Creative Enzymes
Diagnostic Enzymes

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

## Product Information

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| **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 < $1.0\times10^{-2}$% Glutathione reductase < $1.0\times10^{-2}$% (GradeII-209) < $1.0\times10^{-1}$% (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** | $1.1\times10^{-3}$M ($NH_3$), $3.4\times10^{-4}$M (α-Ketoglutarate), $1.2\times10^{-3}$M (L-Glutamate), $1.4\times10^{-5}$M (NADPH), $1.5\times10^{-5}$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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