



Product Information

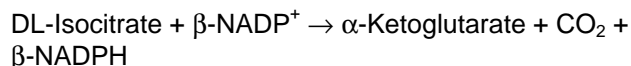
Isocitrate Dehydrogenase from porcine heart

Product Number **I 2516**
Storage Temperature -0 °C

Product Description

Enzyme Commission (EC) Number: 1.1.1.42
CAS Number: 9028-48-2
Molecular Weight: 58-64 kDa¹
Synonyms: Isocitric Dehydrogenase (NADP⁺), ICDH,
threo-D₅-isocitrate dehydrogenase

Isocitrate dehydrogenase (NADP⁺) from porcine heart exists as a monomer in the absence of magnesium/isocitrate with a molecular weight of 58 kDa and a Stoke's radius of 29 Å. In the presence of magnesium/isocitrate, the molecular weight is 112 kDa and the Stoke's radius is 39 Å.² Isocitrate dehydrogenase (NADP⁺) catalyzes the following reaction:



The enzyme is activated by Mg²⁺ and Mn²⁺; however, Mn²⁺ is the more potent activator.³ Reported K_M values are 2.6 μM for isocitrate and 9.2 μM for α-ketoglutarate. β-NAD⁺ cannot replace β-NADP⁺ as the required cofactor.⁴

Isocitrate dehydrogenase (NADP) is inhibited by CuSO₄, p-chloromercuribenzoate, phenylmercuric nitrate, diphenylchloroarsine, and phenarsazines.³ The enzyme can also be inactivated by alkylation (iodoacetate) of the methionine residue present in the active site of the enzyme.¹

Precautions and Disclaimer

For Laboratory Use Only. Not for drug, household or other uses.

Preparation Instructions

This enzyme is soluble in 250 mM glycylglycine buffer, pH 7.4 (1 mg/ml), yielding a clear solution.

References

1. Colman, R.F., Effect of modification of a methionyl residue on the kinetic and molecular properties of isocitric dehydrogenase. *J. Biol. Chem.*, **243**, 2454-2464 (1968).
2. Kelly, J.H., and Plaut, G.W.E., Physical evidence for the dimerization of the triphosphopyridine specific isocitrate dehydrogenase from pig heart. *J. Biol. Chem.*, **256**, 330-334 (1981).
3. Ochoa, S., Isocitric dehydrogenase system (TPN) from pig heart. *Meth. Enzymol.*, **1**, 699-704 (1955).
4. *Methods of Enzymatic Analysis*, 2nd ed., Vol I, Bergmeyer, H.U., ed., Academic Press (New York, NY: 1974), pp. 479-480.

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