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Hexokinase 1 Antibody
Catalog # ASC11938

Specification

Hexokinase 1 Antibody - Product Information

Application	**WB, IHC, IF, E**
Primary Accession	P19367
Other Accession	NP_000179, 188497754
Reactivity	**Human, Mouse, Rat**
Host	**Rabbit**
Clonality	**Polyclonal**
Isotype	**IgG**
Calculated MW	**Predicted: 101 kDa; Observed: 103 kDa KDa**
Application Notes	**Hexokinase 1 antibody can be used for detection of Hexokinase 1 by Western blot at 1 - 2 µg/ml. Antibody can also be used for immunohistochemistry starting at 5 µg/mL. For immunofluorescence start at 20 µg/mL.**

Hexokinase 1 Antibody - Additional Information

Gene ID **3098**

Target/Specificity
HK1; Hexokinase 1 antibody is human, mouse and rat reactive. Multiple isoforms of Hexokinase 1 are known to exist.

Reconstitution & Storage
Hexokinase 1 antibody can be stored at 4℃ for three months and -20℃, stable for up to one year.

Precautions
Hexokinase 1 Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

Hexokinase 1 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:<a

href="http://www.uniprot.org/citations/27374331" target="_blank">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).

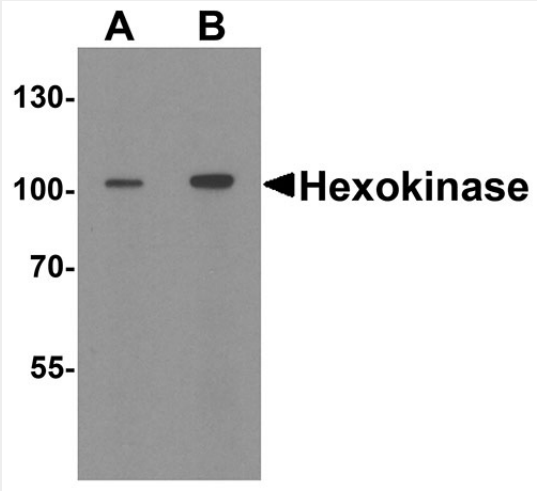
Tissue Location
Isoform 2: Erythrocyte specific (Ref.6). Isoform 3: Testis-specific (PubMed:10978502). Isoform 4: Testis-specific (PubMed:10978502). {ECO:0000269|PubMed:10978502, ECO:0000269|Ref.6}

Hexokinase 1 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

Hexokinase 1 Antibody - Images



Western blot analysis of Hexokinase 1 in rat bladder tissue lysate with Hexokinase 1 antibody at (A) 1 and (B) 2 µg/ml.

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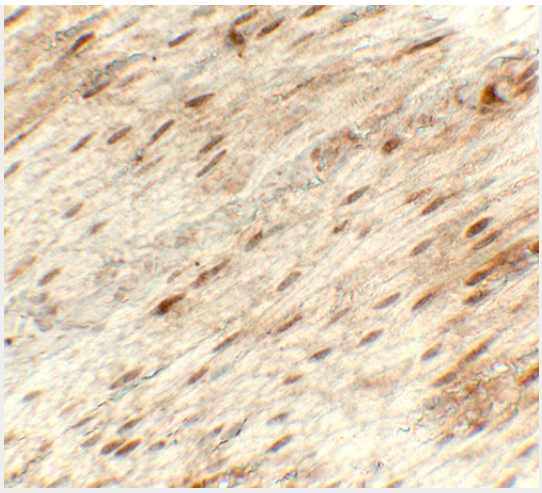
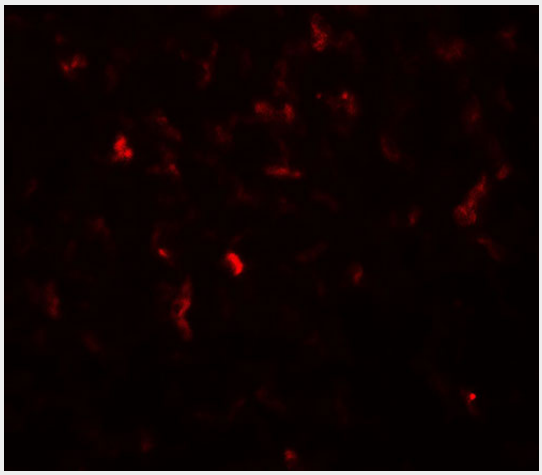


Immunohistochemistry of Hexokinase 1 in rat stomach tissue with Hexokinase 1 antibody at 5 µg/mL.



Immunofluorescence of Hexokinase 1 in rat stomach tissue with Hexokinase 1 antibody at 20 µg/mL.

Hexokinase 1 Antibody - Background

There are four major glucose-phosphorylating isoenzymes, designated Hexokinase 1 I, II, III, and IV (1). Hexokinase 1 activity is involved in the first step in several metabolic pathways including phosphorylation of glucose to produce glucose-6-phosphate, thus committing glucose to the glycolytic pathway (1,2). Hexokinase 1 2 is the predominant Hexokinase 1 isozyme expressed in insulin-responsive tissues such as skeletal muscle and its expression is insulin-responsive (3). It is involved in the increased rate of glycolysis seen in rapidly growing cancer cells (4).

Hexokinase 1 Antibody - References

Chen T, Ning D, Sun H, et al. Sequence Analysis and Molecular Characterization of Clonorchis sinensis Hexokinase 1, an Unusual Trimeric 50-kDa Glucose-6-Phosphate-Sensitive Allosteric Enzyme. PLoS One 2014; 9:e107940.
Halestrap AP, Pereira GC, and Pasdois P. The role of Hexokinase 1 in cardioprotection-mechanism and potential for translation. Br. J. Pharmacol. 2014; epub.
Roberts DJ and Miyamoto S. Hexokinase 1 II integrates energy metabolism and cellular protection: Akting on mitochondria and TORCing to autophagy. Cell Death Differ. 2014; epub.
Wang L, Xiong H, Wu F, et al. Hexokinase 1 2-Mediated Warburg Effect Is Required for PTEN- and p53-Deficiency-Driven Prostate Cancer Growth. Cell Rep. 2014; 8:1461-74.