GLUCOSE
GOD/PAP METHOD

Cat no.	size
333001	2*100
333002	4*100
333003	2*250
333004	4*250

INTENDED USE
Quantitative determination of Glucose in human serum and plasma

DIAGNOSTIC CHARACTERISTICS
Measurement of glucose concentration in serum or plasma is mainly used in diagnosis and monitoring of treatment in diabetes mellitus. Other applications are the detection of neonatal hypoglycemia, the exclusion of pancreatic islet cell carcinoma as well as the evaluation of carbohydrate metabolism in various diseases.

PRINCIPLE OF THE METHOD
Determination of glucose after enzymatic oxidation by glucose oxidase. The colorimetric indicator is quinoneimine, which is generated from 4-aminoantipyrine and phenol by hydrogen peroxide under the catalytic action of peroxidase (Trinder's reaction).

Glucose + O2 $\xrightarrow{GOD}$ Gluconic acid + H_2O_2

2 H_2O_2+ 4-Aminoantipyrine + Phenol $\xrightarrow{POD}$ Quinoneimine

COMPOSITION

Reagent(R)	pH 7.2
Phosphate buffer	250 mmol/l
Phenol	5 mmol/l
4-Aminoantipyrine	0.5 mmol/l
Glucose oxidase	≥ 15 kU/l
Peroxidase	≥ 1 kU/l
Standard(S)	100 mg/dl

STORAGE
Store at 2-8ºC.
Reagent and Standard are stable until the expiry date shown on the label when stored tightly closed and if contaminations are prevented during their use.

REAGENT PREPARATION
Reagent and Standard are provided ready to use.

ADDITIONAL EQUIPMENT
− Thermostatic water bath at 37ºC
− Analyzer, spectrophotometer able to read at 546 nm

SAMPLES
Serum, heparin plasma or EDTA plasma.

Separate at the latest 1h after blood collection from cellular contents. Stability after addition of a glycolytic inhibitor (NaF, KF):

1 day at 20–25 °C

7 days at 4–8 °C

Discard contaminated specimens.

PROCEDURE
1. Bring the Reagent to room temperature.
2. Pipette into labeled test tubes:

	Blank	Standard	Sample
Reagent (R)	1.0 mL	1.0 mL	1.0 mL
Standard (S)	---	10 µL	---
Sample	---	---	10 µL

3. Mix thoroughly and incubate the tubes for 20 minutes at room temperature (16-25ºC) or for 10minutes at 37ºC.
4. Measure the absorbance (A) of the Standard and Sample at 546nm against the Blank. The color is stable for at least 1 hour.

CALCULATIONS
The Glucose concentration in the sample is calculated using the following general formula:

$$\frac{A\ Sample}{A\ Standard} \times 100 = mg/dL\ Glucose$$
$$\times\ 0.05551 = mmol/L\ Glucose$$

REFERENCE VALUES

Serum/plasma (Fasting)	70-110 mg/dl
(Post prandial)	70-140 mg/dl
CSF	40-70 mg/dl

QUALITY CONTROL
It is recommended to use the Genesis Control Serum level And II to verify the performance of the measurement procedure.
Each laboratory should establish its own internal Quality Control .

METROLOGICAL CHARACTERISTICS
The lower limit of detection is 1 mg/dl.
Linearity up to 500 mg/dl

Precision (at 37°C)

Intra-assay precision n = 20	Mean [mg/dl]	SD [mg/dl]	CV [%]
Sample 1	64.2	1.12	1.74
Sample 2	122	1.57	1.28
Sample 3	296	4.41	1.49

Inter-assay precision n = 20	Mean [mg/dl]	SD [mg/dl]	CV [%]
Sample 1	92.5	1.10	1.19
Sample 2	121	1.02	0.84
Sample 3	292	2.01	0.69

− Interferences
Ascorbic acid up to 15 mg/dl, bilirubin up to 40 mg/dl, hemoglobin up to 200 mg/dl and lipemia up to 2,000 mg/dl triglycerides observed no interference.

BIBLIOGRAPHY
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3.Barham D, Trinder P. An improved color reagent for the determination of blood glucose by the oxidase system. Analyst 1972;97:142-5.

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