Creative Enzymes®

Glutamate Dehydrogenase (NAD(P)) from E.coli, Recombinant

Cat. No. NATE-0981

Lot. No. (See product label)

Introduction

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 Use recombinant Glutamate Dehydrogenase in diagnostic tests for the determination of ammonia, urea, L-glutamate, glutamate pyruvate transaminase and leucine aminopeptidase.

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); GLDH

Product Information

Source E.coli

Appearance White lyophilizate

CAS No. 2604152

Molecular Weight ~2 200 kD for the associated enzyme with 8 subunits; 280 kD for one subunit.

Activity >80 U/mg

Contaminants Alcohol dehydrogenase: <0.005 Lactate dehydrogenase: <0.005 Malate dehydrogenase: <0.005 "NADH-Oxidase": <0.005 NH4: <0.05 µg/mg lyophilizate

pH Stability 5.5-6.5

Optimum pH 8

Michaelis Constant L-glutamate: 1.8 x 10-3 mol/l NADP: 4.7 x 10-5 mol/l α-ketoglutarate: 7.0 x 10-4 mol/l NH4+: 3.2 x 10-3 mol/l NADPH: 2.6 x 10-5 mol/l Km values for NAD or NADH are difficult to obtain due to their inhibitory action.

Specificity The oxidation of L-glutamate is stimulated by ADP and inhibited by GTP. In contrast, the oxidation of alanine, leucine, isoleucine, methionine, valine, norleucine, norvaline and 2-aminobutyrates is stimulated by GTP and inhibited by ADP.

Activators Thioglycolic acid, b-mercaptoethylamine, EDTA, α, α'-dipyridyl

Inhibitors 4-chloromercuribenzoate, Na2S, diethyldithiocarbamate, 1,10-phenanthroline, 8-hydroxyquinoline, NaN3, thyroxine, heparin, sulfonylcarbamides, Cu2+, Hg2+, Ag2+, Fe3+, Zn2+, K+, PO42-, NO3-

Storage and Shipping Information

Stability At +2 to +8°C within specification range for 12 months. Store dry.