LIQUIZYME

LDH

(L->P Kinetic Method)

BEACON

Code	Product Name	Pack Size
LS023A	Liquizyme LDH	24 ml
LS023B	Liquizyme LDH	50 ml

Intended Use

Diagnostic reagent for quantitative *in vitro* determination of LDH in human serum.

Clinical Significance

Increased levels of LDH are associated with myocardial infarction. Levels reach a maximum approxixmately 48 hours after the onset of pain and persist about ten days. The degree of elevation is of value in assessing the extent of damage and in developing a prognosis. LDH elevations are also observed in liver disease, pernicious anemia, in some cases of renal disease, and in some cases of skeletal muscle trauma.

Principle

$$\text{L-Lactate} + NAD^+ \xrightarrow{\text{LDH}} \text{Pyruvate} + NADH + H^+$$

Lactate dehydrogenase catalyzes the oxidation of lactate to pyruvate with simultaneous reduction of NAD to NADH. The rate of NAD reduction can be measured as an increase in absorbance at 340 nm. This rate is directly proportional to LDH activity in serum.

Reagent Composition

Reagent 1 : LDH Buffer Reagent

Buffer : >25 mmol/l
L-Lactate : <100 mmol/l

Reagent 2 : LDH Starter Reagent

NAD : <15 mmol/L

Working Reagent Preparation

Reagent are supplied as ready to use to prepare a working reagent.
Mix 5 parts LDH buffer reagent with 1 part LDH starter reagent.

Stability And Storage

The unopened reagents are stable till the expiry date stated on the bottle and kit label when stored at 2–8°C.

Material Required But Not Provided

- Clean & Dry container.
- Laboratory Glass Pippetes or Micropippetes & Tips.
- Colorimeter or Bio-Chemistry Analyzer.

Specimen Collection And Handling

Use unheamolytic serum.
It is recommended to follow NCCLS procedures (or similar standardized conditions).

Loss of activity:

within 24 hours : at 15 – 25°C < 2%
within 3 days : at 2 – 8°C < 8%

Stability :

at least 6 weeks : at -20°C
Discard contaminated specimens.

Quality Control

It's recommended to run normal and abnormal control sera to validate reagent performance.

Expected Values

At 37°C
Male : 80 - 285 U/L
Female : 103 - 227 U/L

It is recommended that each laboratory verify this range or derives reference interval for the population it serves.

Performance Data

Data contained within this section is representative of performance on Beacon system.
Data obtained in your laboratory may differ from these values.

Limit of quantification : 7 U/L
Linearity : 1200 U/L
Measuring range : 7 – 1200 U/L

Precision

Intra-assay precision Within run (n=20)	Mean (U/L)	SD (U/L)	CV (%)
Sample 1	228	4.48	1.97
Sample 2	470	4.96	1.06

Inter-assay precision Run to run (n=20)	Mean (U/L)	SD (U/L)	CV (%)
Sample 1	251	1.10	0.44

Comparison

A comparison between Beacon LDH (y) and a commercially available test (x) using 20 samples gave following results :
y = 1.0027 x - 1.7002 U/L
r = 0.999

Interferences

Following substances do not interfere :
Bilirubin up to 20 mg/dl, triglycerides up to 500 mg/dl, haemoglobin up to 5.0 g/l. Significant hemolysis may

increase LD concentration because of high levels of LD in the erythrocytes.

Warning And Precautions
For *in vitro* diagnostic use. To be handles by entitled and professionally educated person.

Waste Management
Please refer to local legal requirements.

Assay Procedure
Wavelength : 340 nm
Cuvette : 1 cm

Addition Sequence	Volume
Reagent 1	500 µl
Reagent 2	100 µl
Sample	10 µl

Mix and measure the initial absorbance after 1 min. (A1), start timer simultaneously and read again exactly after 1, 2, 3 min (A2). Calculate absorbance change per min.

Calculation
LDH activity (U/L) = ΔA/min x 9807

Applications for automatic analysers are available on request.

Assay Parameters For Photometers

Mode	Kinetic
Wavelength 1 (nm)	340
Sample Volume (µl)	10
Working Reagent Volume (µl)	600
Lag time (sec.)	60
Kinetic Interval (sec.).	60
No. of Interval	3
Kinetic Factor	9807
Reaction temp. (°C)	37
Reaction Direction	Increasing
Normal Low (U/L)	80
Normal High (U/L)	285
Linearity Low (U/L)	7
Linearity High (U/L)	1200
Blank with	Water
Unit	U/L

References

1. Searcy, R.L., Diagnostic Biochemistry, McGraw-Hill, New york, NY, 1969.
2. Tietz Textbook of Clinical Chemistry and Molecular Diagnostics. Burtis, C.A., Ashwood, E.R., Bruns, D.E.; 5th edition, WB Saunders Comp., 2012.
3. Henry, RIJ., Chiamori N., Golub O.J., And Berkman S., Am. J. Clin. Path. 34(341)
4. Lum, G., Gambino, S.R., Am.J.Clin.Pathol. 61(108), 1974.
5. Bergmeyer, H.W., Methods of Enzymatic Analymatic Analysis, Ed.2, Verlog Chemie, 1965.
6. Young DS, Effects of Drugs on Clinical Laboratory Tests. Third Edition. 1990; 3: 221-4.

Symbols Used On Labels

REF	Catalogue Number		Manufacturer
	See Instruction for Use	LOT	Lot Number
CONT	Content		Storage Temperature
	Expiry Date	IVD	In Vitro Diagnostics