Native Proteus sp. Glutamate Dehydrogenase (NADP-dependent)

Cat. No. DIA-196

Lot. No. (See product label)

Introduction

Description Glutamate dehydrogenase (GLDH) is an enzyme, present in most microbes and the mitochondria of eukaryotes, as are some of the other enzymes required for urea synthesis, that converts glutamate to α-ketoglutarate, and vice versa. In animals, the produced ammonia is usually used as a substrate in the urea cycle. Typically, the α-ketoglutarate to glutamate reaction does not occur in mammals, as glutamate dehydrogenase equilibrium favours the production of ammonia and α-ketoglutarate.

Applications This enzyme is useful for enzymatic determination of NH_3, α-ketoglutaric acid and L-glutamic acid, and for assay of leucine aminopeptidase and urease. This enzyme is also used for enzymatic determination of urea when coupled with urease in clinical analysis.

Synonyms glutamate dehydrogenase (NADP+); glutamic dehydrogenase; dehydrogenase; glutamate (nicotinamide adenine dinucleotide (phosphate)); glutamic acid dehydrogenase; L-glutamate dehydrogenase; L-glutamic acid dehydrogenase; NAD(P)-glutamate dehydrogenase; NAD(P)H-dependent glutamate dehydrogenase; glutamate dehydrogenase (NADP); EC 1.4.1.4; GLDH

Product Information

Source Proteus sp.

Appearance Solution with 50mM Tris-HCl buffer containing 0.05% NaN_3 and 5.0mM EDTA, pH 7.8

EC Number EC 1.4.1.4

CAS No. 2604121

Molecular Weight approx. 300 kDa

Activity GradeⅡ•Ⅲ 300U/mg-protein or more (9,000U/ml or more)

Contaminants NADPH oxidase < 1.0×10^{-2}% Glutathione reductase < 1.0×10^{-2}% (GradeⅡ-209) < 1.0×10^{-1}% (GradeⅢ-309)

Isoelectric point 4.6

pH Stability pH 6.0-8.5 (25°C, 20hr)

Optimum pH 8.5 (α-KG→L-Glu) 9.8 (L-Glu→α-KG)

Thermal stability below 50°C (pH 7.4, 10min)

Optimum temperature 45°C (α-KG→L-Glu) 45-55°C (L-Glu→α-KG)

Michaelis Constant 1.1×10^{-3}M (NH_3), 3.4×10^{-4}M (α-Ketoglutarate), 1.2×10^{-3}M (L-Glutamate), 1.4×10^{-5}M (NADPH), 1.5×10^{-5}M ($NADP^+$)

Structure 6 subunits (M.W.50,000) per mol of enzyme

Inhibitors Hg^{++}, Cd^{++}, p-chloromercuribenzoate, pyridine, 4-4'-dithiopyridine, 2,2'-dithiopyridine

Inhibitors	Hg^{2+}, Cd^{2+}, p-chloromercuribenzoate, pyridine, 4-4'-dithiopyridine, 2,2'-dithiopyridine
Stabilizers	Ethylenediaminetetraacetic acid (EDTA)

Storage and Shipping Information

Stability	Stable at 5°C for at least 6 months