10320 Camino Santa Fe, Suite G
San Diego, CA 92121
Tel: 858.875.1900 Fax: 858.875.1999

HK1 Antibody (C-term)

Purified Rabbit Polyclonal Antibody (Pab)
Catalog # AP8141b

Product Information

Application	WB, IHC-P, E
Primary Accession	P19367
Reactivity	Human
Host	Rabbit
Clonality	Polyclonal
Isotype	Rabbit IgG
Clone Names	RB03923-03924
Calculated MW	102486
Antigen Region	705-734

Additional Information

Gene ID	3098
Other Names	Hexokinase-1, Brain form hexokinase, Hexokinase type I, HK I, HK1
Target/Specificity	This HK1 antibody is generated from rabbits immunized with a KLH conjugated synthetic peptide between 705-734 amino acids from the C-terminal region of human HK1.
Dilution	WB~~1:1000 IHC-P~~1:100~500 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	HK1 Antibody (C-term) is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	HK1 (HGNC:4922)
Function	Catalyzes the phosphorylation of various hexoses, such as D- glucose, D-glucosamine, D-fructose, D-mannose and 2-deoxy-D-glucose, to hexose 6-phosphate (D-glucose 6-phosphate, D-glucosamine 6-phosphate, D-fructose 6-phosphate, D-mannose 6-phosphate and 2-deoxy-D-glucose 6- phosphate, respectively) (PubMed:1637300, PubMed:25316723, PubMed:27374331). Does

	not phosphorylate N-acetyl-D-glucosamine (PubMed:27374331). Mediates the initial step of glycolysis by catalyzing phosphorylation of D-glucose to D-glucose 6-phosphate (By similarity). Involved in innate immunity and inflammation by acting as a pattern recognition receptor for bacterial peptidoglycan (PubMed:27374331). When released in the cytosol, N-acetyl-D-glucosamine component of bacterial peptidoglycan inhibits the hexokinase activity of HK1 and causes its dissociation from mitochondrial outer membrane, thereby activating the NLRP3 inflammasome (PubMed:27374331).
Cellular Location	Mitochondrion outer membrane; Peripheral membrane protein. Cytoplasm, cytosol. Note=The mitochondrial-binding peptide (MBP) region promotes association with the mitochondrial outer membrane (Probable). Dissociates from the mitochondrial outer membrane following inhibition by N-acetyl-D-glucosamine, leading to relocation to the cytosol (PubMed:27374331).
Tissue Location	Isoform 2: Erythrocyte specific (Ref.6). Isoform 3: Testis-specific (PubMed:10978502). Isoform 4: Testis-specific (PubMed:10978502). {ECO:0000269|PubMed:10978502, ECO:0000269|Ref.6}

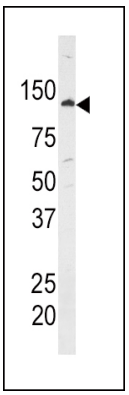
Background

Hexokinases phosphorylate glucose to produce glucose-6-phosphate, thus committing glucose to the glycolytic pathway. The hexokinase gene encodes a ubiquitous form of hexokinase which localizes to the outer membrane of mitochondria. Mutations in this gene have been associated with hemolytic anemia due to hexokinase deficiency. Alternative splicing of the hexokinase gene results in five transcript variants which encode different isoforms, some of which are tissue-specific. Each isoform has a distinct N-terminus; the remainder of the protein is identical among all the isoforms. HK1 encodes the ubiquitously expressed isoform. Its 5' end includes an exon which is unique to this transcript and which encodes a distinct N-terminus that contains the porin binding domain (PBD). The porin binding domain mediates association with the mitochondrial membrane.

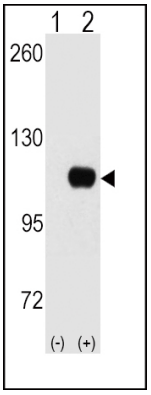
References

van Wijk, R., et al., Blood 101(1):345-347 (2003).
Murakami, K., et al., Acta Haematol. 108(4):204-209 (2002).
Murakami, K., et al., Mol. Genet. Metab. 67(2):118-130 (1999).
Aleshin, A.E., et al., Structure 6(1):39-50 (1998).
Ruzzo, A., et al., Blood 91(1):363-364 (1998).

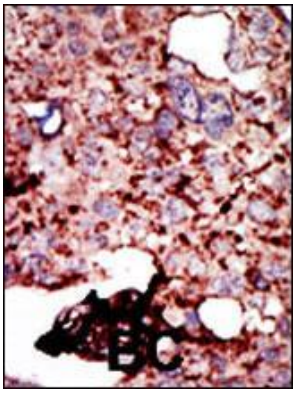
Images



Western blot analysis of anti-HK1 Antibody (C-term) (Cat. #AP8141b) in A375 cell line lysate. HK1(arrow) was detected using the purified Pab.



Western blot analysis of HK1 (arrow) using HK1 Antibody (C-term) (Cat.#AP8141b). 293 cell lysates (2 ug/lane) either nontransfected (Lane 1) or transiently transfected with the HK1 gene (Lane 2) (Origene Technologies).



Formalin-fixed and paraffin-embedded human cancer tissue reacted with the primary antibody, which was peroxidase-conjugated to the secondary antibody, followed by DAB staining. This data demonstrates the use of this antibody for immunohistochemistry; clinical relevance has not been evaluated. BC = breast carcinoma; HC = hepatocarcinoma.