115.

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Tel:781-999-4286 E\_mail:info@targetmol.com Address:34 Washington Street,Wellesley Hills,MA 02481