PATHOZYME DIAGNOSTICS

LIQVIPATH LACTATE

(LOD – POD, Enzymatic Colorimetric Method)

CAT NO.: LAC

Reagent kit for quantitative estimation of Lactate in Plasma or CSF.

DIAGNOSTIC SIGNIFICANCE:

Lactic acid is an intermediate product of glucose metabolism, and the level of lactic acid concentration is an indirect indicator reflecting glucose metabolism, peripheral circulation, and tissue blood and oxygen supply. The increase of lactic acid in the body can cause lactic acidosis and blood lactic acid level can be examined, which is mainly used to judge the severity and prognosis of the disease. It can also be used for differential diagnosis of metabolic acidosis.

PRINCIPLE:

Lactic acid oxidase (LOD) oxidizes lactic acid to produce pyruvate and hydrogen peroxide and hydrogen peroxide reacts with 4-aminoantipyrine and TOOS in presence of Peroxidase (POD) to produce purple product, which has the maximum absorption peak at 546nm, and the absorption is proportional to the Lactic Acid (Lactate) in the specimen.

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

$$H_2O_2 + \text{TOOS} + \text{4AAP} \xrightarrow{\text{POD}} \text{Coloured Complex}$$

SPECIMEN COLLECTION:

Biological fluid samples should be collected in the same manner routinely used for any laboratory test. Freshly drawn Plasma or cerebrospinal fluid is the preferred specimens. Chill the specimen immediately.

Whole Blood, Serum and Urine are not recommended for use as a sample. Blood should be drawn without stasis because venous stasis may cause lactate elevation. Samples should remain on ice prior to analysis.

KIT PRESENTATION:

PACK SIZE	1 X 10 ml	2 X 10 ml	2 X 25 ml
Lactate Reagent	1 X 10 ml	2 X 10 ml	2 X 25 ml
Lactate Calibrator	1 No.	1 No.	1 No.

WORKING REAGENT PREPARATION:

Lactate Reagent is ready to use.

REAGENT STORAGE AND STABILITY:

Lactate Reagent and Standard are stable at 2-8°C until the expiry date stated on the label.

ASSAY PARAMETERS:

Reaction	**: End Point**	**Sample Volume**	**: 10 µl**
Wavelength -I	**: 546 nm**	**Reagent Volume**	**: 1000 µl**
Wavelength-II	**: 700 / 630 nm**	**Calibrator Conc.**	**: See On Vial**
Flow Cell Temp.	**: 37°C**	**Zero Setting**	**: Reagent**
Incubation Time	**: 10 Minutes**	**Linearity**	**: 150 mg/dl**
Incubation Temp.	**: 37°C**	**Unit**	**: mg/dl**

PROCEDURE:

Pipette into TT	Blank	Calibrator	Test
Lactate Reagent	1000 µl	1000 µl	1000 µl
Lactate Calibrator	--	10 µl	--
Sample (Test)	--	--	10 µl

Mix & incubate at 37°C for 10 minutes. Read absorbance of Calibrator (**C**) and Test (**T**) after 10 minutes against reagent blank at 546 nm & 700 / 630 nm (546 nm is primary filter and 700 / 630 nm secondary filter).

CALCULATION:

Lactate (mg/dl) = Abs T ÷ Abs C X Calibrator Concentration

Conversion factor

Lactate (mg/dl) X 0.1109 = Lactate (mmol/L)

NORMAL VALUES:

Plasma:

Venous	: 4.5 – 19.8 mg/dL (0.5 – 2.2 mmol/L)
Arterial	: 4.5 – 14.4 mg/dL (0.5 – 1.6 mmol/L)

CSF:

Adults	: 10 – 22 mg/dL (1.1 – 2.4 mmol/L)
Newborn	: 10 – 60 mg/dL (1.1 – 6.7 mmol/L)
3 – 10 days	: 10 – 40 mg/dL (1.1 – 4.4 mmol/L)
> 10 days	: 10 – 25 mg/dL (1.1 – 2.8 mmol/L)

Each laboratory should determine its own expected values as dictated by good laboratory practice.

LINEARITY:

This method is linear up to **150 mg/dl**. For values above 150 mg/dl, dilute the sample suitably with 0.9 % saline, and repeat the assay. Apply dilution factor to obtain final result.

INTERFERENCE:

The effect of ascorbic acid ≤ 10mg/dl, Hemoglobin ≤ 400 mg/dl, Bilirubin ≤ 10 mg/dl, Heparin sodium≤ 500u/ml is less than 10%.

REFERENCES:

1. Young, D. S.,Effects of Preanalytical Variables on Clinical Laboratory Tests, AACC Press, Washington, D.C. (1993).
2. Friedman, R. B., Young, D. S., Effects of Disease on Clinical Laboratory Tests, 4th Edition, AACC Press, Washington, D.C.2001.
3. Clinical and Laboratory Standards Institute.Interference Testing in Clinical Chemistry Approved Guideline - Second Edition. CLSI document EP7-A2 (ISBN 1-56238-584-4). Wayne, Pennsylvania (2005).
4. Tietz, N. W., ed., Fundamentals of Clinical Chemistry, 6th Edition, W. B. Saunders, Philadelphia, PA (2007).

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Expiry Date | IVD In-Vitro Diagnostics Use | Storage | Mfg. Date | LOT Batch Number | REF Catalogue Number | See Package Insert

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