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Pyruvate Kinase (PKM2) Antibody (C-term)

Purified Rabbit Polyclonal Antibody (Pab)
Catalog # AP7044B

Product Information

Application	IF, IHC-P, WB, E
Primary Accession	P14618
Other Accession	P14786
Reactivity	Human, Rat, Monkey, Mouse
Predicted	Bovine, Canine, Rabbit, Chicken
Host	Rabbit
Clonality	Polyclonal
Isotype	Rabbit IgG
Calculated MW	57937
Antigen Region	476-505

Additional Information

Gene ID	5315
Other Names	Pyruvate kinase PKM, Cytosolic thyroid hormone-binding protein, CTHBP, Opa-interacting protein 3, OIP-3, Pyruvate kinase 2/3, Pyruvate kinase muscle isozyme, Thyroid hormone-binding protein 1, THBP1, Tumor M2-PK, p58, PKM, OIP3, PK2, PK3, PKM2
Target/Specificity	This Pyruvate Kinase (PKM2) antibody is generated from rabbits immunized with a KLH conjugated synthetic peptide between 476-505 amino acids from the C-terminal region of human Pyruvate Kinase (PKM2).
Dilution	IF~~1:200 IHC-P~~1:100~500 WB~~1:1000 E~~Use at an assay dependent concentration.
Format	Purified polyclonal antibody supplied in PBS with 0.09% (W/V) sodium azide. This antibody is prepared by Saturated Ammonium Sulfate (SAS) precipitation followed by dialysis against PBS.
Storage	Maintain refrigerated at 2-8°C for up to 2 weeks. For long term storage store at -20°C in small aliquots to prevent freeze-thaw cycles.
Precautions	Pyruvate Kinase (PKM2) Antibody (C-term) is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	PKM

Synonyms	OIP3 {ECO:0000303|PubMed:9466265}, PK2,
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).
Cellular Location	[Isoform M2]: Cytoplasm. Nucleus Note=Translocates to the nucleus in response to various signals, such as EGF receptor activation or apoptotic stimuli (PubMed:17308100, PubMed:22056988, PubMed:24120661). Nuclear translocation is promoted by acetylation by EP300 (PubMed:24120661). Deacetylation by SIRT6 promotes its nuclear export in a process dependent of XPO4, thereby suppressing its ability to activate transcription and promote tumorigenesis (PubMed:26787900).
Tissue Location	[Isoform M2]: Specifically expressed in proliferating cells, such as embryonic stem cells, embryonic carcinoma cells, as well as cancer cells.

Background

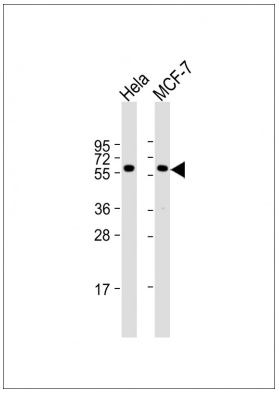
There are 4 isozymes of pyruvate kinase in mammals: L, R, M1 and M2. PKM2 is a pyruvate kinase that catalyzes the production of phosphoenolpyruvate from pyruvate and ATP. This protein has been shown to interact with thyroid hormone, and thus may mediate cellular metabolic effects induced by thyroid hormones. This protein 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.

References

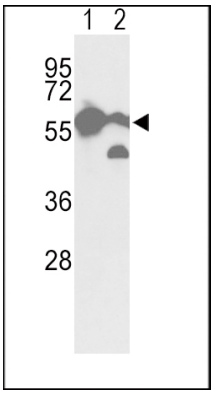
References for protein:
1.Williams, J.M., et al., Mol. Microbiol. 27(1):171-186 (1998).
2.Gress, T.M., et al., Oncogene 13(8):1819-1830 (1996).
3.Kato, H., et al., Proc. Natl. Acad. Sci. U.S.A. 86(20):7861-7865 (1989).
4.Tsutsumi, H., et al., Genomics 2(1):86-89 (1988).
5.Tani, K., et al., Gene 73(2):509-516 (1988).
References for MCF7 cell line:
1.Soule, HD; Vazquez J; Long A; Albert S; Brennan M. (1973). "A human cell line from a pleural effusion derived from a breast carcinoma". Journal of the National Cancer Institute 51 (5): 1409–1416. [PMID 4357757].
2.Levenson, AS; Jordan VC. (1997). "MCF-7: the first hormone-responsive breast cancer cell line". Cancer Research 57 (15): 3071–3078. [PMID 9242427].
3.Lacroix, M; Leclercq G. (2004). "Relevance of breast cancer cell lines as models for breast tumours: an update". Breast Research and Treatment 83 (3): 249–289.[PMID 14758095].

Images

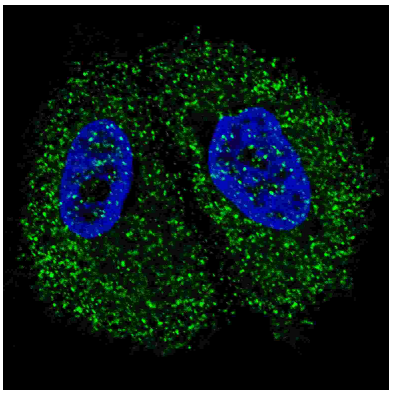
All lanes : Anti-PKM2 Antibody (N491) at 1:1000 dilution
Lane 1: Hela whole cell lysate Lane 2: MCF-7 whole cell



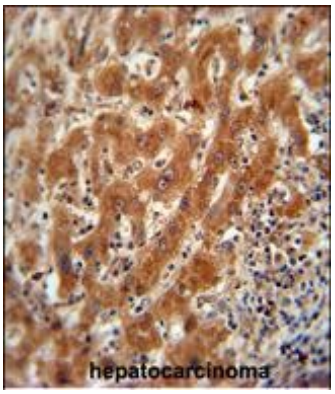
lysate Lysates/proteins at 20 µg per lane. Secondary Goat Anti-Rabbit IgG, (H+L), Peroxidase conjugated at 1/10000 dilution. Predicted band size : 58 kDa Blocking/Dilution buffer: 5% NFDM/TBST.



Western blot analysis of hPKM2-N491 (Cat.# AP7173a) in A2058 cell line(lane 1) and mouse brain tissue(lane 2) lysates (35ug/lane). PKM2 (arrow) was detected using the purified Pab.



Fluorescent confocal image of MCF7 cells stained with Pyruvate Kinase (PKM2) (C-term) antibody. MCF7 cells were fixed with 4% PFA (20 min), permeabilized with Triton X-100 (0.2%, 30 min). Cells were then incubated with AP7044b Pyruvate Kinase (PKM2) (C-term) primary antibody (1:200, 2 h at room temperature). For secondary antibody, Alexa Fluor® 488 conjugated donkey anti-rabbit antibody (green) was used (1:1000, 1h). Nuclei were counterstained with Hoechst 33342 (blue) (10 µg/ml, 5 min). Note the highly specific localization of the Pyruvate Kinase (PKM2) mainly to the cytoplasm, supported by Human Protein Atlas Data (http://www.proteinatlas.org/ENSG00000067225).



Pyruvate Kinase (PKM2) Antibody (C-term) (Cat. #AP7044b) immunohistochemistry analysis in formalin fixed and paraffin embedded human hepatocarcinoma followed by peroxidase conjugation of the secondary antibody and DAB staining. This data demonstrates the use of the Pyruvate Kinase (PKM2) Antibody (C-term) for immunohistochemistry. Clinical relevance has not been evaluated.

Citations

- AKT-dependent sugar addiction by benzyl isothiocyanate in breast cancer cells.
- Oxidative stress impairs energy metabolism in primary cells and synovial tissue of patients with rheumatoid arthritis.
- Resolution of TLR2-induced inflammation through manipulation of metabolic pathways in Rheumatoid Arthritis.
- Proteomic profiling of acute cardiac allograft rejection.

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