

**GCK Antibody (N-term)**  
**Purified Rabbit Polyclonal Antibody (Pab)**  
**Catalog # AP7901A**

**Specification**

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**GCK Antibody (N-term) - Product Information**

Application	IF, WB, IHC-P,E
Primary Accession	<a href="#">P35557</a>
Reactivity	Human, Mouse, Rat
Host	Rabbit
Clonality	Polyclonal
Isotype	Rabbit IgG
Antigen Region	1-30

**GCK Antibody (N-term) - Additional Information**

**Gene ID** 2645

**Other Names**

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

**Target/Specificity**

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.

**Dilution**

IF~~1:10~50  
WB~~1:1000  
IHC-P~~1:50~100

**Format**

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.

**Storage**

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.

**Precautions**

GCK Antibody (N-term) is for research use only and not for use in diagnostic or therapeutic procedures.

**GCK Antibody (N-term) - 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:[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

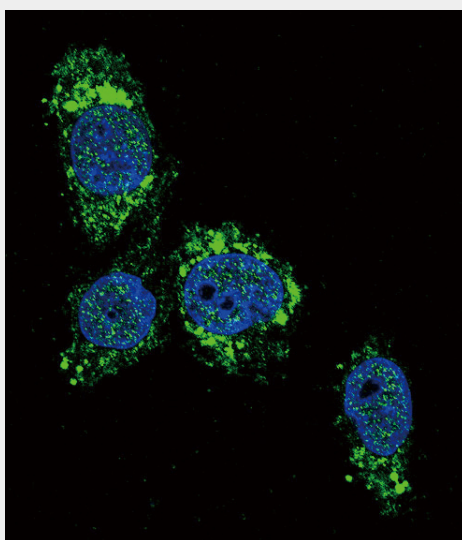
Cytoplasm. Nucleus. Mitochondrion {ECO:0000250|UniProtKB:P17712}. Note=Under low glucose concentrations, GCK associates with GCKR and the inactive complex is recruited to the hepatocyte nucleus.

#### GCK Antibody (N-term) - Protocols

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

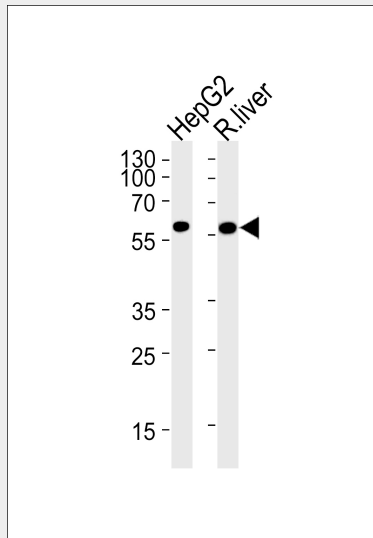
- [Western Blot](#)
- [Blocking Peptides](#)
- [Dot Blot](#)
- [Immunohistochemistry](#)
- [Immunofluorescence](#)
- [Immunoprecipitation](#)
- [Flow Cytometry](#)
- [Cell Culture](#)

#### GCK Antibody (N-term) - Images

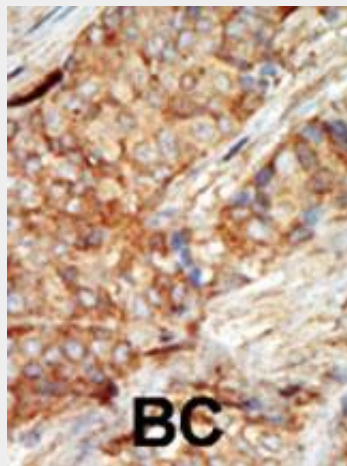


Confocal immunofluorescent analysis of GCK Antibody (N-term)(Cat#AP7901a) with HepG2 cell followed by Alexa Fluor 488-conjugated goat anti-rabbit IgG (green). DAPI was used to stain the

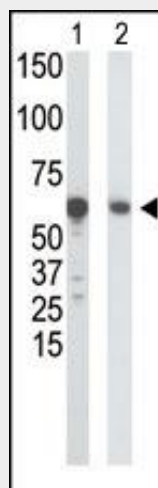
cell nuclear (blue).



GCK Antibody (M1) (Cat.# AP7901a) western blot analysis in HepG2 cell line and rat liver lysates (35ug/lane). This demonstrates the GCK antibody detected the GCK protein (arrow).



Formalin-fixed and paraffin-embedded human cancer tissue reacted with the primary antibody, which was peroxidase-conjugated to the secondary antibody, followed by AEC staining. This data demonstrates the use of this antibody for immunohistochemistry; clinical relevance has not been evaluated. BC = breast carcinoma; HC = hepatocarcinoma.



The anti-GCK Pab (Cat. #AP7901a) is used in Western blot to detect GCK in HepG2 cell lysate (Lane 1) and mouse liver tissue lysate (Lane 2).

### **GCK Antibody (N-term) - 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).

### **GCK Antibody (N-term) - References**

- Gloyn, A.L., et al., *Diabetes* 52(9):2433-2440 (2003).  
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).  
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