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GCK Antibody (C-term) Blocking Peptide

Synthetic peptide
Catalog # BP7901c

Specification

GCK Antibody (C-term) Blocking Peptide - Product Information

Primary Accession P35557

GCK Antibody (C-term) Blocking Peptide - Additional Information

Gene ID 2645

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

Target/Specificity
The synthetic peptide sequence used to generate the antibody AP7901c was selected from the C-term region of human GCK. A 10 to 100 fold molar excess to antibody is recommended. Precise conditions should be optimized for a particular assay.

Format
Peptides are lyophilized in a solid powder format. Peptides can be reconstituted in solution using the appropriate buffer as needed.

Storage
Maintain refrigerated at 2-8°C for up to 6 months. For long term storage store at -20°C.

Precautions
This product is for research use only. Not for use in diagnostic or therapeutic procedures.

GCK Antibody (C-term) Blocking Peptide - Protein Information

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

GCK Antibody (C-term) Blocking Peptide - 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 (C-term) Blocking Peptide - 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).Barrio, R., et al., J. Clin. Endocrinol. Metab. 87(6):2532-2539 (2002).

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:7742312, PubMed:11916951, PubMed:15277402, PubMed:17082186, PubMed:18322640, PubMed:19146401, PubMed:25015100, 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:18322640, PubMed:25015100, PubMed:8325892, PubMed:11916951, PubMed:15277402). 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 (C-term) Blocking Peptide - Protocols

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

- Blocking Peptides