abcam

ab150377

Anti-PKM antibody [EPR10138(B)]

Recombinant | RabMAb | 20ul selling size

Key facts

Isotype	IgG
Host species	Rabbit
Storage buffer	pH: 7.2 - 7.4 Preservative: 0.01% Sodium azide Constituents: PBS, 40% Glycerol (glycerin, glycerine), 0.05% BSA
Form	Liquid
Clonality	Monoclonal
Immunogen	The exact immunogen used to generate this antibody is proprietary information.
Clone number	EPR10138(B)
Purification technique	Affinity purification Protein A
Concentration	0.5 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

WB

Tested

Species	Mouse
Dilution info	1/10000
Notes	-

Species	Rat

Dilution info	1/10000
Notes	-

Species	Human
Dilution info	1/10000
Notes	-

Predicted

Species	Pig
Dilution info	-
Notes	-

ICC/IF

Tested

Species	Human
Dilution info	1/50
Notes	-

Expected

Species	Mouse, Rat
Dilution info	Use at an assay dependent concentration.
Notes	-

Predicted

Species	Pig
Dilution info	-
Notes	-

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	1/50
Notes	ab172730 - Rabbit monoclonal IgG, is suitable for use as an isotype control with this antibody.

Expected

Species	Mouse, Rat
Dilution info	Use at an assay dependent concentration.
Notes	-

Predicted

Species	Pig
Dilution info	-
Notes	-

Target data

See full target information PKM

Function

Catalyzes the final rate-limiting step of glycolysis by mediating the transfer of a phosphoryl group from phosphoenolpyruvate (PEP) to ADP, generating ATP (PubMed:15996096, PubMed:1854723, PubMed:20847263). 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 (PubMed:15996096, PubMed:1854723, PubMed:20847263). The transition between the 2 forms contributes to the control of glycolysis and is important for tumor cell proliferation and survival (PubMed:15996096, PubMed:1854723, PubMed:20847263). Isoform M2. Isoform specifically expressed during embryogenesis that has low pyruvate kinase activity by itself and requires allosteric activation by D-fructose 1,6-bisphosphate (FBP) for pyruvate kinase activity (PubMed:18337823, PubMed:20847263). In addition to its pyruvate kinase activity in the cytoplasm, also acts as a regulator of transcription in the nucleus by acting as a protein kinase (PubMed:18191611, PubMed:21620138, PubMed:22056988, PubMed:22306293, PubMed:22901803, PubMed:24120661). Translocates into the nucleus in response to various signals, such as EGF receptor activation, and homodimerizes, leading to its conversion into a protein threonine- and tyrosine-protein kinase (PubMed:22056988, PubMed:22306293, PubMed:22901803, PubMed:24120661, PubMed:26787900). Catalyzes phosphorylation of STAT3 at 'Tyr-705' and histone H3 at 'Thr-11' (H3T11ph), leading to activate transcription (PubMed:22306293, PubMed:22901803, PubMed:24120661). Its ability to activate transcription plays a role in cancer cells

by promoting cell proliferation and promote tumorigenesis (PubMed:18337823, PubMed:22901803, PubMed:26787900). Promotes the expression of the immune checkpoint protein CD274 in BMAL1-deficient macrophages (By similarity). May also act as a translation regulator for a subset of mRNAs, independently of its pyruvate kinase activity: associates with subpools of endoplasmic reticulum-associated ribosomes, binds directly to the mRNAs translated at the endoplasmic reticulum and promotes translation of these endoplasmic reticulum-destined mRNAs (By similarity). Plays a role in caspase independent cell death of tumor cells (PubMed:17308100). Isoform M1. Pyruvate kinase isoform expressed in adult tissues, which replaces isoform M2 after birth (PubMed:18337823). In contrast to isoform M2, has high pyruvate kinase activity by itself and does not require allosteric activation by D-fructose 1,6-bisphosphate (FBP) for activity (PubMed:20847263).

Storage

Shipped at conditions	Conditional Ambient
Appropriate short-term storage conditions	+4°C
Appropriate long-term storage conditions	-20°C
Aliquoting information	Upon delivery aliquot
Storage information	Avoid freeze / thaw cycle

Notes

We are constantly working hard to ensure we provide our customers with best in class antibodies. As a result of this work we are pleased to now offer this antibody in purified format. We are in the process of updating our datasheets. The purified format is designated 'PUR' on our product labels. If you have any questions regarding this update, please contact our Scientific Support team.

Patented technology

Our RabMAb® technology is a patented hybridoma-based technology for making rabbit monoclonal antibodies. For details on our patents, please refer to RabMAb® patents.

What are the advantages of a recombinant monoclonal antibody?

This product is a recombinant monoclonal antibody, which offers several advantages including:

- High batch-to-batch consistency and reproducibility
- Improved sensitivity and specificity
- Long-term security of supply
- Animal-free batch production

For more information, read more on recombinant antibodies.

Supplementary info

This supplementary information is collated from multiple sources and compiled automatically.

Activity summary	PKM also known as pyruvate kinase muscle isozyme (PKM) and PEP is an enzyme that plays an important role in glycolysis by catalysing the conversion of phosphoenolpyruvate (PEP) to pyruvate yielding ATP in the process. The PKM protein has two isoforms PKM1 and PKM2 which result from alternative splicing of the PKM gene. The mass of PKM2 the more studied isoform is approximately 58 kDa. PKM is expressed in various tissues prominently in skeletal muscle heart brain and many tumor cells. Additionally PKM has significant activity in rapidly proliferating cells suggesting its importance in high-energy demanding environments.
Biological function summary	PKM functions not only in catalyzing the last step of glycolysis but also regulates metabolic and transcriptional processes. Specifically PKM2 is a participant in the regulation of gene expression and cellular response to oxidative stress and nutrient availability. It can exist as a dimer or tetramer with the latter being the more active form in glycolytic pathways while the dimeric form can translocate to the nucleus to perform functions unrelated to its glycolytic activity. These transformations make PKM part of a dynamic complex that responds to various cellular signals.
Pathways	PKM integrates into essential metabolic pathways including the glycolytic pathway and influences the pentose phosphate pathway. It works in conjunction with phosphofructokinase-1 (PFK1) another key glycolytic enzyme synchronizing the energy production process in cells. PKM2's non-metabolic roles involve interactions in signaling pathways related to cellular proliferation and survival often interacting with and modulating proteins like HIF-1α which plays a central role in cellular responses to hypoxia.
Associated diseases and disorders	PKM2 shows strong connections to cancer and metabolic diseases. Tumor cells often exhibit a shift in expression from PKM1 to PKM2 facilitating the altered metabolism known as the Warburg effect characterized by increased aerobic glycolysis. Its interaction with HIF-1α promotes adaptation to low oxygen environments typical in tumorous growth. Furthermore PKM disruptions or aberrations contribute to metabolic disorders such as diabetes where altered glucose metabolism becomes evident. The protein's behavior in these disease conditions indicates potential targets for therapeutic intervention highlighting the importance of PKM in both normal physiology and pathology.

Product promise

Tested

We have tested this species and application combination and it works. It is covered by our product promise.

Expected

We have not tested this specific species and application combination in-house, but expect it will work. It is covered by our product promise.

Predicted

This species and application combination has not been tested, but we predict it will work based on strong homology. However, this combination is not covered by our product promise.

Not recommended

We do not recommend this combination. It is not covered by our product promise.

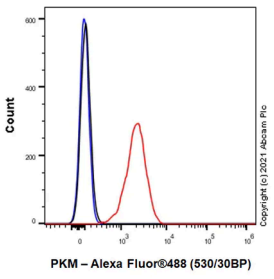
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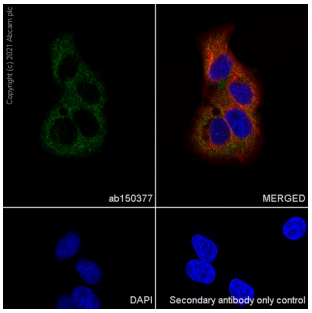
4 product images



Flow Cytometry (Intracellular) - Anti-PKM antibody [EPR10138(B)] (ab150377)

PKM Flow Cytometry (Intracellular) staining using rabbit Anti-PKM antibody

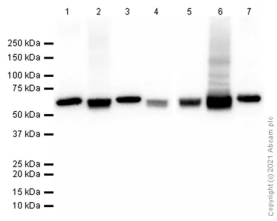
Flow Cytometry analysis of HeLa (Human cervix adenocarcinoma epithelial cell) cells labelling PKM with Purified ab150377 at 1:50 dilution (10 µg/ml) (Red). Cells were fixed with 4% Paraformaldehyde and permeabilised with 90% Methanol. A Goat anti rabbit IgG (Alexa Fluor™ 488, ab150077) secondary antibody was used at 1:2000. Isotype control - Rabbit monoclonal IgG (Black). Unlabelled control - Cell without incubation with primary antibody and secondary antibody (Blue).



Immunocytochemistry/ Immunofluorescence - Anti-PKM antibody [EPR10138(B)] (ab150377)

PKM Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-PKM antibody

Immunocytochemistry analysis of A549(Human lung carcinoma epithelial cell) cells labeling PKM with Purified ab150377 at 1/50 dilution (10 µg/mL). Cells were fixed in 4% Paraformaldehyde and permeabilized with 0.1% tritonX-100. Cells were counterstained with ab195889 Anti-alpha Tubulin antibody [DM1A+H10:L10] - Microtubule Marker (Alexa Fluor® 594) 1/200 (2.5 µg/mL). Goat anti rabbit IgG (Alexa Fluor® 488, ab150077) was used as the secondary antibody at 1/1000 (2 µg/mL) dilution. DAPI (blue) was used as nuclear counterstain. PBS instead of the primary antibody was used as the secondary antibody only control.



Western blot - Anti-PKM antibody [EPR10138(B)] (ab150377)

PKM Western blot staining using rabbit Anti-PKM antibody

All lanes:
Western blot - Anti-PKM antibody [EPR10138(B)] (ab150377) at 1/10000 dilution

Lane 1:
HeLa (Human cervix adenocarcinoma epithelial cell) whole cell lysate at 20 µg

Lane 2:
Jurkat (Human T cell leukemia T lymphocyte) whole cell lysate at 20 µg

Lane 3:
A549 (Human lung carcinoma epithelial cell) whole cell lysate at 20 µg

Lane 4:
Mouse lung lysate at 20 µg

Lane 5:
Human skeletal muscle lysate at 20 µg

Lane 6:
Rat skeletal muscle lysate at 20 µg

Lane 7:
Mouse skeletal muscle lysate at 20 µg

Secondary

All lanes:
Goat Anti-Rabbit IgG (HRP) with minimal cross-reactivity with human IgG at 1/2000 dilution

Predicted band size: 58 kDa

Observed band size: 58 kDa

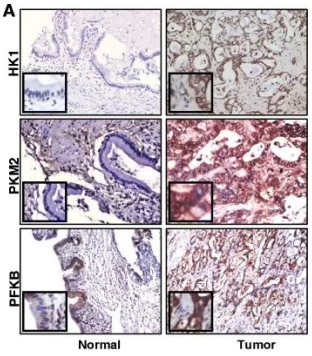


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Western blot - Anti-PKM antibody [EPR10138(B)] (ab150377)

PKM western blot using anti-PKM antibody [EPR10138(B)] ab150377. Publication image and figure legend from Yu, G., Yu, W., et al., 2015, Mol Cancer, PubMed 26576639.

ab150377 was used in this publication in western blot. This may not be the same as the application(s) guaranteed by Abcam. For a full list of applications guaranteed by Abcam for ab150377 please see the product overview.

HK1, PKM2, and PFKB expression and its association with survival durations in patients with HC. a, HK1, PKM2, and PFKB expression in normal bile duct tissue (left panels), tumors (middle panels), and quantitative representations staining (right panels). Original magnification, ×400. b, patients with high HK1 expression had a shorter median time to recurrence than did those with low HK1 expression (12 months versus 39 months). Cum, cumulative. c, patients with high PKM2-expressing tumors had a significantly shorter median time to recurrence than did patients with low PKM2-expressing tumors (11 months versus 32 months). d, the median OS duration was significantly worse in patients with high expression of HK1 (15 months) than in those with low expression of HK1 (46 months). e, the median OS duration was significantly worse in patients with high expression of PKM2 (14 months) than in those with low expression of PKM2 (40 months)

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