ALPHA DIAGNOSTIC INTERNATIONAL

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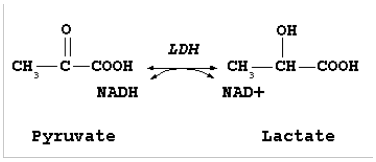
Product Specification Sheet

Cat# LDH-04 Lactate dehydrogenase (~200 U/mg), Human Muscle **Size**: 100 KU

General Information

Lactate dehydrogenase (LDH) is an enzyme (EC 1.1.1.27) present in a wide variety of organisms, including plants and animals.

Lactate dehydrogenases exist in four distinct enzyme classes. Two of them are cytochrome c-dependent enzymes with each acting on either D-lactate (EC 1.1.2.4) or L-lactate (EC 1.1.2.3). The other two are NAD(P)- dependent enzymes with each acting on either D-lactate (EC 1.1.1.28) or L-lactate (EC 1.1.1.27). This article is about the NAD(P)- dependent L-lactate dehydrogenase.



Lactate dehydrogenase catalyzes the interconversion of pyruvate and lactate with concomitant interconversion of NADH and NAD+. It converts pyruvate, the final product of glycolysis to lactate when oxygen is absent or in short supply, and it performs the reverse reaction during the cori cycle in the liver. At high concentrations of lactate, the enzyme exhibits feedback inhibition and the rate of conversion of pyruvate to lactate is decreased.

Enzyme isoforms

LDH-1 (4H) - in the heart
LDH-2 (3H1M) - in the reticuloendothelial system
LDH-3 (2H2M) - in the lungs
LDH-4 (1H3M) - in the kidneys
LDH-5 (4M) - in the liver and striated muscle

The five isozymes that are usually described in the literature each contain four subunits. The major isozymes of skeletal muscle and liver, M4, has four muscle (M) subunits; while H4 is the main isozymes for heart muscle in most species, containing four heart (H) subunits. The other variants contain both types of subunits.

Usually LDH-2 is the predominant form in the serum. A LDH-1 level higher than the LDH-2 level (a "flipped pattern"), suggests myocardial infarction (damage to heart tissues releases heart LDH, which is rich in LDH-1, into the bloodstream). The use of this phenomenon to diagnose infarction has been largely superseded by the use of Troponin I or T measurement.

Source and Storage:

Lactate dehydrogenase is obtained from human muscle. It is supplied as freeze dried powder. It dissolves readily at 10 mg/ml in 0.05M phosphate buffer, pH 7.4 to provide a clear solution.

Store powder at -20oC or below under dry conditions. Allow the product to reach room temp before opening the vial and dissolve in appropriate buffers for usage. Before returning to storage, re-dessicate under vacuum over silica gel for a minimum of 4 hours to provide best conditions for long term preservation of enzyme activity.

Unit Definition

Amount of enzyme that catalyzes the oxidation of 1 umol of NADH per min at 25oC and pH 7.4.

Activity
~200 U/mg protein.

Contaminants
PK, GPT, MDH at <0.01%.

References
Chlumsky LJ (1995) JBC 270, 18252-18259

Related Items

Catalog#	ProdDescription
LDH-01	Lactate dehydrogenase (300 U/mg), Human Heart, freeze dried powder
LDH-02	Lactate dehydrogenase (550 U/mg), Rabbit Muscle, freeze dried powder
LDH-03	Lactate dehydrogenase (~350 U/mg), Human Heart
LDH-04	Lactate dehydrogenase (~200 U/mg), Human Muscle
LDH-05	Lactate dehydrogenase (~300 U/mg), Bovine Heart
LDH-05	Lactate dehydrogenase (~300 U/mg), Chicken Heart
LDH-06	Lactate dehydrogenase (~550 U/mg), Human Muscle

LDH-04 140116P

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