N BIO - LACTATE KIT

(Oxidase method)

KIT NAME	KIT SIZE	CAT. NO
N BIO - Lactate	4 X 5 ml	MLAC04005M

GENUINE BIOSYSTEM

INTRODUCTION

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. Clinical diagnosis should not be made on a single test result, it should integrate clinical and other laboratory data.

METHOD PRINCIPLE

Lactate is oxidized by Lactate Oxidase (LO) to pyruvate and hydrogen peroxide (H2O2), which under the influence of peroxidase (POD), 4-aminophenazone (4-AP) and 4-chlorophenol form a red quinone compound.

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

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

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

KIT CONTENTS

Reagent Name	MLAC04005M
R1 - Lactate Reagent	4 x 5 ml
R2 - Standard	1 vial

Please refer the standard value mentioned in the vial.

WORKING REAGENT PREPARATION AND STABILITY

The reagent is ready to use.

The reagent is stable up to the kit expiry date printed on the package when stored at 2-8°C. The reagents are stable for 3 weeks on board the analyser at 2-10°C. Protect from contamination.

CONCENTRATIONS IN THE TEST

Lactate Oxidase	400 U/L
Peroxidase (Horseradish)	2400 U/L
Stabilizer	

WARNINGS AND NOTES

- Product for in vitro diagnostic use only.
- The reagent and standard contain 0.09% sodium azide as a Preservative. Avoid contact with skin and mucous membranes.

ADDITIONAL EQUIPMENT

- Automatic analyzer or photometer able to read at 505 nm
- Thermostat at 37°C
- General laboratory equipment

SPECIMEN

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

PROCEDURE

These reagents may be used both for manual assay and in several automatic analysers. Applications for them are available on request.

Wavelength	505 nm
Temperature	37°C
Cuvette	1 cm

Pipette into the cuvette:

Reagent	Blank (B)	Standard (S)	Test (T)
R1 Lactate Reagent	1000 µl	1000 µl	1000 µl
Bring up the temperature of determination. Then add,			
Distilled water	10 µl		
R2 - Standard		10 µl	
Sample			10 µl

Mix well and incubate for 5 minute. Read the absorbance of test sample A(T) and standard sample A(S) against reagent blank (B).

CALCULATION

Lactate concentration = A(T) / A(S) x standard concentration

REFERENCE VALUES

4.5 to 19.8 mg/dl

It is recommended for each laboratory to establish its own reference ranges for local population.

QUALITY CONTROL

To Ensure adequate quality control, each run should include assayed normal and abnormal controls. If commercial controls are not available it is recommended that known value samples be aliquoted, frozen and used as controls.

For Fully Automated analyzers by using multicalibrator or lactate standard the calibration curve can plot and the same should be prepared every 3 weeks or with change of reagent lot number.

PERFORMANCE CHARACTERISTICS

- **Sensitivity / Limit of Quantitation:** 1.2 mg/dl.
- **Linearity:** up to 150 mg/dl. For higher concentration of lactate dilute the sample with 0.9% NaCl and repeat the assay. Multiply the result by dilution factor.

LIMITATION & PRECAUTIONS:

1. Storage conditions as mentioned on the kit to be adhered.
2. Do not freeze or expose the reagents to the higher temperature as it may be 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.

WASTE MANAGEMENT

Please refer to local legal requirements.

LITERATURE

1. Gau N. Lactic acid, Kaplan et al. Clin Chem The C.V. Mosby Co St. Louis. Toronto, Princeton 1984: 1040-1042 and 418.
2. Young DS. Effects of drugs on Clinical Lab. Tests 4th ed AACC Press, 1995.
3. Young DS,Effects of disease on clinical lab, Tests 4th ed AACC 2001.
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 AACC1995.

SYSTEM PARAMETERS

Method	End Point
Wavelength	505 nm
Zero Setting	Reagent Blank
Temperature Setting	37° C
Incubation Temperature	37° C
Incubation Time	5 mins
Delay Time	-----
Read Time	-----
No. of Reading	-----
Interval Time	-----
Sample Volume	0.01 ml (10 ul)
Reagent Volume	1.0 ml (1000 ul)
Standard Concentration	Refer Standard vial
Units	mg/dl
Factor	-----
Reaction Slope	Increasing
Linearity	150 mg/dl

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