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HK1 (Hexokinase) Antibody (Center) Blocking peptide

Synthetic peptide
Catalog # BP8141c

Specification

HK1 (Hexokinase) Antibody (Center) Blocking peptide - Product Information

Primary Accession	P19367
Other Accession	Q5VTC3

HK1 (Hexokinase) Antibody (Center) Blocking peptide - Additional Information

Gene ID 3098

Other Names
Hexokinase-1, Brain form hexokinase, Hexokinase type I, HK I, HK1

Target/Specificity
The synthetic peptide sequence used to generate the antibody AP8141c was selected from the center region of human HK1-R468. A 10 to 100 fold molar excess to antibody is recommended. Precise conditions should be optimized for a particular assay.

Format
Peptides are lyophilized in a solid powder format. Peptides can be reconstituted in solution using the appropriate buffer as needed.

Storage
Maintain refrigerated at 2-8°C for up to 6 months. For long term storage store at -20°C.

Precautions
This product is for research use only. Not for use in diagnostic or therapeutic procedures.

HK1 (Hexokinase) Antibody (Center) Blocking peptide - Protein Information

Name HK1 (HGNC:4922)

HK1 (Hexokinase) Antibody (Center) Blocking peptide - Background

Hexokinases phosphorylate glucose to produce glucose-6-phosphate, thus committing glucose to the glycolytic pathway. This 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 this 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. A sixth transcript variant has been described, but due to the presence of several stop codons, it is not thought to encode a protein. Transcript Variant: Variant 4 (HKI-tb) has four testis-specific exons in the 5' end, one of which includes an additional 54 nt fragment unique to variants 4 and 5. Both variants 3 and 4 encode isoform HKI-ta/tb, which has a unique N-terminus. Isoform HKI-ta/tb lacks the porin binding domain (PBD) required for association with the mitochondrial membrane.

HK1 (Hexokinase) Antibody (Center) Blocking peptide - 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).

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}

HK1 (Hexokinase) Antibody (Center) Blocking peptide - Protocols

Provided below are standard protocols that you may find useful for product applications.

- Blocking Peptides