

## Product Information

**Glucose 6-phosphate isomerase, human recombinant, expressed in *Escherichia coli***  
C-terminal His tag

Catalog Number **SAE0005**  
Storage Temperature  $-20^{\circ}\text{C}$

CAS RN 9001-41-6  
EC 5.3.1.9

Synonyms: Phosphoglucose isomerase, Neuroleukin, Phosphohexose isomerase, Autocrine motility factor, Sperm antigen 36, GPI, PGI, PHI, AMF, NLK, SA-36, GNPI

### Product Description

Glucose-6-phosphate isomerase (GPI) is a homodimeric enzyme ubiquitously present in most organisms. GPI catalyzes the interconversion between glucose-6-phosphate and fructose-6-phosphate, the second step of the glycolytic pathway.<sup>1</sup> In mammals, Glucose-6-phosphate isomerase also acts as an autocrine motility factor (AMF), a neuroleukin, and a maturation factor.<sup>2</sup> GPI deficiency is the second most common erythroenzymopathy of glycolytic enzymes after pyruvate kinase deficiency. Inherited deficiency of the enzymatic activity of GPI causes hereditary nonspherocytic hemolytic anemia (HNSHA) in humans, a severe deficiency that can be associated with hydrops fetalis ( $\alpha$ -thalassaemia), immediate neonatal death, and neurological impairment.<sup>3</sup>

The enzyme is supplied in a solution of 50 mM Tris-HCl, pH 7.5, and 50% glycerol.

Predicted molecular mass: 64 kDa

Purity:  $\geq 95\%$  (SDS-PAGE)

Specific activity:  $\geq 200$  units/mg protein

Unit Definition: One unit will convert 1.0  $\mu\text{mole}$  of D-fructose 6-phosphate to D-glucose 6-phosphate per minute at pH 7.4 at  $25^{\circ}\text{C}$ .

### Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Safety Data Sheet for information regarding hazards and safe handling practices.

### Preparation Instructions

It is recommended to dilute the enzyme in buffers supplemented with 1% BSA.

### Storage/Stability

Store the product at  $-20^{\circ}\text{C}$ .

When stored at  $-20^{\circ}\text{C}$ , the enzyme retains activity for at least two years. The enzyme can be stored at  $4^{\circ}\text{C}$  to  $25^{\circ}\text{C}$  for up to 2 weeks.

### References

1. Bergmeyer, H.U. et al., in *Methods of Enzymatic Analysis* (Bergmeyer, H.U., ed.) Volume 1, 2nd ed., Academic Press, Inc. (New York, NY: 1974) pp. 501-503.
2. Watanabe, H. et al., Tumor cell autocrine motility factor is the neuroleukin/phosphohexose isomerase polypeptide. *Cancer Res.*, **56**, 2960–2963 (1996).
3. Lin, H.U. et al., Effects of inherited mutations on catalytic activity and structural stability of human glucose-6-phosphate isomerase expressed in *Escherichia coli*. *Biochimica et Biophysica Acta*, **1794**, 315–323 (2009).

DT,MAM 08/14-1