Creative Enzymes
Diagnostic Enzymes

Native Microorganism Glutamate Dehydrogenase (NAD-dependent)

Product Information

Cat#	DIA-197
Abbr	GLDH (NAD) (Microorganism)
Alias	GLDH
Similar	GLDH
Source	Microorganism
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 NH3, 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	White amorphous powder, lyophilized
Form	Freeze dried powder
Enzyme Commission Number	EC 1.4.1.2
Activity	100 U/mg-solid or more
CAS No.	9001-46-1
Contaminants	NAD oxidase < 1.0×10^{-2}%
Molecular Weight	approx. 260 kDa
Isoelectric point	5.6

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pH Stability	pH 5.0-10.0 (25°C, 20hr)
Michaelis Constant	9.21×10⁻³M (NH_3), 4.80×10⁻³M (α-Ketoglutarate), 7.8×10⁻⁵M (L-Glutamate), 1.29×10⁻⁴M (NADH), 5.89×10⁻⁴M (NAD^+)
Structure	6 subunits per mol of enzyme
Optimum pH	7.5-8.0 (α-KG→L-Glu) 9.0 (L-Glu→α-KG)
Optimum temperature	55°C (α-KG→L-Glu) 50°C (L-Glu→α-KG)
Thermal stability	below 50°C (pH 8.3, 10min)
Stability	Stable at-20°C for at least one year
Inhibitors	Heavy metals, PCMB, IAA
Synonyms	Glutamate Dehydrogenase; glutamic dehydrogenase; glutamate dehydrogenase (NAD); glutamate oxidoreductase; glutamic acid dehydrogenase; L-glutamate dehydrogenase; NAD-dependent glutamate dehydrogenase; NAD-dependent glutamic dehydrogenase; NAD-glutamate dehydrogenase; NAD-linked glutamate dehydrogenase; NAD-linked glutamic dehydrogenase; NAD-specific glutamic dehydrogenase; NAD-specific glutamate dehydrogenase; NAD: glutamate oxidoreductase; NADH-linked glutamate dehydrogenase; L-glutamate: NAD+ oxidoreductase (deaminating); EC 1.4.1.2; GLDH

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