

# GCK Antibody (N-term)

Purified Rabbit Polyclonal Antibody (Pab)

Catalog # AW5177

## Product Information

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<b>Application</b>	WB
<b>Primary Accession</b>	<a href="#">P35557</a>
<b>Reactivity</b>	Mouse, Rat, Human
<b>Host</b>	Rabbit
<b>Clonality</b>	Polyclonal
<b>Calculated MW</b>	52191
<b>Isotype</b>	Rabbit IgG
<b>Antigen Source</b>	HUMAN

## Additional Information

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<b>Gene ID</b>	2645
<b>Antigen Region</b>	1-30
<b>Other Names</b>	GCK; Glucokinase; Hexokinase type IV; Hexokinase-4; Hexokinase-D
<b>Dilution</b>	WB~~1:1000
<b>Target/Specificity</b>	This GCK antibody is generated from rabbits immunized with a KLH conjugated synthetic peptide between 1-30 amino acids from the N-terminal region of human GCK.
<b>Format</b>	Purified polyclonal antibody supplied in PBS with 0.09% (W/V) sodium azide. This antibody is prepared by Saturated Ammonium Sulfate (SAS) precipitation followed by dialysis against PBS.
<b>Storage</b>	Maintain refrigerated at 2-8°C for up to 2 weeks. For long term storage store at -20°C in small aliquots to prevent freeze-thaw cycles.
<b>Precautions</b>	GCK Antibody (N-term) is for research use only and not for use in diagnostic or therapeutic procedures.

## Protein Information

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<b>Name</b>	GCK {ECO:0000303   PubMed:17573900, ECO:0000312   HGNC:HGNC:4195}
<b>Function</b>	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="#">11916951</a> , PubMed: <a href="#">15277402</a> , PubMed: <a href="#">17082186</a> , PubMed: <a href="#">18322640</a> ,

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.

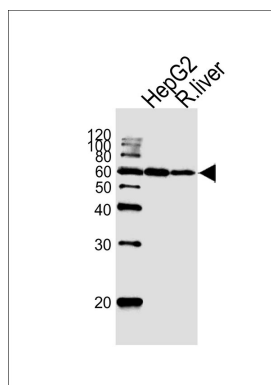
## Background

Hexokinases phosphorylate glucose to produce glucose-6-phosphate, thus committing glucose to the glycolytic pathway. Alternative splicing of the gene for GCK 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 the gene have been associated with non-insulin dependent diabetes mellitus (NIDDM), also called maturity onset diabetes of the young, type 2 (MODY2); mutations have also been associated with persistent hyperinsulinemic hypoglycemia of infancy (PHHI).

## References

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Pruhova, S., et al., Diabetologia 46(2):291-295 (2003).  
Rizzo, M.A., et al., J. Biol. Chem. 277(37):34168-34175 (2002).  
Cao, H., et al., Hum. Mutat. 20(6):478-479 (2002).  
Barrio, R., et al., J. Clin. Endocrinol. Metab. 87(6):2532-2539 (2002).

## Images



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