

## Native Microorganism Glutamate Dehydrogenase (NAD-dependent)

### Product Information

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



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*Diagnostic Enzymes*

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<b>pH Stability</b>	pH 5.0-10.0 (25°C, 20hr)
<b>Michaelis Constant</b>	$9.21 \times 10^{-3} \text{M}$ ( $\text{NH}_3$ ), $4.80 \times 10^{-3} \text{M}$ ( $\alpha$ -Ketoglutarate), $7.8 \times 10^{-5} \text{M}$ (L-Glutamate), $1.29 \times 10^{-4} \text{M}$ (NADH), $5.89 \times 10^{-4} \text{M}$ ( $\text{NAD}^+$ )
<b>Structure</b>	6 subunits per mol of enzyme
<b>Optimum pH</b>	7.5-8.0 ( $\alpha$ -KG $\rightarrow$ L-Glu) 9.0 (L-Glu $\rightarrow$ $\alpha$ -KG)
<b>Optimum temperature</b>	55°C ( $\alpha$ -KG $\rightarrow$ L-Glu) 50°C (L-Glu $\rightarrow$ $\alpha$ -KG)
<b>Thermal stability</b>	below 50°C (pH 8.3, 10min)
<b>Stability</b>	Stable at -20°C for at least one year
<b>Inhibitors</b>	Heavy metals, PCMB, IAA
<b>Synonyms</b>	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: $\text{NAD}^+$ oxidoreductase (deaminating); EC 1.4.1.2; GLDH