OYC IVD News - Comparison Native and Recombinant Enzyme -

OYC Biochemicals

Special issue

LDH(CH)

Comparison of Enzymatic Properties between Native and Recombinant

OYC's recombinant LDH(CH) is designed the same as native LDH(CH), which is useful as a raw material for ALT, AST and Lactate assay kit for worldwide IVD manufacturers. It is possible for a company to replace current using native LDH(CH) with our recombinant one easily without any problems. In addition, we confirmed through our history that the recombinant features of enzymes provide more stable quality and supply according to our customers' requirements. We do hope you try our recombinant LDH(CH) at this opportunity for your solution.

Application for LDH

AST Aspartate transaminase — Liver function tests

Main Reaction

L-Aspartate + 2-Oxoglutarate —(AST)→ Oxaloacetate + L-Glutamate

Oxaloacetate + NADH + H⁺ —(MDH)→ L-Malate + NAD⁺

Elimination of pyruvate interference

Endogenous pyruvate + NADH + H⁺ —(LDH)→ Lactate + NAD⁺

ALT Alanine transaminase — Liver function tests

L-Alanine + 2-Oxoglutarate —(ALT)→ L-Glutamate + Pyruvate

Pyruvate + NADH + H⁺ —(LDH)→ Lactate + NAD⁺

Lactate Lactic Acid, CSF Lactate — Lactic acidosis tests

Lactate + NAD⁺ —(LDH)→ Pyruvate + NADH + H⁺

*Major ingredients in the reagent are colored **red** .*
OYC's available product is highlighted in .

PRODUCT INFORMATION

rLDH(CH) *from Chicken Heart*

Product Item	Catalog No.
rLDH(CH)	46757903

Reaction Equation

L-Lactate + NAD⁺ ⟷ Pyruvate + NADH + H⁺

Product Form and Storage

Lyophilized powder
Store below -20˚C

Note: Unit definition is different for each enzyme supplier. Therefore, customers cannot handle the labeled activity values (e.g., U/mg powder) of our products and other companies' products in the same way.

- We are able to determine unit using other companies' activity measurement methods according to customers' requests and supply them.

Specification

Specific activity	
IU/mg protein	> 200 units
Contaminants	
Malate dehydrogenase	< 0.03%
Myokinase	< 0.01%
Pyruvate kinase	< 0.003%
Glutamic-pyruvic transaminase*	< 0.03%
Glutamic-oxaloacetic transaminase*	< 0.03%

*α-Hydroxyglutarate dehydrogenase activation included.

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ENZYMATIC PROPERTIES

	Native	Recombinant
Optimum pH	pH 7.0-7.5	pH 7.0-7.5
Optimum temp.	≧37˚C	≧37˚C
pH stability	pH 6.3-9.2 (25˚C, 1 week)	pH 6.3-9.2 (25˚C, 1 week)
Thermal stability	≦65˚C (pH 7.5, 10 min)	≦65˚C (pH 7.5, 10 min)
Km value	4.0×10^{-5} mol/L (Pyruvate)	4.1×10^{-5} mol/L (Pyruvate)
	2.0×10^{-5} mol/L (NADH)	1.8×10^{-5} mol/L (NADH)
Molecular weight	36 kDa (SDS-PAGE)	36 kDa (SDS-PAGE)

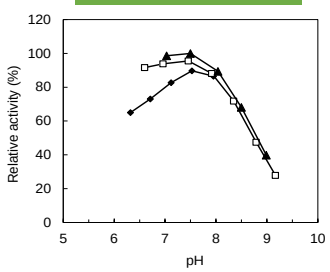
rLDH(CH)

- Enzymatic properties equivalent to native enzyme.
- Available in the same way as native enzyme.

COMPARISON DATA –LDH(CH)

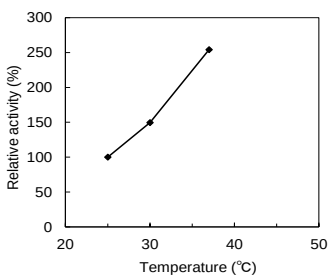
pH activity

Reaction in 0.1 mol/L buffer :
◆ K-phosphate
□ TEA-HCl
▲ Tris-HCl



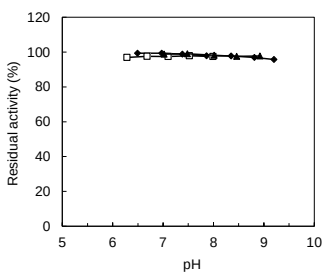
Thermal activity

Reaction in 0.1 mol/L
K-phosphate buffer (pH7.0)



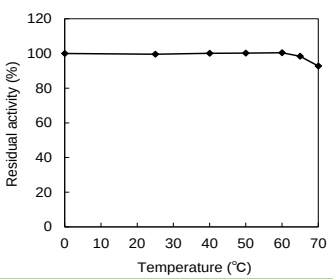
pH stability

25℃, 1 week-treatment with
0.1 mol/L buffer :
◆ TEA-HCl
□ K-phosphate
▲ Tris-HCl



Thermal stability

10 min-treatment with 0.1 mol/L
Tris-HCl buffer (pH7.5)



OYC supports the development and manufacture of IVD reagents for our customers.

ORIENTAL YEAST CO.,LTD.

Please contact our sales representative or visit the following website.
https://www.oyc.co.jp/en/inquiry/index.html