Triglycerides

Triglycerides. GPO-POD. Liquid

Product information

24TRIG01-UN	**Meditest TRIG**	**6x40 mL**
24TRIG01-AU	**Meditest TRIG**	**6x40 mL**
24TRIG01-AB	**Meditest TRIG**	**6x40 mL**
24TRIG01-ER	**Meditest TRIG**	**6x40 mL**
24TRIG01-AR	**Meditest TRIG**	**6x40 mL**

Purpose

This reagent is designed for the quantitative determination of the concentration of HDL Cholesterol (HDL-C) in human serum and plasma.

Summary

Triglycerides are fats that provide energy for the cell. Like cholesterol, they are delivered to the body's cells by lipoproteins in the blood. A diet with too much saturated fat or carbs will raise triglyceride levels. Increases in serum triglycerides are relatively non-specific. Liver dysfunction caused by hepatitis, extrahepatic biliary obstruction or cirrhosis, diabetes mellitus is associated with an increase[3,6,7].

Test principle

Sample triglycerides incubated with lipoproteinlipase (LPL) release glycerol and free fatty acids. Glycerol is converted to glycerol-3-phosphate (G3P) and adenosine-5-diphosphate (ADP) by glycerol kinase and ATP. Glycerol-3-phosphate (G3P) is then converted to dihydroxyacetone phosphate (DAP) and hydrogen peroxide (H2O2) by glycerol phosphate dehydrogenase (GPO). In the final reaction, hydrogen peroxide (H2O2) reacts with 4-aminophenazone (4-AP) and p-chlorophenol in the presence of peroxidase (POD), giving a red-colored dye.

Triglycerides + H_2O —LPL→ Glycerol + free fatty acids

Glycerol + ATP —Glycerol→ Kinase G3P+ ADP

G3P+O_2 —GPO→ DAP+H_2O_2

H2O2+4-AP+p-Chlorophenol —POD→ Quinone+H_2O

The intensity of the resulting color is proportional to the cholesterol concentration in the sample[1,2,3]

Reagents - working solutions

R 1	GOOD pH 6.3	50 mmol/L
	p-Chlorophenol	2 mmol/L
	Lipoprotein lipase (LPL)	150000 U/L
	Glycerolkinase (GK)	500 U/L
	Glycerol-3-oxidasa (GPO)	2500 U/L
	4 – Aminophenazone (4-AP)	0.1 mmol/L
	ATP	0.1 mmol/L

Precautions warnings

It is intended for in vitro diagnostic use by healthcare professionals. Follow the normal precautions necessary in handling all laboratory reagents.
Infectious or microbial waste:
Warning: handle waste as potentially biohazardous. Dispose of waste according to accepted laboratory instructions and procedures.
Environmental hazards: Follow all relevant local disposal regulations to determine that it has been disposed of safely. If requested, a safety data sheet can be provided to professional users.

Inhibit foam formation in all reagents and sample types (sample, calibrator and control).
If there is any damage on the package, do not use Read the user manual carefully before use, do not use the expired assay kit. Do not mix different lot reagents.
All samples should be considered epidemic material, please dispose of them in accordance with the laboratory working standard of infectious diseases.
Take the necessary protective measures to prevent users from getting infected during operation

Use of reagents

Ready to use.

Storage and stability

All components of the kit are stable until the expiration date on the label when stored tightly closed at 2-8ºC, protected from light and contamination is avoided during their use.
Do not use reagents after the expiration date. Signs of reactive deterioration: Presence of particles and turbidity.

Sample collection and preparation

Fresh Serum or EDTA and heparinized plasma.
Note: Separate the serum or plasma as soon as possible (within 3 hours) after collection. Store the serum at room temperature for a maximum of 2 days and at 2-8 ºC for a maximum of 10 days. Serum is stable at (-60)-(-80)°C for 2 years.

Required Materials (not included in the kit)

1. Cat# 24BIO01-DC Meditest Diachem Calibrator
2. Cat# 24BIO01-DQ Meditest Diacheck Control L1
3. Cat# 24BIO02-DQ Meditest Diacheck Control L2
4. General laboratory equipment
5. Distilled or deionized water

Working Procedure

If you are using a spectrophotometer to perform this test, work with the following procedure. Ask your representative for the application data for fully automatic devices.

1.Test Conditions:
Wavelength: . 505 nm
Cuvette: . . . . . 1 cm light path
Temperature: . .

2. Set the appliance to zero with distilled water.

3. Pipette into a cuvette

	Blank	Standard	Sample
R (mL)	1.0	1.0	1.0
Standard(Note 1-2) (µL)	--	10	--
Sample (µL)	--	--	10

4. Stir and incubate at 37ºC for 5 minutes or at 15-25ºC for 10 minutes.
5. Read the absorbance of the samples and the calibrator (A) against the gap. The color is stable for at least 60 minutes.

Calculation:

$$\frac{\text{(A) Sample- (A)Blank}}{\text{(A) Standard- (A)Blank}} \times \text{Standard conc.} = \text{mg/dL triglycerides}$$

Flip factor:
mg/dL*0.0113=mmol/L

Expected values
Male 40 – 160 mg/dL
Woman 35 – 135 mg/dL

The risk classification of patients and treatments is described in international guidelines26.
These values are for orientation purposes; Each laboratory should establish its own reference range

Limitations
No interference was observed with bilirubin up to 170 µmol/L and with haemoglobin up to 10 g/L2. A list of drugs and other substances that interfere with cholesterol determination has been reported by Young et al.4,5

Performance characteristics
Measuring range: 1 - 1600 mg/dL
If the results obtained are greater than the linearity limit, dilute the sample by 1/2 with 9 g/L NaCl and multiply the result by 2.

Precision

	Intra-assay (n=20)		Inter-assay (n=20)	
Mean (mg/dL)	109	224	111	224
SD	0,64	1,01	3,74	7,91
CV (%)	0,58	0,45	3,38	3,52

Sensitivity: 1 mg/dL = 0.0013 ΔA/min
Accuracy: Results obtained using Meditest reagents (y) showed no systematic differences when compared to other commercial reagents (x). The results obtained using 50 samples are as follows:
Correlation coefficient (r)²: 0.99810
Regression equation y= 0.9178x + 0.5426

The results of the performance characteristics depend on the analyzer used.

References

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3. Kaplan A et al. Tryglycerides. Clin Chem, The C.V. Mosby, Co., St Louis. Toronto. Princeton 1984; 437 and Lipids 1194-1206.
4. Young DS. Effects of drugs on Clinical Lab. Tests, 4th ed AACC Press, 1995.
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6. Burtis A et al. Tietz Textbook of Clinical Chemistry, 3rd ed AACC 1999.
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Medios Medical Informatics Consultancy Trade Ltd.
Güzelevler Mah. Çınar Cad. No: 5 Yüreğir/Adana