

Glucokinase/GCK Protein, Human

Cat. No.:	HY-P75790
Synonyms:	Hexokinase-4; HK4; Hexokinase-D; Glucokinase
Species:	Human
Source:	E. coli
Accession:	P35557-1 (L2-Q465)
Gene ID:	2645
Molecular Weight:	Approximately 55 kDa

PROPERTIES

AA Sequence	<pre> LDDRARMEAA KKEKVEQILA EFQLQEEDLK KVMRRMQKEM DRGLRLETHE EASVKMLPTY VRSTPEGSEV GDFLSLDLGG TNFRVMLVKV GEGEEGQWSV KTKHQMYSIP EDAMTGTAEM LFDYISECIS DFLDKHQMKH KKLPLGFTFS FPVRHEDIDK GILLNWTKGF KASGAEGNNV VGLLRDAIKR RGD FEMDVVA MVNDTVATMI SCYYEDHQCE VGMIVGTGCN ACYMEEMQNV ELVEGDEGRM CVNTEWGAFG DSGELDEFLL EYDRLVDESS ANPGQQLYEK LIGGKYMSEL VRLVLLRLVD ENLLFHGEAS EQLRTRGAFE TRFVSQVESD TGDRKQIYNI LSTLGLRPST TDCDIVRRAC ESVSTRAAHM CSAGLAGVIN RMRESRSEDV MRITVGVDGS VYKLHPSFKE RFHASVRRLT PSCEITFIES EEGSGRGAAL VSAVACKKAC MLGQ </pre>
Biological Activity	Specific activity is 2022.238 pmol/min/μg. One unit will convert 1 pmoles of D-Glucose to D-Glucose-6-phosphate per minute at pH 8.0 at 37°C.
Appearance	Solution.
Formulation	Supplied as a 0.2 μm filtered solution of 50 mM Tris-HCL, 300 mM NaCl, pH 7.4, 10% Glycerol.
Endotoxin Level	<1 EU/μg, determined by LAL method.
Reconstitution	N/A.
Storage & Stability	Stored at -80°C for 1 year. It is stable at -20°C for 3 months after opening. It is recommended to freeze aliquots at -80°C for extended storage. Avoid repeated freeze-thaw cycles.
Shipping	Shipping with dry ice.

DESCRIPTION

Background

The Glucokinase (GCK) protein is a pivotal player in glucose metabolism, catalyzing the phosphorylation of hexoses such as D-glucose, D-fructose, and D-mannose, to form hexose 6-phosphate—specifically, D-glucose 6-phosphate, D-fructose 6-phosphate, and D-mannose 6-phosphate. Notably, GCK exhibits a weaker affinity for D-glucose compared to other hexokinases and is most effective when glucose is abundant. Its predominant expression in pancreatic beta cells and the liver positions GCK as a rate-limiting step in glucose metabolism within these tissues. Acting as a glucose sensor in pancreatic beta cells, GCK's low glucose affinity allows it to modulate insulin secretion in coordination with glucose concentrations. In the liver, GCK plays a crucial role in facilitating glucose uptake and conversion, acting as an insulin-sensitive determinant of hepatic glucose usage. Additionally, GCK is essential for providing D-glucose 6-phosphate in the synthesis of glycogen and mediates the initial step of glycolysis by catalyzing the phosphorylation of D-glucose to D-glucose 6-phosphate.

Caution: Product has not been fully validated for medical applications. For research use only.

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