

**GCK Antibody**  
**Purified Mouse Monoclonal Antibody**  
**Catalog # AO1593a****Specification****GCK Antibody - Product Information**

Application	WB, E
Primary Accession	<a href="#">P35557</a>
Reactivity	Human
Host	Mouse
Clonality	Monoclonal
Isotype	IgG1
Calculated MW	52kDa KDa

**Description**

Hexokinases phosphorylate glucose to produce glucose-6-phosphate, the first step in most glucose metabolism pathways. Alternative splicing of this gene results in three tissue-specific forms of glucokinase, one found in pancreatic islet beta cells and two found in liver. The protein localizes to the outer membrane of mitochondria. In contrast to other forms of hexokinase, this enzyme is not inhibited by its product glucose-6-phosphate but remains active while glucose is abundant.

Mutations in this gene have been associated with non-insulin dependent diabetes mellitus (NIDDM), maturity onset diabetes of the young, type 2 (MODY2) and persistent hyperinsulinemic hypoglycemia of infancy (PHHI).

**Immunogen**

Purified recombinant fragment of human GCK expressed in E. Coli. <br />

**Formulation**

Ascitic fluid containing 0.03% sodium azide.

**GCK Antibody - Additional Information**

**Gene ID** 2645

**Other Names**

Glucokinase, 2.7.1.2, Hexokinase type IV, HK IV, Hexokinase-4, HK4, Hexokinase-D, GCK

**Dilution**

WB~~1/500 - 1/2000

E~~1/10000

**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**

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

**GCK Antibody - Protein Information**

**Name** GCK {ECO:0000303|PubMed:17573900, ECO:0000312|HGNC:HGNC:4195}

### Function

Catalyzes the phosphorylation of hexose, such as D-glucose, D-fructose and D-mannose, to hexose 6-phosphate (D-glucose 6-phosphate, D-fructose 6-phosphate and D-mannose 6-phosphate, respectively) (PubMed:<a href="http://www.uniprot.org/citations/11916951" target="\_blank">11916951</a>, PubMed:<a href="http://www.uniprot.org/citations/15277402" target="\_blank">15277402</a>, PubMed:<a href="http://www.uniprot.org/citations/17082186" target="\_blank">17082186</a>, PubMed:<a href="http://www.uniprot.org/citations/18322640" target="\_blank">18322640</a>, PubMed:<a href="http://www.uniprot.org/citations/19146401" target="\_blank">19146401</a>, PubMed:<a href="http://www.uniprot.org/citations/25015100" target="\_blank">25015100</a>, PubMed:<a href="http://www.uniprot.org/citations/7742312" target="\_blank">7742312</a>, PubMed:<a href="http://www.uniprot.org/citations/8325892" target="\_blank">8325892</a>). Compared to other hexokinases, has a weak affinity for D-glucose, and is effective only when glucose is abundant (By similarity). Mainly expressed in pancreatic beta cells and the liver and constitutes a rate-limiting step in glucose metabolism in these tissues (PubMed:<a href="http://www.uniprot.org/citations/11916951" target="\_blank">11916951</a>, PubMed:<a href="http://www.uniprot.org/citations/15277402" target="\_blank">15277402</a>, PubMed:<a href="http://www.uniprot.org/citations/18322640" target="\_blank">18322640</a>, PubMed:<a href="http://www.uniprot.org/citations/25015100" target="\_blank">25015100</a>, PubMed:<a href="http://www.uniprot.org/citations/8325892" target="\_blank">8325892</a>). Since insulin secretion parallels glucose metabolism and the low glucose affinity of GCK ensures that it can change its enzymatic activity within the physiological range of glucose concentrations, GCK acts as a glucose sensor in the pancreatic beta cell (By similarity). In pancreas, plays an important role in modulating insulin secretion (By similarity). In liver, helps to facilitate the uptake and conversion of glucose by acting as an insulin-sensitive determinant of hepatic glucose usage (By similarity). Required to provide D-glucose 6-phosphate for the synthesis of glycogen (PubMed:<a href="http://www.uniprot.org/citations/8878425" target="\_blank">8878425</a>). Mediates the initial step of glycolysis by catalyzing phosphorylation of D-glucose to D-glucose 6-phosphate (PubMed:<a href="http://www.uniprot.org/citations/7742312" target="\_blank">7742312</a>).

### Cellular Location

Cytoplasm. Nucleus. Mitochondrion {ECO:0000250|UniProtKB:P17712}. Note=Under low glucose concentrations, GCK associates with GCKR and the inactive complex is recruited to the hepatocyte nucleus.

### GCK 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 Cytometry](#)
- [Cell Culture](#)

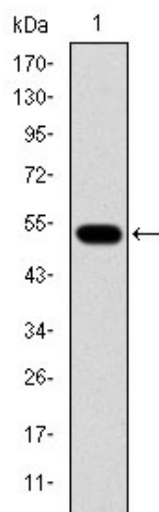
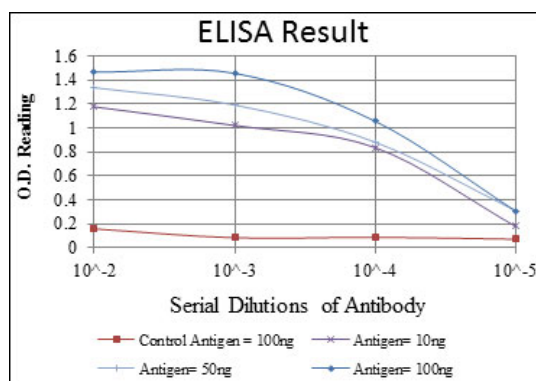


Figure 1: Western blot analysis using GCK mAb against human GCK (AA: 1-198) recombinant protein. (Expected MW is 48.2 kDa)

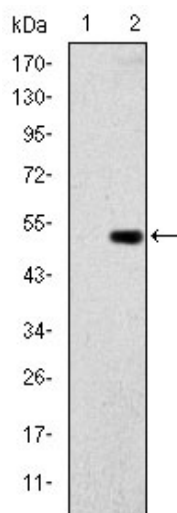


Figure 2: Western blot analysis using GCK mAb against HEK293 (1) and GCK-hlgGFc transfected HEK293 (2) cell lysate.

### GCK Antibody - References

1. Mol Endocrinol. 2009 Dec;23(12):1983-9.
2. Int J Mol Med. 2009 Aug;24(2):233-46.

