abcam

ab210448

PE Anti-PKM antibody [EPR10138(B)]

Recombinant | RabMAb

Key facts

Isotype	IgG
Host species	Rabbit
Conjugation	PE
Excitation/Emission	Ex: 480;565nm, Em: 578nm
Storage buffer	pH: 7.4 Preservative: 0.02% Sodium azide Constituents: PBS, 1% 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

ICC/IF

Tested

Species	Human
Dilution info	1/1000

Notes	This product gave a positive signal in HeLa cells fixed with 4% formaldehyde (10 min) and 100% methanol (5 min)

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	1/5000
Notes	ab209478 - Rabbit monoclonal IgG (Phycoerythrin), 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	Blue Ice
Appropriate short-term storage conditions	+4°C
Appropriate long-term storage conditions	+4°C
Aliquoting information	Upon delivery aliquot

Storage information	Do Not Freeze, Store in the dark

Notes

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

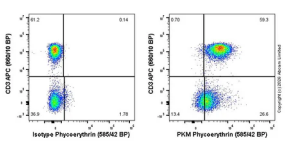
We do not recommend this combination. It is not covered by our product promise.

We are dedicated to supporting your work with high quality reagents and we are here for you every step of the way should you need us.

In the unlikely event of one of our products not working as expected, you are covered by our product promise.

Full details and terms and conditions can be found here:
Terms & Conditions.

3 product images



Flow Cytometry (Intracellular) - PE Anti-PKM antibody [EPR10138(B)] (ab210448)

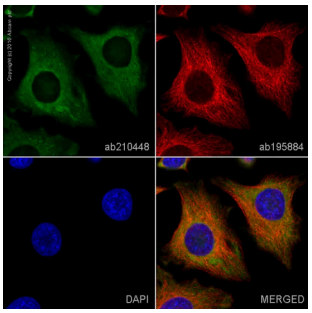
PKM Flow Cytometry (Intracellular) staining of human peripheral mononuclear cells (PBMCs) using rabbit Anti-PKM antibody

Flow cytometry scatter plots showing human peripheral mononuclear cells (PBMCs), either stained with ab210448 (right) or isotype control (left). The cells were fixed and permeabilised using BD CytoFix/CytoPerm™ (20 min). The cells were incubated in 1x PBS containing 10 µg/ml human IgG and 10% normal goat serum to block FC receptors and non-specific protein-protein

interaction followed by the antibody (ab210448) (1x 10^6 in 100µl at 0.2 µg/ml (1/2500)) for 30min on ice. Isotype control antibody was Rabbit IgG (monoclonal) Phycoerythrin Isotype Control (ab209478). The cells were simultaneously stained with CD3.

Acquisition of >30000 events were collected using a 50 mW Yellow/Green laser (561nm) and 585/42 bandpass filter.

This data was acquired using a Beckman Coulter CytoFlexLX flow cytometer.

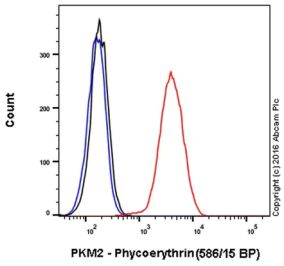


Immunocytochemistry/ Immunofluorescence - PE Anti-PKM antibody [EPR10138(B)] (ab210448)

PKM Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-PKM antibody

ab210448 staining PKM in HeLa cells. The cells were fixed with 100% methanol (5min), permeabilized with 0.1% Triton X-100 for 5 minutes and then blocked with 1% BSA/10% normal goat serum/0.3M glycine in 0.1% PBS-Tween for 1h. The cells were then incubated overnight at +4°C with ab210448 at 1/1000 dilution (**pseudocolored in green**) and ab195884, Rat monoclonal to Tubulin (Alexa Fluor® 647), at 1/250 dilution (shown in red). Nuclear DNA was labelled with DAPI (shown in blue).
Image was taken with a confocal microscope (Leica-Microsystems, TCS SP8).

This product also gave a positive signal under the same testing conditions in HeLa cells fixed with 4% formaldehyde (10 min).



Flow Cytometry (Intracellular) - PE Anti-PKM antibody [EPR10138(B)] (ab210448)

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

Overlay histogram showing HeLa cells stained with ab210448 (red line). The cells were fixed with 4% formaldehyde (10 min) and then permeabilized with 90% methanol for 30 min at -20°C. The cells were then incubated in 1x PBS / 10% normal goat serum to block non-specific protein-protein interactions followed by the antibody (ab210448, 1/5000 dilution) for 30 min at 22°C.
Isotype control antibody (black line) was rabbit IgG (monoclonal) Phycoerythrin (ab209478) used at the same concentration and conditions as the primary antibody. Unlabelled sample (blue line) was also used as a control.

Acquisition of >5,000 events were collected using a 50mW Yellow-Green laser (561nm) and 586/15 bandpass filter.

Please note: All products are 'FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC OR THERAPEUTIC PROCEDURES'.