10320 Camino Santa Fe, Suite G
San Diego, CA 92121
Tel: 858.875.1900 Fax: 858.875.1999

# GCK Antibody

Purified Mouse Monoclonal Antibody
Catalog # AO1593a

## Product Information

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| **Application** | WB, E |
| **Primary Accession** | P35557 |
| **Reactivity** | Human |
| **Host** | Mouse |
| **Clonality** | Monoclonal |
| **Clone Names** | 4G6 |
| **Isotype** | IgG1 |
| **Calculated MW** | 52191 |
| **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. |
| **Formulation** | Ascitic fluid containing 0.03% sodium azide. |

## Additional Information

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| **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. |

## Protein Information

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| **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:11916951, PubMed:15277402, PubMed:17082186, PubMed:18322640, PubMed:19146401, PubMed:25015100, PubMed:7742312, PubMed:8325892). 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:11916951, PubMed:15277402, PubMed:18322640, PubMed:25015100, PubMed:8325892). 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:8878425). Mediates the initial step of glycolysis by catalyzing phosphorylation of D-glucose to D-glucose 6-phosphate (PubMed:7742312). |
| **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. |

## References

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

## Images

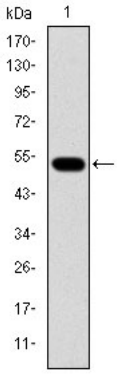


Figure 1: Western blot analysis using GCK mAb against human GCK (AA: 1-198) recombinant protein. (Expected MW is 48.2 kDa)

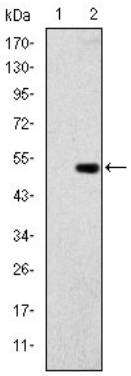


Figure 2: Western blot analysis using GCK mAb against HEK293 (1) and GCK-hIgGFc transfected HEK293 (2) cell lysate.

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