

Glucokinase (EC 2.7.1.2), *Escherichia coli*

Catalogue number:

AE00171, 1400 U (246 mg)

Description

Escherichia coli glucokinase (EC 2.7.1.2) is an intracellular enzyme responsible for the phosphorylation of glucose to glucose-6-phosphate using ATP. In contrast to those of vertebrates, glucokinases from bacteria are functionally distinct from hexokinases (EC 2.7.1.1) with respect to their more absolute specificity for glucose. The crystal structure of *E. coli* glucokinase has been determined (PDB coordinates 1Q18 and 1SZ2), revealing a two domain architecture with the active site located in a deep cleft formed between the two domains. The enzyme reveals a dimeric structure and presents a similar fold to human and yeast hexokinases. The Nzytech enzyme is provided in 3.2 M ammonium sulphate. Swirl the enzyme mix immediately prior to use.

Purity

Glucokinase has been determined to be >95% pure, according to – sodium dodecyl sulphate polyacrylamide gel electrophoresis (SDS-PAGE) followed by Coomassie blue staining (Figure 1).

Temperature and pH optimum

The optimum pH and temperature are 7.5 and 25 °C, respectively.

Specific activity

5.8 U/mg protein, 98.6 U/ml.

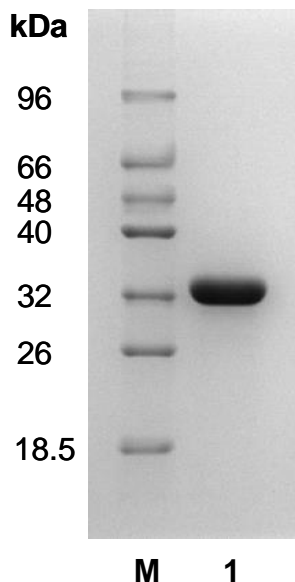
Substrate specificity

In contrast to the glucokinases of vertebrates, which are isoforms of hexokinases with a broad specificity for hexoses, this *E. coli* enzyme is very specific for glucose.

References

Meyer *et al.* (1997) *Journal of Bacteriology* 179, 1298-1306.

Lunin *et al.* (2004) *Journal of Bacteriology* 186, 6915-6927.



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Figure 1. SDS-PAGE analysis of *E. coli* glucokinase. Electrophoresis was performed using a 10% polyacrylamide gel. Lane M, molecular weight marker; Lane 1, purified glucokinase from *E. coli* K12 (35 kDa).

Storage temperature

Glucokinase should be stored at 2 °C to 8 °C.

Certificate of Analysis

Test	Criteria	Result
Protein purity	Purity in line with the stated value	Meets specification
Protein concentration	Concentration in line with the stated value	Meets specification
Catalytic activity	Activity in line with the stated value	Meets specification
Blank assay variability	Absorbance values with less than 10% of variability	Meets specification

Approved by:



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