AGD
CliniPak

GLUCOSE

(GOD/POD)

Code	Pack Size
AGDSP - GL400	20 X 20 mL
AGDSP - GL360	20 x 18mL
AGDSP - GL460	20 x 23mL

INTENDED USE

Glucose is a reagent set for in vitro quantitative determination of Glucose concentration in serum,plasma, Urine and fluids.

CLINICAL SIGNIFICANCE

Since introduction, determination of blood sugar in insulin treatment of diabetes mellitus, has been one of the most frequently carried out tests in biochemical laboratories.

Increased levels : are observed in diabetes mellitus, hyperthyroidism and in the hyperactivity of pituitary gland.

Decreased levels : are observed in cases of overproduction of insulin by the pancreas, with tumors of the pancreas,as well as with hypofunction of the organs involved in glucose synthesis and carbohydrate metabolism.

PRINCIPLE

Glucose oxidase (GOD) converts the sample glucose into gluconate and hydrogen peroxide (H_2O_2). Hydrogen peroxide in presence of Peroxidase (POD) oxidizes the chromogen 4-Aminoantipyrine / phenolic compound to a red coloured compound. The intensity of the red colored compound is proportional to the glucose concentration and is measured at 505nm.

$$\text{Glucose} + O_2 + H_2O \xrightarrow{\text{GOD}} \text{Gluconic Acid} + H_2O_2$$

$$2H_2O_2 + \text{Phenol} + \text{4-Aminoantipyrine} \xrightarrow{\text{POD}} \text{Red Quinone} + 4\,H_2O$$

PROCEDURE

Reagent + Sample + Incubation (300µL) (3 µL) (600sec) ⟶ Measurement (505nm)

REAGENT COMPOSITION

phosphate buffer pH 7.7	≈ 170 mmol/L
Glucose oxidase	≈ 5000 IU/L
Peroxidase	≈ 3000 IU/L
4 - Aminoantipyrine	≈ 0.28 mmol/L
Phenol	≈ 16 mmol/L

REAGENT STORAGE AND STABILITY

Glucose is a single reagent system ready to use.

The reagent is stable till the expiry date stated on the reagent bottle label when stored at 2-8°C protected from light.

SAMPLE

Collected sample using standard sampling tube fasting sample should be collected for Glucose assay. Serum, plasma liquor, urine, cerebrospinal fluid can be used as samples.

BASIC PARAMETER

SHORT NAME	GLU
NAME	Glucose
METHOD	GOD/POD
ASSAY	End point (Two point reagent blank)
MAIN WAVE	505nm
SUB WAVE	0
DECIMAL	2
UNIT	mg/dL
R1 VOLUME	300 µL
INCUBATION	36secs
R2 VOLUME	0
SAMPLE VOLUME	3 µL
INCUBATION	0 secs
MIXING SPEED	0
REACTION TIME (DELAY)	560 secs
CHECK TIME (READ)	40 secs
LINEAR RANGE	0 - 500
ABSORBANCE RANGE	0 - 2.5
CALIBRATION TYPE	SINGLE SPOT LINEARITY
DILUTION RATIO	6
SAMPLE VOLUME	50

*Enter calibrator value as per the lot of calibrator and method.

LINEARITY

Reagent is linear up to 500 mg/dL.Dilute the sample appropriately and re-assay if glucose concentration exceed 500mg/dL.Multiply result with dilution factor.

PRECISION

Reproducibility of within run determined using quality control sera as shown below.

n=15

Quality control material	Mean mg/dL	SD mg/dL	% CV
Low Control serum	113	1.69	1.50
High Control serum	277	1.5	0.55

REFERENCE NORMAL VALUE

70 - 110 mg/dL

QUALITY CONTROL

To ensure adequate quality control,it is recommended that the laboratory should use a normal and abnormal commercial reference control serum.The quality control material is used to check the function of reagents and the machine together.

LIMITATIONS & PRECAUTIONS

- Do not freeze or expose the reagents to higher temperature as it may affect the performance of the kit.
- Storage condition as mentioned on the kit to be adhered.
- Before the assay bring all the reagents to the room temperature.
- Avoid contamination of the reagent during assay process.
- Use clean glassware free from dust and debris.
- Reagent to sample ratio as mentioned above must be strictly adhered, as any changes it affects the factor and result.
- In case reagent comes in contact with eyes,immediately rinse with plenty of water and seek medical advice.

REFERENCES

- Trinder, P. (1969). Ann. Clin. Biochem. 6:24

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