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HK1 (Hexokinase) Antibody (N-term)

Purified Rabbit Polyclonal Antibody (Pab)
Catalog # AP8141a

Product Information

Application	WB, IHC-P-Leica, E
Primary Accession	P19367
Reactivity	Human, Rat, Mouse
Predicted	Bovine, Canine, Rabbit
Host	Rabbit
Clonality	Polyclonal
Isotype	Rabbit IgG
Calculated MW	102486
Antigen Region	78-108

Additional Information

Gene ID	3098
Other Names	Hexokinase-1, Brain form hexokinase, Hexokinase type I, HK I, HK1
Target/Specificity	This HK1 (Hexokinase) antibody is generated from rabbits immunized with a KLH conjugated synthetic peptide between 78-108 amino acids from the N-terminal region of human HK1 (Hexokinase).
Dilution	WB~~1:1000 IHC-P-Leica~~1:500 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 (Hexokinase) Antibody (N-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}

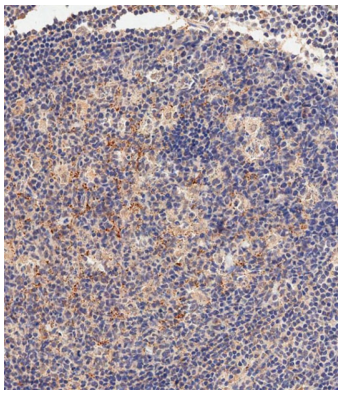
Background

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.

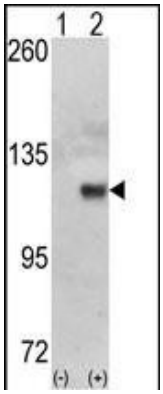
References

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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).
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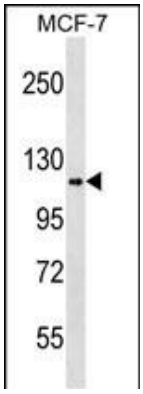
Images



Immunohistochemical analysis of paraffin-embedded human tonsil tissue using AP8141a performed on the Leica® BOND RXm. Samples were incubated with primary antibody(1/500) for 1 hours at room temperature. A undiluted biotinylated CRF Anti-Polyvalent HRP Polymer antibody was used as the secondary antibody.



Western blot analysis of HK1 (arrow) using HK1 Antibody (N-term) (Cat.#AP8141a). 293 cell lysates (2 ug/lane) either nontransfected (Lane 1) or transiently transfected with the HK1 gene (Lane 2) (Origene Technologies).



HK1 Antibody (L93) (Cat. #AP8141a) western blot analysis in MCF-7 cell line lysates (35ug/lane).This demonstrates the HK1 antibody detected the HK1 protein (arrow).

Citations

- Plasma kallikrein contributes to ambient particulate matter-induced lung injury.
- Quantitative changes in the mitochondrial proteome from subjects with mild cognitive impairment, early stage, and late stage Alzheimer's disease.

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