Recombinant Ketohexokinase protein

Catalog No: 81300, 81600
Expressed In: *E. coli*

Quantity: 50, 1000 µg
Concentration: 1 µg/µl
Source: Human

Buffer Contents: Recombinant Ketohexokinase protein is supplied in 25 mM Tris-HCl pH 8.0, 300 mM NaCl, 10% glycerol and 0.5 mM TCEP.

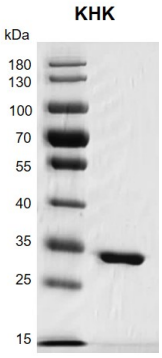
Background: Ketohexokinase, also called as Fructokinase or KHK, can catalyze the phosphorylation of the ketose sugar fructose to fructose-1-phosphate. A number of other furanose sugars can also act as KHK substrates. KHK has two isoforms, KHK-A and KHK-C. KHK-C has a 10-fold higher affinity for fructose (Km = 0.8 mM) and is mainly responsible for its metabolism. .KHK-C is expressed primarily in liver while KHK-A is expressed at low levels in a wide range of tissues, and its physiological substrate remains unknown.

Liver is the primary organ that metabolizes most of the ingested fructose, the small intestine strongly expresses all fructose-metabolizing enzymes and is responsible for the catabolism of 10–30% of ingested fructose. Fructolysis is initiated by KHK which converts fructose and ATP into fructose 1-phosphate and ADP, respectively. Aldolase-B cleaves fructose 1-phosphate into three-carbon intermediates, dihydroxyacetone phosphate and glyceraldehyde, and the latter is then converted by triokinase into glyceraldehyde 3-phosphate, which then joins the glycolysis pathway. Fructose catabolism initiated by KHK therefore bypasses important glycolytic regulatory steps in glycolysisthatgeneratefructose1,6- bisphosphatethroughtheaction oftheenergy-sensitiveenzymephosphofructokinase (PFK),resulting in greater lipogenesis than that resulting from glycolysis-regulated lipid production. In addition, fructose catabolism bypasses the glucose-6- phosphate and fructose-6-phosphate-derived pentose phosphate pathway (PPP), which produces ribose-5-phosphate (R5P) for de novo synthesis of nucleotides and nucleic acids. The KHK product fructose-1-phosphate relieves the binding of glucokinase to GCKR, increasing glucokinase availability and promoting its translocation from sequestered nuclear to cytoplasmic localization. GCKR regulates glucokinase primarily in the liver but may play a similar role in the pancreatic islet and hypothalamus, and it has been proposed to modulate glucose sensing.

Protein Details: Recombinant Ketohexokinase protein was expressed in *E. coli* cells as the full length protein (accession number NP_000212.1) with a C-terminal 6×His-Tag. The molecular weight of the protein is 33.8 kDa.

Application Notes: This product was manufactured as described in Protein Details. Where possible, Active Motif has developed functional or activity assays for recombinant proteins. Additional characterization such as enzyme kinetic activity assays, inhibitor screening or other biological activity assays may not have been performed for every product. All available data for a given product is shown.

Storage and Guarantee: Recombinant proteins in solution are temperature sensitive and must be stored at -80°C to prevent degradation. Avoid repeated freeze/thaw cycles and keep on ice when not in storage. This product is guaranteed for 6 months from date of arrival.



Recombinant Ketohexokinase protein gel

10% SDS-PAGE with Coomassie blue staining

MW: 33.8 kDa

Purity: >92%