

## Recombinant Rat GCK Protein (His Tag)

**Catalog Number:** PDER100176

**Note:** Centrifuge before opening to ensure complete recovery of vial contents.

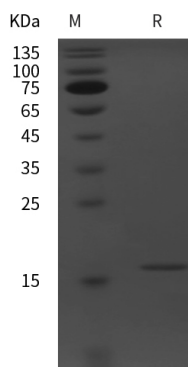
### Description

<b>Species</b>	Rat
<b>Source</b>	E.coli-derived Rat GCK protein Met1-Gly147, with an N-terminal His
<b>Calculated MW</b>	16.1 kDa
<b>Observed MW</b>	16 kDa
<b>Accession</b>	P17712
<b>Bio-activity</b>	Not validated for activity

### Properties

<b>Purity</b>	> 95% as determined by reducing SDS-PAGE.
<b>Endotoxin</b>	< 10 EU/mg of the protein as determined by the LAL method
<b>Storage</b>	Generally, lyophilized proteins are stable for up to 12 months when stored at -20 to -80°C. Reconstituted protein solution can be stored at 4-8°C for 2-7 days. Aliquots of reconstituted samples are stable at < -20°C for 3 months.
<b>Shipping</b>	This product is provided as lyophilized powder which is shipped with ice packs.
<b>Formulation</b>	Lyophilized from a 0.2 µm filtered solution in PBS with 5% Trehalose and 5% Mannitol.
<b>Reconstitution</b>	It is recommended that sterile water be added to the vial to prepare a stock solution of 0.5 mg/mL. Concentration is measured by UV-Vis.

### Data



SDS-PAGE analysis of Rat GCK proteins, 2 µg/lane of Recombinant Rat GCK proteins was resolved with SDS-PAGE under reducing conditions, showing bands at 16 kDa.

### Background

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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:6477520, PubMed:12513690, PubMed:24187134).

Compared to other hexokinases, has a weak affinity for D-glucose, and is effective only when glucose is abundant (PubMed:6477520).

Mainly expressed in pancreatic beta cells and the liver and constitutes a rate-limiting step in glucose metabolism in these tissues (By similarity).

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 (By similarity).

Mediates the initial step of glycolysis by catalyzing phosphorylation of D-glucose to D-glucose 6-phosphate (PubMed:6477520, PubMed:12513690).

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