

PKM2 (D78A4) XP™ Rabbit mAb

✓ 100 µl
(10 western blots)

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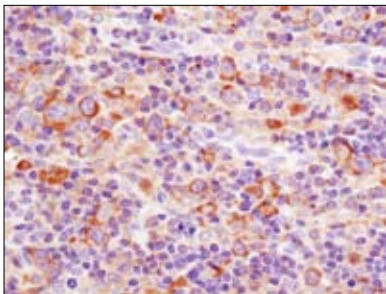
This product is for *in vitro* research use only and is not intended for use in humans or animals.
This product is not intended for use as a therapeutic or in diagnostic procedures.

Applications	Species Cross-Reactivity*	Molecular Wt.	Isotype
W, IP, IHC-P, IF-IC Endogenous	H, M, R, Mk	60 kDa	Rabbit IgG**

Background: Pyruvate kinase, a glycolytic enzyme, catalyzes the conversion of phosphoenolpyruvate to pyruvate. In mammals, the M1 isoform (PKM1) is expressed in most adult tissues (1). The M2 isoform (PKM2), an alternatively-spliced variant of M1, is expressed during embryonic development (1). Studies found that cancer cells exclusively express PKM2 (1-3). PKM2 is shown to be essential for aerobic glycolysis in tumors (Warburg effect) (1). When the M2 isoform is switched to the M1 isoform, aerobic glycolysis is reduced and oxidative phosphorylation is increased in cancer cells (1). These cells also show decreased tumorigenicity in mouse xenografts (1). Recent studies show that the oncogenic forms of FGFR1 directly phosphorylate Tyr105 of PKM2 and thereby inhibit the formation of active tetrameric PKM2 (4). A PKM2 mutant found in cancer cells, in which Tyr105 is replaced by phenylalanine, leads to reduced cell proliferation in hypoxia and tumor growth in xenografts in nude mice (4). These findings suggest that the phosphorylation at Tyr105 is a critical switch for the metabolism in cancer cells that promotes tumor growth (4).

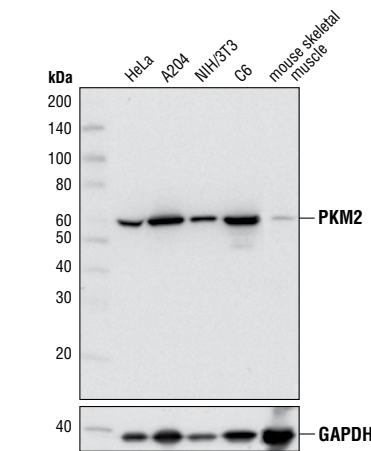
Specificity/Sensitivity: PKM2 (D78A4) XP™ Rabbit mAb detects endogenous levels of total PKM2 protein.

Source/Purification: Monoclonal antibody is produced by immunizing animals with a synthetic peptide (KLH-coupled) derived from the sequence of human PKM2.

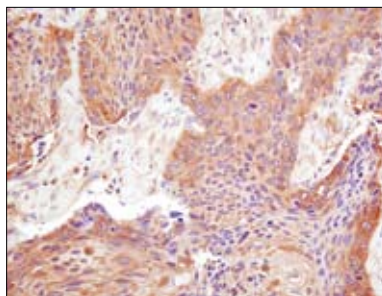


Immunohistochemical analysis of paraffin-embedded human lymphoma using PKM2 (D78A4) XP™ Rabbit mAb.

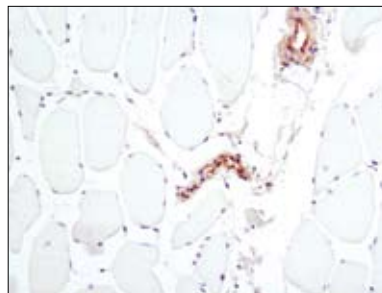
Immunohistochemical analysis of paraffin-embedded human skeletal muscle using PKM2 (D78A4) XP™ Rabbit mAb. Note the lack of staining in the skeletal muscle cells which do not express PKM2 while vessels within the tissue stain positively.



Western blot analysis of extracts from various cell lines and mouse skeletal muscle using PKM2 (D78A4) XP™ Rabbit mAb (upper) or GAPDH (14C10) Rabbit mAb #2118.



Immunohistochemical analysis of paraffin-embedded human lung carcinoma using PKM2 (D78A4) XP™ Rabbit mAb.



Entrez-Gene ID #5315
Swiss-Prot Acc. #P14618

Storage: Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100 µg/ml BSA, 50% glycerol and less than 0.02% sodium azide. Store at -20°C. Do not aliquot the antibodies.

*Species cross-reactivity is determined by western blot.

**Anti-rabbit secondary antibodies must be used to detect this antibody.

Recommended Antibody Dilutions:

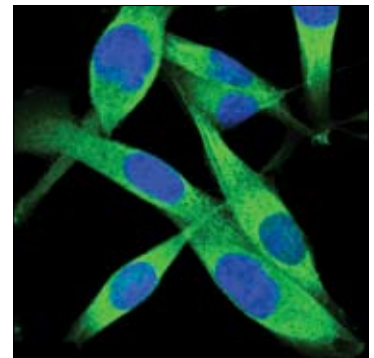
Western blotting	1:1000
Immunoprecipitation	1:50
Immunohistochemistry (Paraffin)	1:800
Unmasking buffer:	Citrate
Antibody diluent:	SignalStain® Antibody Diluent #8112
Immunofluorescence (IF-IC)	1:100

For application specific protocols please see the web page for this product at www.cellsignaling.com.

Please visit www.cellsignaling.com for a complete listing of recommended companion products.

Background References:

- (1) Christofk, H.R. et al. (2008) *Nature* 452, 230-3.
- (2) Mazurek, S. et al. (2005) *Semin Cancer Biol* 15, 300-8.
- (3) Dombrackas, J.D. et al. (2005) *Biochemistry* 44, 9417-29.
- (4) Hitosugi, T. et al. (2009) *Sci Signal* 2, ra73.



Confocal immunofluorescent analysis of A204 cells using PKM2 (D78A4) XP™ Rabbit mAb (green). Blue pseudocolor = DRAQ5® #4084 (fluorescent DNA dye).

IMPORTANT: For western blots, incubate membrane with diluted antibody in 5% w/v BSA, 1X TBS, 0.1% Tween-20 at 4°C with gentle shaking, overnight.

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Applications Key: W—Western IP—Immunoprecipitation IHC—Immunohistochemistry ChIP—Chromatin Immunoprecipitation IF—Immunofluorescence F—Flow cytometry E-P—ELISA-Peptide

Species Cross-Reactivity Key: H—human M—mouse R—rat Hm—hamster Mk—monkey Mi—mink C—chicken Dm—D. melanogaster X—Xenopus Z—zebrafish B—bovine

Dg—dog Pg—pig Sc—S. cerevisiae All—all species expected Species enclosed in parentheses are predicted to react based on 100% homology.