ORDER INFORMATION

CODE : DL3901 - 10 x 1 ML
DL3902 - 25 x 1 ML
DL3903 - 1 x 10 ML
DL3905 - 1 x 30 ML

DELTA LACTATE

LO-POD. Enzymatic colorimetric

SAFETY PRECAUTIONS AND WARNINGS :

This reagent is for *In vitro* diagnostic use only.

INTENDED USE :

This reagent kit is intended for ***"in vitro"*** quantitative determination of LACTATE concentration in serum and plasma.
Enzymatic colorimetric method.

CLINICAL SIGNIFICANCE :

Lactate is a metabolic intermediary, originated in the lactic fermentation from glucose, which accumulates during high intensity exercise as a result of the associated increase in glycolytic activity. The formation of ATP is linked to the generation of lactate and H^+. If fatigue develops, the increased levels of lactate correlate with the reduction of force[1,4,5]. Clinical diagnosis should not be made on a single test result; it should integrate clinical and other laboratory data.

PRINCIPLE :

Lactate is oxidized by Lactate Oxidase (LO) to pyruvate and hydrogen peroxide (H_2O_2), which under the influence of peroxidase (POD), 4- aminophenazone (4-AP) and 4-chlorophenol form a red quinone compound:

$$\text{L-Lactate} + O_2 + H_2O \xrightarrow{LO} \text{Pyruvate} + H_2O_2$$

$$2H_2O_2 + \text{4-AP} + \text{4-Chlorophenol} \xrightarrow{POD} \text{Quinone} + H_2O$$

The intensity of the color formed is proportional to the lactate concentration in the sample.

REAGENT COMPOSITION :

Reagent 1: Enzyme reagent
Lactate standard: 10 mg/dl

MATERIALS REQUIRED BUT NOT PROVIDED :

- Clean & Dry Glassware.
- Micropipettes & Tips.
- Colorimeter or Bio-Chemistry Analyzer.

SAMPLES :

Serum or heparinzed plasma. Free of hemolysis.
Serum or plasma must be placed on a refrigerator and separated of the blood cells within 15 min, other wise the blood cells will metabolise glucose to lactic acid. Once serum or plasma separated from blood cells, lactate is stable.

STABILITY OF REAGENT :

When Stored tightly closed at 2 to 8°C temperature protected from light and contaminations prevented during their use; reagents are stable up to the expiry date stated on the label.

WORKING REAGENT :

The Reagent is ready for use.

GENERAL SYSTEM PARAMETERS :

Reaction type	End Point (Increasing)
Wave length	546 nm
Light Path	1 Cm
Reaction Temperature	37°C
Blank / Zero Setting	Reagent
Reagent Volume	1ml
Sample Volume	10 µl
Incubation Time	10 Minutes
Standard Concentration	10 mg/dl
Low Normal	4.5 mg/dl
High Normal	19.8 mg/dl
Linearity	150 mg/dl

ASSAY PROCEDURE :

	Blank	Standard	Sample
Reagent	**1ml**	**1ml**	**1ml**
Standard		**10 µl**	
Sample			**10 µl**

Mix and read the optical density 10 min. Incubation at 37°C.

CALCULATION :

$$\text{Lactate Conc. (Mg/dl)} = \frac{\text{OD of Sample}}{\text{OD of Standard}} \times \text{Conc. of Standard}$$

LINEARITY :

Reagent is Linear up to 150 mg/dl.
Dilute the sample appropriately and re-assay if Lactate concentration exceeds 150 mg/dl. Multiply result with dilution factor.

REFERENCE NORMAL VALUE :

4.5 - 19.8 mg/dl

QUALITY CONTROL :

For accuracy it is necessary to run known controls with every assay.

LIMITATION & PRECAUTIONS :

1. Storage conditions as mentioned on the kit to be adhered.
2. Do not freeze or expose the reagents to higher temperature as it may affect the performance of the kit.
3. Before the assay bring all the reagents to room temperature.
4. Avoid contamination of the reagent during assay process.
5. Use clean glassware free from dust or debris.
6. Do not use the reagent if it is hazy or cloudy.

BIBLIOGRAPHY :

1. Gau N. Lactic acid. Kaplan A et al. Clin Chem The C.V. Mosby Co. St Louis. Toronto. Princeton 1984; 1040-1042 and 418.
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4. Burtis A et al. Tietz Textbook of Clinical Chemistry, 3rd ed AACC 1999.
5. Tietz N W et al. Clinical Guide to Laboratory Tests, 3rd ed AACC 1995.

DELTA LAB
1116, Bhadrakali Compound, Off Mumbai - Goa Highway, At Post Zarap,
Tal. : Kudal, Dist. Sindhudurg, Maharashtra - 416 510, INDIA
Tel / Fax : 0 23 62 - 23 20 30, Email : delta@deltalab.in, Web : www.deltalab.in