

LIQUIZYME GLUCOSE (GOD/POD Method)



Code	Product Name	Pack Size
LS019C	Liquizyme Glucose	2 x 500 ml
LS019F	Liquizyme Glucose	3 x 120 ml
LS019G	Liquizyme Glucose	5 x 120 ml

Intended Use

Diagnostic reagent for quantitative *in vitro* determination of Glucose in human serum, plasma (preferably sodium fluoride).

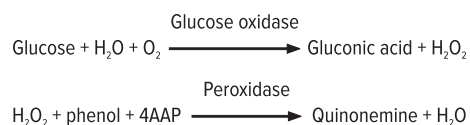
Clinical Significance

Accurate measurement of glucose in body fluid is important in diagnosis and management of diabetes, hypoglycemia, adrenal dysfunction and various other conditions. High levels of serum glucose may be seen in case of Diabetes mellitus, in patients receiving glucose containing fluids intravenously, during severe stress and in cerebrovascular accidents. Decreased levels of glucose can be due to insulin administration, as a result of insulinoma, inborn errors of carbohydrate metabolism or fasting.

Principle

Glucose in the sample is oxidised to yield gluconic acid and hydrogen peroxide in the presence of Glucose oxidase. The enzyme peroxidase catalyses the oxidative coupling of 4-aminoantipyrine with phenol to yield a coloured quinonemine complex, with absorbance proportional to the concentration of glucose in sample.

Reaction



Reagent Composition

Reagent 1 : Glucose Enzyme Reagent

Phosphate buffer	: >75 mmol/L
Glucose oxidase	: >8500
Peroxidase	: >2000
Phenol	: >15 mmol/L

Reagent 2 : Glucose Standard : 100 mg/dl

Ready to use

Reagent Preparation

Reagent is 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 Micropipettes & Tips - Colorimeter or Bio-Chemistry Analyzer.

Specimen Collection And Handling

Use unheamolyse serum, plasma (preference sodium fluoride). It is recommended to follow NCCLS procedures (or similar standardized conditions).

Stability after addition of a glycolytic inhibitor (Fluoride, monoiodoacetate, mannose):

2 days	: at 20 – 25°C
7 days	: at 4 – 8°C

Stability in serum (separated from cellular contents, hemolysis free) without adding a glycolytic inhibitor:

8 hours	: at 25°C
72 hours	: at 4°C

Calibration

Calibration with the Glucose 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 0.056 = mmol/l

Expected Values

Fasting	: 70 to 110 mg/dl
PPBS	: Up to 130 mg/dl

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	: 2.34 mg/dl
Linearity	: 600 mg/dl
Measuring range	: 2.34 – 600 mg/dl

Precision

Intra-assay precision Within run (n=20)	Mean (mg/dl)	SD (mg/dl)	CV (%)
Sample 1	115	0.82	0.71
Sample 2	277	2.83	1.02
Inter-assay precision Run to run (n=20)	Mean (mg/dl)	SD (mg/dl)	CV (%)
Sample 1	141.47	2.44	1.73

Comparison

A comparison between Beacon Glucose (y) and a commercially available test (x) using 20 samples gave following results:

$$y = 0.936x + 1.487 \text{ mg/dl}$$

$$r = 0.999$$

Interferences

Following substances do not interfere:

haemoglobin upto 7.5 g/l, bilirubin up to 30 mg/dl, triglycerides up to 750 mg/dl.

Warning And Precautions

For *in vitro* diagnostic use. To be handled by entitled and professionally educated person.

Waste Management

Please refer to local legal requirements.

Assay Procedure

Wavelength : 505 nm (493 - 530)

Cuvette : 1 cm

Addition Sequence	Reagent Blank	Standard	Sample
Reagent 1	1000 µl	1000 µl	1000 µl
Standard	-	10 µl	-
Sample	-	-	10 µl
Distilled Water	10 µl	-	-

Mix and incubate 10 min. at 37°C. Measure absorbance of the sample Abs. T and standard Abs. S against reagent blank.

Calculation

$$\text{Glucose (mg/dl)} = \frac{\text{Abs. T}}{\text{Abs. S}} \times 100$$

Applications for automatic analysers are available on request.

Assay Parameters For Photometers

Mode	End point
Wavelength 1 (nm)	505
Sample Volume (µl)	10
Reagent Volume (µl)	1000
Incubation time (min.)	10
Incubation temp. (°C)	37
Normal Low (mg/dl)	70
Normal High (mg/dl)	110
Linearity Low (mg/dl)	2.34
Linearity High (mg/dl)	600
Standard Concentration	100 mg/dl
Blank with	Reagent
Unit	mg/dl

References

1. Thomas L.: Clinical Laboratory Diagnostics, 1st ed. Frankfurt: TH-Books Verlagsgesellschaft; 1998, p. 131 - 7.
2. N. W., (Ed.), Textbook of Clinical Chemistry. Burtis CA and Ashwood ER, Fifth Edition, 2012.
3. Barham, D., Trinder, P.: An improved color reagent for the determination of blood glucose by the oxidase system. Analyst, 1972, 97; 142 - 5.
4. Guder WG, Zawta B et al. The quality of Diagnostic Samples. 1st ed. Darmstadt: GIT verlag; 2001; p.30-1.
5. Snacks DB, Bruns DE, Goldstein DE, Mac Laren NK, McDonald JM, Parrott M. Guidelines and recommendations for laboratory analysis in the diagnosis and Management of Diabetes mellitus. Clin Chemi 2002; 48: 436-72

Symbols Used On Labels



Catalogue Number



Manufacturer



See Instruction for Use



Lot Number



Content



Storage Temperature



Expiry Date



In Vitro Diagnostics

