Creative Enzymes
Diagnostic Enzymes

Native Proteus sp. Glutamate Dehydrogenase (NADP-dependent)

Product Information

Cat#	DIA-196
Abbr	GLDH (NADP) (Proteus sp.)
Alias	GLDH
Similar	GLDH
Source	Proteus sp.
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.
Appearance	Solution with 50mM Tris-HCl buffer containing 0.05% NaN_3 and 5.0mM EDTA, pH 7.8
Form	Freeze dried powder
Enzyme Commission Number	EC 1.4.1.4
Activity	300U/mg-protein or more (9,000U/ml or more)
CAS No.	2604121
Contaminants	NADPH oxidase < 1.0×10^{-2}% Glutathione reductase < 1.0×10^{-2}% (GradeII-209) < 1.0×10^{-1}% (GradeIII-309)
Molecular Weight	approx. 300 kDa

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Isoelectric point	4.6
pH Stability	pH 6.0-8.5 (25°C, 20hr)
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
Optimum pH	8.5 (α-KG→L-Glu) 9.8 (L-Glu→α-KG)
Optimum temperature	45°C (α-KG→L-Glu) 45-55°C (L-Glu→α-KG)
Thermal stability	below 50°C (pH 7.4, 10min)
Stability	Stable at 5°C for at least 6 months
Stabilizers	Ethylenediaminetetraacetic acid (EDTA)
Inhibitors	Hg^{++}, Cd^{++}, p-chloromercuribenzoate, pyridine, 4-4'-dithiopyridine, 2,2'-dithiopyridine
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

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