

# Product Information

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## Triosephosphate Isomerase from rabbit muscle

Catalog Number **T2391**

Storage Temperature 2–8 °C

CAS RN 9023-78-3

EC 5.3.1.1

Synonyms: TPI; D-Glyceraldehyde-3-phosphate ketolisomerase

### Product Description

Triosephosphate Isomerase (TPI) catalyzes the interconversion of D-glyceraldehyde 3-phosphate (GAP) and dihydroxyacetone phosphate (DHAP). TPI plays a role in the glycolytic pathway and in gluconeogenesis. While the reaction is reversible, the formation of dihydroxyacetone phosphate is favored by a ratio of 20:1 over the reverse reaction.<sup>1</sup>

A deficiency in TPI is an autosomal recessive disorder in children under five characterized by cardiomyopathy, congenital hemolytic anemia, and susceptibility to bacterial infection. Most children with this disorder do not survive beyond age five.<sup>1</sup>

Molecular mass: 53.2 kDa (calculated)

TPI is a homodimeric protein with two 25 kDa subunits.<sup>2,3</sup>

Isoelectric Point (pI):<sup>4</sup> 9.85

pH Optimum:<sup>5</sup> 6.5

$K_M$ :<sup>5</sup> 0.42 mM (D-Glyceraldehyde 3-phosphate)  
0.75 mM (Glycerone phosphate)

$K_i$ :<sup>6</sup> 13 mM (arsenate)  
4.5 μM (phosphoglycoloamidoxine)

Inhibitors:<sup>3,5,6</sup>

2,4-dinitrofluorobenzene	phosphate
5,5'-dithiobis(2-nitrobenzoate)	NEM
D-α-glycerophosphate	acetylphosphate
D-erythrose 4-phosphate	p-benzoquinone
iodoacetate	iodoacetamide
methyl methanethiosulfonate	PCMB
o-iodosobenzoate	AsO <sub>2</sub>
phosphoenolpyruvate	phosphoglycolate
S-phenyl-p-toluenethiosulfonate	

This product is purified from rabbit muscle and is supplied as a suspension in 3.2 M (NH<sub>4</sub>)<sub>2</sub>SO<sub>4</sub>, pH 6.0.

Specific Activity: ≥4,000 units/mg protein

Unit Definition: One unit will convert 1.0 μmole of D-glyceraldehyde-3-phosphate to dihydroxyacetone phosphate per minute at pH 7.6 at 25 °C.

TPI is assayed spectrophotometrically in a 3.0 ml reaction mixture containing 0.5 mM Tris, pH 7.6, 280 mM triethanolamine, 0.132 mM β-NADH, 4.9 mM DL-glyceraldehyde 3-phosphate, 4 units of α-glycerophosphate dehydrogenase, and 0.02–0.04 unit of triosephosphate isomerase.

This product contains no detectable activity for the following enzymes (detection limit: % of TPI activity):  
3-phosphoglyceric phosphokinase (0.01%)  
pyruvate kinase (0.001%)  
lactic dehydrogenase (0.001%)  
phosphoglucose isomerase (0.001%)  
α-glycerophosphate dehydrogenase (0.001%)  
glyceraldehyde-3-phosphate dehydrogenase (0.001%)  
aldolase (0.001%)

### Precautions and Disclaimer

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

### Preparation Instructions

This product is soluble (1 unit/ml) in 15 mM Tris buffer, pH 7.6, with 0.02% (w/v) BSA at 25 °C. Solutions should be prepared immediately before use.

### Storage/Stability

Store product at 2–8 °C. When stored at –20 °C, the enzyme retains activity for at least two years.

This enzyme may be stable for up to 15 minutes when diluted 10-fold in cold 15 mM Tris, pH 7.2, containing 0.02% BSA and kept on ice.

## References

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