Liquick Cor-TG mono

DIAGNOSTIC KIT FOR DETERMINATION OF TRIGLYCERIDES CONCENTRATION

Kit name	**Cat. No**
Liquick Cor-TG mono 500	2-285
Liquick Cor-TG mono "bulk"	2-286

INTRODUCTION

Triglycerides are built of glycerol molecule esterified with three fatty acids molecules. Triglycerides are delivered with food or are synthesized endogenously in liver. Triglycerides stored in adipose tissue constitute a reserve of energy. Elevated triglycerides serum level is a risk factor of atherosclerosis. Triglycerides measurement is useful for hyperlipidemia diagnosis and treatment or for estimation of atherosclerosis progression.

METHOD PRINCIPLE

Colorimetric, enzymatic method with glycerophosphate oxidase.

triglycerides + H_2O $\xrightarrow{LPL}$ glycerol + fatty acids

glycerol + ATP $\xrightarrow{GK}$ glycerol-3-phosphate + ADP

glycerol-3-phosphate + O_2 $\xrightarrow{GPO}$ dihydroxy-acetone-phosphate + $2H_2O_2$

$2H_2O_2$ + 4-AA + 4-chlorophenol $\xrightarrow{POD}$ quinoneimine dye + $4H_2O$

The colour intensity is proportional to the triglycerides concentration.

REAGENTS

Package

	Liquick Cor-TG mono 500	**Liquick Cor-TG mono "bulk"**
1-TG mono	4 x 500 ml	--*

*reagent volume is printed on the label.

The reagent when stored at 2-8°C are stable up to expiry date printed on the package. The reagents are stable for 8 weeks on board the analyser at 2-10°C. Protect from light and avoid contamination!

Concentrations in the test

buffer TRIS (PH 8.0)	200 mmol/l
4-aminoantipyrine (4-AA)	< 0.4 mmol/l
ATP	< 1.5 mmol/l
Mg^{2+}	< 1.6 mmol/l
4-chlorophenol	< 2.5 mmol/l
chlorophenicol	1.6 mmol/l
potassium hexacyanoferrate (II)	< 1 mmol/l
FAD-2Na	< 1 mmol/l
glycerol kinase (GK)	~2500 U/l
glycerol phosphate oxidase (GPO)	~2500 U/l
peroxidase (POD)	~1900 U/l
lipoprotein lipase (LPL)	~2000 U/l
detergents, preservatives	

Warnings and notes

- Product for in vitro diagnostic use only.
- The reagents should be used by suitably qualified laboratory personnel only in accordance with intended purpose.
- The reagents contain <0.1% sodium azide as a preservative. Avoid contact with skin and mucous membranes.

ADDITIONAL EQUIPMENT

- automatic analyser or photometer able to read at 550 nm;
- thermostat at 37ºC;
- general laboratory equipment;

SPECIMEN

Serum, EDTA or heparinized plasma (recommended: heparine lithium, sodium or ammonium salt) free from hemolysis.

Blood should be collected only if the patient has been fasting for minimum of 12 hours. Before blood collection patient should stay in rest position for about 30 minutes. Venous blood is recommended for triglycerides measurement.

Plasma triglycerides values have been reported to be 2% to 4% lower than serum triglycerides values.

Serum and plasma can be stored up to 3 days at 2-8ºC or up to 3 months at -20ºC. Nevertheless it is recommended to perform the assay with freshly collected samples!

PROCEDURE

These reagents may be used both for manual assay and in several automatic analysers. Applications for them are available on request.

Manual procedure

wavelength	550 nm (546 nm)
temperature	37°C
cuvette	1 cm

Pipette into the cuvettes:

	reagent blank (RB)	test (T)	standard (S)
1-TG mono	1000 µl	1000 µl	1000 µl
Bring up to the temperature of determination. Then add:			
standard / calibrator	-	-	10 µl
sample	-	10 µl	-

Mix well, incubate for 5 min. at the temperature of determination. Read the absorbance of standard (S) and test (T) against reagent blank (RB).

Calculation

$$\text{triglycerides concentration} = \frac{A(T)}{A(S)} \times \text{standard / calibrator concentration}$$

REFERENCE VALUES [7]

serum, plasma	< 150 mg/dl < 1.7 mmol/l

It is recommended for each laboratory to establish its own reference ranges for local population.

QUALITY CONTROL

For internal quality control it is recommended to use the CORMAY SERUM HN (Cat. No 5-172) and CORMAY SERUM HP (Cat. No 5-173) with each batch of samples.

For the calibration is also recommended the CORMAY MULTICALIBRATOR LEVEL 1 (Cat. No 5-174; 5-176), LEVEL 2 (Cat. No 5-175; 5-177) or TRIGLYCERIDES STANDARD 220 (Cat. No 5-130), TRIGLYCERIDES STANDARD 440 (Cat. No 5-131).

The calibration curve should be prepared every 8 weeks, with change of reagent lot number or as required e.g. quality control findings outside the specified range.

PERFORMANCE CHARACTERISTICS

These metrological characteristics have been obtained using automatic analyser Prestige 24i. Results may vary if a different instrument or a manual procedure is used.

- **Sensitivity:** 5.3 mg/dl (0.06 mmol/l).

- **Linearity:** up to 1100 mg/dl (12.43 mmol/l).
  For higher triglycerides concentrations dilute the sample with 0.9% NaCl in the ratio of 1 to 4 and repeat the assay. Multiply the result by 5.

- **Specificity / Interferences**
  Haemoglobin up to 0.31 g/dl, bilirubin up to 8.6 mg/dl and ascorbate up to 31 mg/l do not interfere with the test.

- **Precision**

Repeatability (run to run) n = 20	Mean [mg/dl]	SD [mg/dl]	CV [%]
level 1	88.86	0.55	0.61
level 2	170.10	1.49	0.87

Reproducibility (day to day) n = 80	Mean [mg/dl]	SD [mg/dl]	CV [%]
level 1	83.51	2.43	2.91
level 2	166.08	4.19	2.52

- **Method comparison**

A comparison between triglycerides values determined on Presige 24i (y) and on COBAS INTEGRA 400 (x) using 96 samples gave following results:
y = 0.9785 x + 4.1353 mg/dl;
R= 0.9946 (R - correlation coefficient)

TRACEABILITY
TRIGLYCERIDES STANDARD 220 and TRIGLYCERIDES STANDARD 440 are traceable to the SRM 1951B reference material.

WASTE MANAGEMENT
Please refer to local legal requirements.

LITERATURE

1. Jacobs N.J., Van Denmark P.: J. Arch. Biochem. Biophys. 88, 250-255 (1960).
2. Kodischek L.K., Umbreit W.W.: J. Bacteriol. 98, 1063-1068 (1969).
3. Trinder P.: Ann. Clin. Biochem. 6, 24-27 (1969).
4. Schettler G., Nussel E.: Arb. Med. Soz. Med. Prav. Med. 10, 25 (1975).
5. Tietz N.W., ed. Clinical Guide to Laboratory Tests, 3rd ed. Philadelphia, PA: WB Saunders, 610, (1995).
6. Burtis C.A., Ashwood E.R., ed. Tietz Textbook of Clinical Chemistry, 2nd ed. Philadelphia, PA: WB Saunders, 2209, (1994).
7. Alan H.B. Wu. editor. Tietz Clinical Guide to Laboratory Tests, 4th ed. St. Louis: W.B Saunders Company; 2006, p.1074.

Date of issue: 08. 2011.

MANUFACTURER

PZ CORMAY S.A.
ul. Wiosenna 22,
05-092 Łomianki, POLAND
tel.: +48 (0) 22 751 79 10
fax: +48 (0) 22 751 79 14
http://www.cormay.pl

08/11/08/11