LIQUIZYME

URIC ACID

(URICASE / POD Method)

BEACON

Code	Product Name	Pack Size
LS031B	Liquizyme Uric Acid	4 x 50 ml
LS031G	Liquizyme Uric Acid	1 x 50 ml
LS031H	Liquizyme Uric Acid	2 x 50 ml
LS031I	Liquizyme Uric Acid	10 x 50 ml
LS031J	Liquizyme Uric Acid	20 x 50 ml

Intended Use

Diagnostic reagent for quantitative *in vitro* determination of Uric Acid in human serum, plasma and urine.

Clinical Significance

Uric acid is a metabolite of purines, nucleic acids and nucleoproteins, consequently, abnormal levels may be indicative of a disorder in the metabolism of these substances. Hyperuricaemia may be observed in renal dysfunction, gout, leukemia, polycythaemia, atherosclerosis, diabetes and hypothyroidism. Decreased levels are present in patients with Wilson's Disease.

Principle

The series of reactions involved in the assay system is as follows:

$$\text{Uric Acid} + O_2 + H_2O \xrightarrow{\text{Uricase}} \text{Allantoin} + CO_2 + H_2O_2$$

$$\text{DHBS} + 4\text{AAP} + 2H_2O_2 \xrightarrow{\text{Peroxidase}} \text{Quinoneimine dye} + 4H_2O$$

1. Uric acid is oxidised to allantoin by uricase with the production of H_2O_2.
2. The peroxide reacts with 4-aminoantipyrine (4-AAP) and DHBS in the presence of peroxidase to yield a quinoneimine dye. The absorbance of this dye at 505 nm is proportional to uric acid concentration in the sample.

Reagent Composition

Reagent 1 : Uric Acid Enzyme Reagent

HEPES Buffer	:	>60 mmol/L
4-AAP	:	>0.2 mmol/L
URICASE	:	>300 U/L
Peroxidase	:	>1000 U/L
DHBS	:	>0.75 mmol/L

Reagent 2 : Uric Acid Standard : 6 mg/dl
Ready to use

Reagent Preparation
Reagents are liquid, ready to use.

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.

Materials Required But Not Provided

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

Specimen Collection And Handling

Use unheamolytic serum or plasma (heparin, EDTA) or urine. It is recommended to follow NCCLS procedures (or similar standardized conditions).

Stability In Serum / Plasma :

3 days	:	at 20 – 26°C
7 days	:	at 4 – 8°C

In Urine :

6 months	:	at - 20°C
4 days	:	at 20 – 26°C

Dilute urine 1 + 9 ratio and multiply results by 10

Calibration

Calibration with the Uric Acid standard provided in the kit is recommended.

Quality Control

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

Unit Conversion

mg/dl x 60 = µmol/l

Expected Values

Serum :

Adults	**Male**	:	4.0 - 7.2 mg/dl
	Female	:	2.7 - 6.5 mg/dl

Urine, 24 h :

Average Diet	:	250 - 750 mg/24 hrs.

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	:	0.6 mg/dl
Linearity	:	20 mg/dl
Measuring range	:	0.6 – 20 mg/dl

Precision

Intra-assay precision Within run (n=20)	Mean (mg/dl)	SD (mg/dl)	CV (%)
Sample 1	6.28	0.14	2.27
Sample 2	8.84	0.26	2.89

Inter-assay precision Run to run (n=20)	Mean (mg/dl)	SD (mg/dl)	CV (%)
Sample 1	8.89	0.15	1.71

Comparison

A comparison between Liquizyme Uric Acid (y) and a commercially available test (x) using 20 samples gave following results :

y = 1.003 x + 0.094 mg/dl

r = 0.999

Interferences

Following substances do not interfere :

haemoglobin up to 10 g/l, bilirubin up to 40 mg/dl, triglycerides up to 2000 mg/dl.

Warning And Precautions

For *in vitro* diagnostic use. To be handled by entitled and professionally educated person. Reagents of the kit are not classified like dangerous.

Waste Management

Please refer to local legal requirements.

Assay Procedure

Wavelength : 505 nm

Cuvette : 1 cm

Addition Sequence	Reagent Blank	Standard	Sample
Reagent 1	1000 µl	1000 µl	1000 µl
Standard	-	25 µl	-
Sample	-	-	25 µl
Distilled Water	25 µl	-	-

Mix and incubate 5 min. at 37°C. Measure absorbance of the sample Abs. T and starndard Abs. S against reagent blank.

Calculation

$$\text{Uric Acid (mg/dl)} = \frac{\text{Abs. T}}{\text{Abs. S}} \times 6$$

Applications for automatic analysers are available on request.

Assay Parameters For Photometers

Mode	End point
Wavelength 1 (nm)	505
Sample Volume (µl)	25
Reagent Volume (µl)	1000
Incubation time (min.)	5
Incubation temp. (°C)	37
Normal Low (mg/dl)	4
Normal High (mg/dl)	7.2
Linearity Low (mg/dl)	0.6
Linearity High (mg/dl)	20
Concentration of Standard	6 mg/dl
Blank with	Reagent
Unit	mg/dl

References

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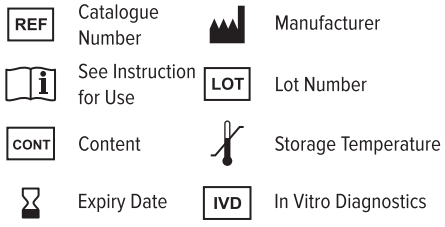
Symbols Used On Labels



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