Biomaghreb

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CE

GLUCOSE

Enzymatic Colorimetric Method (GOD- PAP)

Reagent for the quantitative determination of glucose
in human plasma and cerebrospinal fluid (CSF)

IN VITRO DIAGNOSTIC USE

IVD

REF	**26019**	**2 x 500 ml** (1000 T)	**R1:** 2 x 500 ml	**R2:** 2 lyophilisates	**R3:** 2 x 6 ml
REF	**26026**	**1 x 500 ml** (500 T)	**R1:** 1 x 500 ml	**R2:** 1 lyophilisate	**R3:** 1 x 6 ml
REF	**26033**	**5 x 200 ml** (1000 T)	**R1:** 5 x 200 ml	**R2:** 5 lyophilisates	**R3:** 2 x 6 ml
REF	**26040**	**4 x 100 ml** (400 T)	**R1:** 4 x 100 ml	**R2:** 4 lyophilisates	**R3:** 1 x 5 ml
REF	**26057**	**2 x 100 ml** (200 T)	**R1:** 2 x 100 ml	**R2:** 2 lyophilisates	**R3:** 1 x 3 ml

CLINICAL SIGNIFICANCE

Blood glucose is the level of glucose in the blood. This carbohydrate is the body's main sugar and is its main source of energy. Its concentration is regulated by pancreatic hormones: insulin, which promotes its absorption into the cells; and glucagon, which has the opposite role. This hormonal control helps maintain normal blood sugar levels. In some cases, however, blood sugar levels can be higher or lower than the reference values (between 0.7 and 1.05 g/l), which can lead to various disorders. Hyperglycemia may be a sign of diabetes, hyperthyroidism or following surgery. On the contrary, hypoglycemia can be a sign of undernutrition, excessive alcohol consumption, adrenal or pituitary insufficiency or even hypothyroidism.

PRINCIPLE

Enzymatic determination of glucose according to the following reactions:

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

$$2H_2O_2 + \text{Phenol} + \text{4-Aminoantipyrine} \xrightarrow{\textbf{Peroxidase}} \text{Quinoneimine} + 4H_2O$$

REAGENT COMPOSITION

Reagent 1 Buffer	Buffer Tris pH= 7 Phenol	100 mmol/l 0,3 mmol/l
Reagent 2 Enzymes	Glucose oxidase Peroxidase Amino-4-antipyrine	10000 U/l 1000 U/l 2,6 mmol/l
Reagent 3 Standard	Standard Glucose	100 mg/dl 1 g/l 5,56 mmol/l

SAFETY CAUTIONS

Biomaghreb reagents are intended for use by qualified personnel for in vitro use (do not pipette by mouth).

- Refer to the current SDS available on request or at www.biomaghreb.com;
- Verify the integrity of the reagents before use; and
- Disposal of waste: comply with the legislation in force.

For safety reasons, treat any specimen or reagent of biological origin as potentially infectious.
Respect the legislation in force.

REAGENT PREPARATION

Working solution: Dissolve lyophilisate R2 with contents of one vial Buffer R1.

SAMPLE PREPARATION

Serum (not hemolyzed);
Plasma collected on fluoride-heparin or heparin-iodoacetate (non-hemolyzed);
Cerebrospinal fluid.

PRESERVATION AND STABILITY

- Before opening: The reagents are ready to use, stable up to the expiry date indicated on the label of the box at 2-8°C;
- After opening (Working Solution) :
  2 months at 20 -25°C;
  8 months at 2-8°C.

Store away from light in a plastic bottle free of any contamination.

ADDITIONAL EQUIPMENT

- Basic equipment of the medical analysis laboratory ;
- Spectrophotometer or Clinical Biochemistry Analyzer.

QUALITY CONTROL

External quality control program.
It is recommended to control in the following cases:

- At least one test per series.
- Change of reagent bottle.
- After maintenance work on the analyzer.

If a control value is outside the confidence limits, repeat the procedure using the same control.
Use normal and pathological control sera.

CALIBRATION

The standard of the kit (Reagent 3) or any calibrator connected to a method or reference material.
The frequency of calibration depends on analyzer performance and reagent storage conditions.
Recalibration is recommended in the following cases:

1. Changing the reagent lot;
2. After maintenance work on the analyzer; and
3. Control values are outside the confidence limits.

LINEARITY

The method is linear up to 5 g/l (500 mg/dl 27.8 mmol/l). If the glucose concentration is higher than 5 g/l, repeat the determination on the sample diluted 1/2 with 9 g/l NaCl solution. Multiply the result by 2.

PROCEDURE

Wavelength: 505 nm (492 - 550);
Temperature: 37 °C;
Tank: 1 cm thick;
Adjusting the spectrophotometer zero with the reagent blank.

	Blank	Standard	Sample
Standard	- -	10 µl	- -
Sample	- -	- -	10 µl
Working solution	1 ml	1 ml	1 ml
Mix, read absorbances after 10 minutes incubation at 37 °C or 30 minutes at 20-25 °C. Staining is stable 30 minutes.			

CALCUL

$$\text{Glucose} = \frac{\text{OD. Sample}}{\text{OD. Standard}} \times n$$

n = Standard value

n = 100 mg/dl;
n = 1 g/l;
n = 5, 56 mmol/l.

REFERENCE VALUES

Serum or plasma	70 - 105 mg/dl 0,70 - 1,05 g/l 3,89 - 5,84 mmol/l
Cerebrospinal fluid	50 - 70 mg/dl 0,50 - 0,70 g/l 2,78 - 3,89 mmol/l

Note :
The following substances do not interfere: Hemoglobin (up to 4 g/l), Bilirubin (up to 200 mg/l), Creatinine (up to 100 mg/l), Galactose (up to 1 g/l) and EDTA (up to 2 g/l).

REFERENCES

Dingeon B., Ann. Biol. Clin. 33, 3 (1975);
Lott J.A. Clin. Chem. 21. 1754 (1975);
Trinder P.n Ann. Clin. Biochem 6, 24 (1969).


Manufacturer


Use by

In Vitro Diagnostic


Temperature Limitation

Catalogue number


See insert


Store away from light


Sufficient for < n > essais

Batch number