

## Native Proteus sp. Glutamate Dehydrogenase (NADP-dependent)

### Product Information

<b>Cat#</b>	DIA-196
<b>Abbr</b>	GLDH (NADP) (Proteus sp.)
<b>Alias</b>	GLDH
<b>Similar</b>	GLDH
<b>Source</b>	Proteus sp.
<b>Description</b>	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 $\alpha$ -ketoglutarate, and vice versa. In animals, the produced ammonia is usually used as a substrate in the urea cycle. Typically, the $\alpha$ -ketoglutarate to glutamate reaction does not occur in mammals, as glutamate dehydrogenase equilibrium favours the production of ammonia and $\alpha$ -ketoglutarate.
<b>Applications</b>	This enzyme is useful for enzymatic determination of $\text{NH}_3$ , $\alpha$ -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.
<b>Appearance</b>	Solution with 50mM Tris-HCl buffer containing 0.05% $\text{NaN}_3$ and 5.0mM EDTA, pH 7.8
<b>Form</b>	Freeze dried powder
<b>Enzyme Commission Number</b>	EC 1.4.1.4
<b>Activity</b>	300U/mg-protein or more (9,000U/ml or more)
<b>CAS No.</b>	2604121
<b>Contaminants</b>	NADPH oxidase < $1.0 \times 10^{-2}\%$ Glutathione reductase < $1.0 \times 10^{-2}\%$ (Gradell-209) < $1.0 \times 10^{-1}\%$ (Gradell-309)
<b>Molecular Weight</b>	approx. 300 kDa

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<b>Isoelectric point</b>	4.6
<b>pH Stability</b>	pH 6.0-8.5 (25°C, 20hr)
<b>Michaelis Constant</b>	$1.1 \times 10^{-3} \text{M}$ ( $\text{NH}_3$ ), $3.4 \times 10^{-4} \text{M}$ ( $\alpha$ -Ketoglutarate), $1.2 \times 10^{-3} \text{M}$ (L-Glutamate), $1.4 \times 10^{-5} \text{M}$ (NADPH), $1.5 \times 10^{-5} \text{M}$ (NADP <sup>+</sup> )
<b>Structure</b>	6 subunits (M.W.50,000) per mol of enzyme
<b>Optimum pH</b>	8.5 ( $\alpha$ -KG→L-Glu) 9.8 (L-Glu→ $\alpha$ -KG)
<b>Optimum temperature</b>	45°C ( $\alpha$ -KG→L-Glu) 45-55°C (L-Glu→ $\alpha$ -KG)
<b>Thermal stability</b>	below 50°C (pH 7.4, 10min)
<b>Stability</b>	Stable at 5°C for at least 6 months
<b>Stabilizers</b>	Ethylenediaminetetraacetic acid (EDTA)
<b>Inhibitors</b>	Hg <sup>++</sup> , Cd <sup>++</sup> , p-chloromercuribenzoate, pyridine, 4-4'-dithiopyridine, 2,2'-dithiopyridine
<b>Synonyms</b>	glutamate dehydrogenase (NADP <sup>+</sup> ); 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