BIOGENIX
INC. PVT. LTD.

TRIGLYCERIDES
(GPO/POD)

SAFETY PRECAUTIONS AND WARNINGS :

This reagent is for *In vitro* diagnostic use only.

INTENDED USE :

This reagent kit is intended for ***"in vitro"*** quantitative determination of Triglycerides concentration in serum based upon Enzymatic colorimetric method.

CLINICAL SIGNIFICANCE :

Triglycerides are esters formed from Glycerol and Fatty acids, the latter being synthesized in the liver or extracted from blood. Determining the level of Triglyceride concentration is part of the evaluation of lipid metabolism and plays a major role in identification of the various hyperlipoproteinemia. The level is increased in certain liver and renal diseases in diabetes mellitus and coronary artery disease.

PRINCIPLE :

The Triglycerides in the sample are hydrolyzed to Glycerol and Fatty acids by Lipoprotein lipase (LPL). Glycerine is then phosphorylated by Glycerol kinase (GK) in the presence of ATP and Mg^{++} ions. In the next step Glycerol-3-P is oxidized by Glycerol-3-Phosphate oxidase (GPO) in the presence of molecular oxygen (O_2). A colored product which absorbance well at 505 nm (490-550 nm) is formed from hydrogen-peroxide, 4-aminoantipyrine and phenol-derivative in the presence of the Peroxidase (POD).

$$\text{Triglycerides} + H_2O \xrightarrow{\text{LPL}} \text{Glycerol} + \text{Fatty acids}$$

$$\text{Glycerol} + \text{ATP} \xrightarrow{\text{GK+Mg}^{++}} \text{G1ycerol-3-phosphate} + \text{ADP}$$

$$\text{Glycerol-3-phosphate} + O_2 \xrightarrow{\text{GPO}} \text{Dihydroxiacetone- phosphate} + H_2O_2$$

$$2H_2O_2 + \text{4Aminoantipyrine} + \text{P-Chlorophenol} \xrightarrow{\text{POD}} \text{Red quinone} + 4H_2O$$

REAGENT COMPOSITION :

Reagent 1: Enzyme reagent
Triglyceride standard: 200 mg/dl

MATERIALS REQUIRED BUT NOT PROVIDED :

- Clean & Dry Glassware.
- Micropipettes & Tips.
- Colorimeter or Bio-Chemistry Analyzer.

SAMPLES :

Serum free of hemolysis, heparinised plasma or EDTA plasma.

STABILITY OF REAGENT :

When Stored tightly closed at 2° to 8°C temperature protected from light and contaminations prevented during their use; reagents are stable up to the expiry date stated on the label.

WORKING REAGENT :

The Reagent is ready for use.

GENERAL SYSTEM PARAMETERS :

Reaction type	End Point
Wave length	505 nm (490 - 550) nm
Light Path	1 Cm
Reaction Temperature	37°C
Blank / Zero Setting	Reagent
Reagent Volume	1ml
Sample Volume	10 µl
Incubation Time	5 Minutes
Standard Concentration	200 mg/dl
Low Normal	40 mg/dl
High Normal	165 mg/dl
Linearity	1000 mg/dl

ASSAY PROCEDURE :

	Blank	Standard	Sample
Reagent	**1ml**	**1ml**	**1ml**
Standard		**10 µl**	
Sample			**10 µl**

Mix and read the optical density (A) after a 5 - minute incubation.

CALCULATION :

$$\text{Triglyceride Conc.(mg/dl)} = \frac{\text{OD of Sample}}{\text{OD of Standard}} \times \text{Conc. of Standard}$$

LINEARITY :

Reagent is Linear up to 1000 mg/dl.
Dilute the sample appropriately and re-assay if Triglyceride concentration exceeds 1000 mg/dl. Multiply result with dilution factor.

REFERENCE NORMAL VALUE :

Female: 40-140 mg/dl
Male: 50-165 mg/dl

QUALITY CONTROL :

For accuracy it is necessary to run known controls with every assay.

LIMITATION & PRECAUTIONS :

1. Storage conditions as mentioned on the kit to be adhered.
2. Do not freeze or expose the reagents to higher temperature as it may affect the performance of the kit.
3. Before the assay bring all the reagents to room temperature.
4. Avoid contamination of the reagent during assay process.
5. Use clean glassware free from dust or debris.
6. Do not use the reagent if it is hazy or cloudy.

BIBLIOGRAPHY :

Buccolo G., David M., Clin. Chem, 19, (1973), 476

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