

Glucose-6-phosphate isomerase (EC 5.3.1.9), *Escherichia coli*

Catalogue number	Presentation
AE00101	5000 U (2.1 mL)

Description

Glucose-6-phosphate isomerase (GPI), alternatively known as phosphoglucose isomerase or phosphohexose isomerase, is a dimeric enzyme that catalyzes the reversible isomerization of D-glucose-6-phosphate and D-fructose-6-phosphate. GPI also catalyzes the anomerization of D-glucose-6-phosphate. This enzyme is responsible for the second step of glycolysis and is involved in glucogenesis. Besides functioning as an isomerase, GPI serves as a neuroleukin, autocrine motility factor, and a differentiation and maturation mediator. Thus, GPI is one protein with several unique functions. It is thought that each of these functions is controlled by a unique active site. This makes GPI a classic example of a moonlighting protein, a protein that has more than one independent function. The enzyme is provided in 3.2 M ammonium sulphate. Swirl the enzyme suspension immediately prior to use.

Purity

Glucose-6-P isomerase has been determined to be >95% pure, according to SDS polyacrylamide gel electrophoresis (PAGE), followed by Coomassie blue staining (Figure 1).

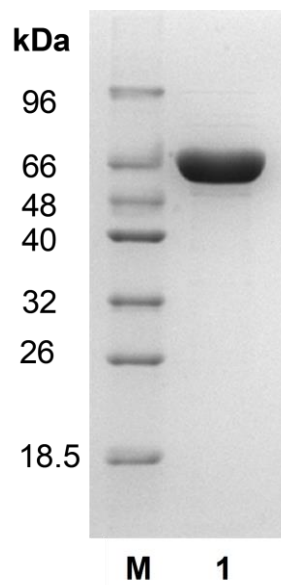


Figure 1. SDS-PAGE analysis of *E. coli* glucose-6-P isomerase. Electrophoresis was performed using a 10% polyacrylamide gel. Lane M, molecular weight marker; Lane 1, purified glucose-6-P isomerase from *E. coli* K12 (63 kDa).

Storage temperature

Glucose-6-P isomerase should be stored at 2 °C to 8 °C.

Temperature and pH optimum

The optimum pH and temperature are 7.5 and 40 °C, respectively.

Activity

2440 U/ml

Unit Definition

One unit is defined as the amount of enzyme required to produce 1 mmol of NADH from NAD⁺ in a reaction mixture containing 50 mM Tris-HCl, pH 7.5, 5 mM MgCl₂, 0.5 mg/ml BSA, 0.55 mM NAD⁺, 1.5 mM D-fructose-6-phosphate and 2.3 U/mL of glucose-6-phosphate dehydrogenase, at 40 °C.

Substrate specificity

Under the reaction conditions specified the enzyme may present a residual phosphomannose isomerase activity.

References

Kim JW, Dang CV (2005) Trends Biochem. Sci. 30(3), 142-50.

For life science research only. Not for use in diagnostic procedures.