



## GLUCOSE KIT

(GOD / POD method)

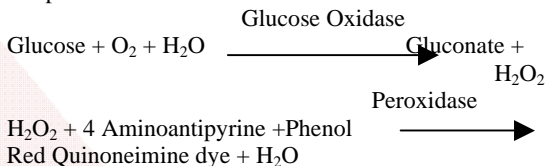
For the determination of Glucose in serum plasma & CSF.  
(For Invitro Diagnostic Use only)

### Summary

Glucose is the major carbohydrate present in blood. Its oxidation in the cells is the source of energy for the body. Increased levels of glucose are found in diabetes mellitus, hyperparathyroidism, Pancreatitis, renal failure. Decreased levels are found in insulinoma, hypothyroidism, hypopituitarism and extensive liver disease.

### Principle

Glucose is oxidised to gluconic acid and hydrogen peroxide in the presence of glucose oxidase. Hydrogen peroxide further reacts with phenol and 4-aminoantipyrine by the catalytic action of peroxidase to form a red coloured quinoneimine dye complex. Intensity of the colour formed is directly proportional to the amount of glucose present in the sample.



### Normal reference values

Serum/Plasma (Fasting) : 70-110 mg/dl  
(2 hrs.P.P.) : 50-80 mg/dl

CSF : 50/80 mg/dl upto 150 mg/dl

It is recommended that each laboratory establish its own normal range representing its patient population.

### Reagent Preparation:

Reconstitute 1 Vial of nzyme with 125 ml of buffer solution and mix well.

|                           |                  |
|---------------------------|------------------|
| <b>Contents:</b>          | <b>4x125 ml</b>  |
| 1. Enzyme                 | 4 Vial           |
| <b>2. Buffer Solution</b> | <b>4 x125 ml</b> |
| 3. standard( 100mg \ dl)  | -3 ml            |

### Storage & Stability

When stored at 2-8°C & protected from light, the reagent is stable until the expiration date stated on the label. Discard only turbid reagent or that which shows evidence of bacteria contamination or an absorbance of greater than 0.300 OD when read against deionised water. During its use, the reagent may develop a light pink coloration which does not affect its performance as long as Blank is processed with each determination lot.

To prevent the contamination of the reagent, pour into a clean & dry separate container a slightly in excess of that required. Pipette from this container, do not pipette from original container. Do not return unused portion to the original container.

### Specimen Collection & Handling

Serum, plasma & urine specimens are suitable for use with this reagent. The stability of glucose in specimen is reduced by bacterial contamination & glycolysis. In order to inhibit glycolysis blood samples should be collected into tubes containing sodium fluorides (10mg/ml blood). As soon as possible serum or plasma should be separated from the cells.

Serum or plasma glucose is stable for 4 hours at 30°C & 24 hours at 4°C. For long storage, sample should be placed in sealed containers and frozen at 10°C<sup>1,2</sup>.

### Sample Material

Serum , plasma, CSF. Glucose is reported to be stable in the sample for 7 days when stored at 2-8°C.

### Procedure

Wavelength/filter : 505 nm(Hg 546 nm)/Green

Temperature : 37°C / R.T

Light path : 1 cm

Pipette into clean dry test tubes labeled as Blank (B), Standard (S) and Test (T):

| Addition Sequence    | B (ml) | S (ml) | T (ml) |
|----------------------|--------|--------|--------|
| Glucose Reagent (L1) | 1.0    | 1.0    | 1.0    |
| Distilled water      | 0.01   | -      | -      |
| Glucose Standard (S) | -      | 0.01   | -      |
| Sample               | -      | -      | 0.01   |

Mix well and incubate at 37°C for 10 min . Measure the absorbance of the Standard (Abs.S) and Test Sample (Abs.T) against the Blank, within 60 min.

### Calculations

$$\text{Glucose (mg/dL)} = \frac{\text{Absorbance of Unknown}}{\text{Absorbance of Standard}} \times \text{Conc. of Std. (mg/dL)}$$

or prepare a standard curve by plotting absorbance versus concentration of at least 5 standards of increasing concentration. Read values directly from the graph.

### Linearity

This procedure is linear upto 500 mg/dl. If values exceed this limit, dilute the sample with normal saline (NaCl 0.9%) and repeat the assay. Calculate the value using the proper dilution factor.

### Note

To avoid glycolysis the serum should be seperated from the clot as soon as possible, and plasma should be collected in EDTA + fluoride bulb (.5mg + 1mg per ml of blood).

### References

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

### System Parameters

|                     |                             |
|---------------------|-----------------------------|
| Type of Reaction    | End point                   |
| Temperature         | 37°C                        |
| Wavelength          | 505nm (460-560 nm)          |
| Absorbance range    | 0-2A                        |
| Cuvette path length | 1.0cm                       |
| Reagent volume      | 1.00ml                      |
| Sample volume       | 0.010 ml                    |
| Incubation          | 10 mins. at 37°C or 30 mins |
| Read against        | Reagent blank               |
| Reaction Slope      | Increasing                  |
| Linearity           | 500                         |
| Unit                | mg/dl.                      |