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HK1 Antibody
Purified Mouse Monoclonal Antibody
Catalog # AO1437a

Specification

HK1 Antibody - Product Information

Application	**WB, IHC, ICC, E**
Primary Accession	P19367
Reactivity	**Human, Mouse, Rat**
Host	**Mouse**
Clonality	**Monoclonal**
Isotype	**IgG1**
Calculated MW	**102kDa KDa**

Description
The hexokinases utilize Mg-ATP as a phosphoryl donor to catalyze the first step of intracellular glucose metabolism, the conversion of glucose to glucose- 6-phosphate. Four hexokinase isoenzymes have been identified, including hexokinase I (HXK I), hexokinase II (HXK II), hexokinase III (HXK III) and hexokinase IV (HXK IV, also designated glucokinase or GCK). Hexokinases I-III each contain an N-terminal cluster of hydrophobic amino acids. Glucokinase lacks the N-terminal hydrophobic cluster. The hydrophobic cluster is thought to be necessary for membrane binding. This is substantiated by the finding that glucokinase has lower affinity for glucose than do the other hexokinases. HK I has been shown to be expressed in brain, kidney and heart tissues as well as in hepatoma cell lines.

Immunogen
Purified recombinant fragment of human HK1 expressed in E. Coli.

Formulation
Ascitic fluid containing 0.03% sodium azide.

HK1 Antibody - Additional Information

Gene ID 3098

Other Names
Hexokinase-1, 2.7.1.1, Brain form hexokinase, Hexokinase type I, HK I, HK1

Dilution
WB~~1/500 - 1/2000
IHC~~1/200 - 1/1000
ICC~~N/A
E~~N/A

Storage
Maintain refrigerated at 2-8°C for up to 6 months. For long term storage store at -20°C in small aliquots to prevent freeze-thaw cycles.

Precautions
HK1 Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

HK1 Antibody - 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}

HK1 Antibody - Protocols

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

- Western Blot
- Blocking Peptides
- Dot Blot
- Immunohistochemistry
- Immunofluorescence
- Immunoprecipitation
- Flow Cytomety
- Cell Culture

HK1 Antibody - Images

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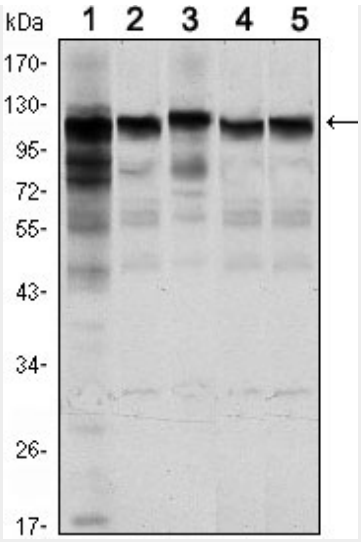

Figure 1: Western blot analysis using HK1 mouse mAb against Jurkat (1), Hela (2), HepG2 (3), MCF-7 (4) and PC-12 (5) cell lysate.

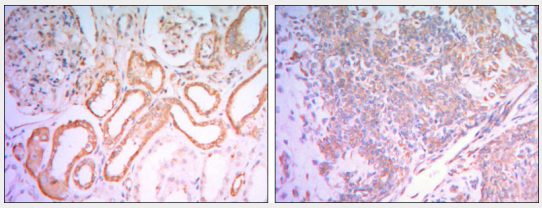

Figure 2: Immunohistochemical analysis of paraffin-embedded human salivary gland tissues (left) and kidney tissues (right) using HK1 mouse mAb with DAB staining.

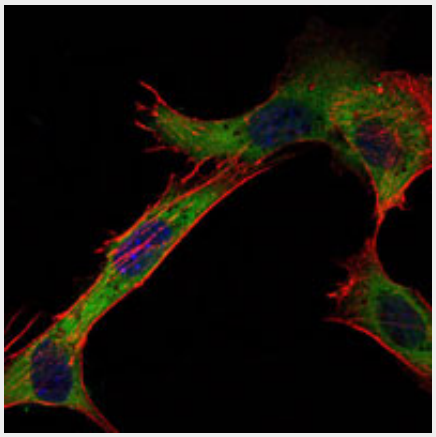

Figure 3: Immunofluorescence analysis of NIH/3T3 cells using HK1 mouse mAb (green). Blue: DRAQ5 fluorescent DNA dye. Red: Actin filaments have been labeled with Alexa Fluor-555 phalloidin.

HK1 Antibody - References

1. Cell. 2005 Sep 23;122(6):957-68. 2. J Biomed Sci. 2007 Mar;14(2):195-202. 3. J Neural Transm. 2009 Mar;116(3):275-89.