QUANTON BIOLIFE SCIENCES

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HDL Cholesterol Test Kit

Enzymatic

QBL/PDS/HDL_020

Quantitative determination of HDL Cholesterol in human Serum / Plasma / other body fluids. Only for *In Vitro* Diagnostic use

ORDER INFORMATION

REF	Pack Size
HDL 20	1 X 20 ml
HDL 40	1 X 40 ml
HDL 100	1X100 ml
HDL 1000	1X1000 ml
HDL 5000	1X5000 ml
HDL 10000	1X10000 ml

CLINICAL SIGNIFICANCE

Lipoproteins serve to solubilise and transport cholesterol and other lipids in the bloodstream. Different lipoprotein classes have been shown to have various effects on the progression of coronary heart disease (CHD). High density lipoproteins are associated with decreased risk and seen as a protective factor.
The measurement of HDL cholesterol (HDL-C) is a powerful predictor of CHD that provides the opportunity for early diagnosis and intervention to halt the progress of cardiovascular disease

Method

Photometric Test method. The HDL Cholesterol Reagent is based on modified polyvinyl sulfonic acid (PVS) and polyethylene-glycol-methyl ether (PEGME) coupled classic precipitation method with the improvements in using optimized quantities of PVS/PEGME and selected detergents. .LDL, VLDL, and chylomicron (CM) react with PVS and PEGME and the reaction results in inaccessibility of LDL, VLDL and CM by cholesterol oxidase (CHOD) and cholesterol esterase (CHER). The enzymes selectively react with HDL to produce H^2O^2which is detected through a Trinder reaction.

PRINCIPLE

The method is in a two reagent format and depends on the properties of a unique detergent, as illustrated. This method is based on accelerating the reaction of cholesterol oxidase (CO) with non-HDL unesterified cholesterol and dissolving HDL selectively using a specific detergent. In the first reagent, non-HDL unesterified cholesterol is subject to an enzyme reaction and the peroxide generated is consumed by a peroxidase reaction with DSBmT yielding a colorless product. The second reagent consists of a detergent capable of solubilizing HDL specifically, cholesterol esterase (CE) and chromagenic coupler to develop color for the quantitative determination of HDL-C.

REAGENT

Reagent 1 : Enzyme Reagent
Reagent 2 : Developer Reagent
Calibrator : (Lyophilized) Human Serum.

REAGENT PREPARATION

Reagents are ready to use as supplied. **Reconstitute the calibrator with the exact volume of deionized water as mentioned on the label.** Mix well. Allow to stand at room temperature for 30 minutes.

REAGENT STORAGE AND STABILITY

When stored at 2-8°C reagent is stable until the expiration date stated on the bottle and kit box label.

WARNING AND PRECAUTIONS

- For in vitro diagnostic use.
- Do not use components beyond the expiration date.
- Do not mix materials from different kit lot numbers.
- Exercise the normal precautions required for handling all laboratory reagents.
- The reagent contains preservative. Do not swallow. Avoid contact with skin and mucous membranes.
- For detailed information refer Material Safety Data Sheet.

WASTE MANAGEMENT

Please refer to local legal requirements.

MATERIALS REQUIRED BUT NOT PROVIDED

- NaCl solution 9 g/L
- General laboratory equipment

SAMPLE COLLECTION AND PRESERVATION

Serum or heparin plasma

It is very important to store the sample protected from light!
Stability: 1 day at 20 – 25°C
7 days at 4 – 8°C
3 months at –20°C in case of immediate freezing.
Freeze only once! Discard contaminated specimens!

ASSAY PROCEDURE

Operating Instructions

- Check reagent inventories at least daily to ensure that quantities are sufficient for the planned work load.
- Bring all reagents, Calibrator and samples to room temperature 18 - 28ºC, prior to analysis.

AUTOMATED PARAMETERS	
Wavelength	546 nm
Measurement	Against DI Water
Cuvette	1 cm light path
Reaction Temperature	37°C
Reaction Type	Fix time Kinetic
Reaction Direction	Increasing
Incubation	5 Min. + 5 Min.
Sample Volume	10 µl
Reagent I Volume	750 µl
Reagent II Volume	250 µl
Delay/Lag/Time	5 Sec
Interval Time	300 sec.
Low Normal	35 mg/dl
High Normal	60 mg/dl
Linearity	150 mg/dl

MANUAL ASSAY PROCEDURE

Pipette into Test Tubes

	CALIBRATOR	SAMPLE
REAGENT I	750 µl	750 µl
CALIBRATOR	10 µl	-
SAMPLE	-	10 µl
Mix well and incubate for 5 mins at 37°C & Immediately Add		
REAGENT II	250 µl	250 µl
Read the absorbance (A1) at 546 nm immediately after 5 seconds after addition of R2 reagent .After 5 minutes read the absorbance A2		

SAMPLE DILUTIONS

- This method is linear upto a concentration of 150 mg/dL.
- Dilute samples above this concentration 1:1 with 0.9% saline
- Repeat assay. Multiply the result by 2.

CALCULATION

Results are calculated, usually automatically by the instrument, as follows:

$$\text{HDL Chol (mg/dL)} = \frac{\text{(A2-A1) of Unknown}}{\text{(A2-A1) of Calibrator}} \times \text{Calibrator value}$$

CLIBRATORS AND CONTROLS

For the calibration of automated photometric systems the commercially available suitable multi-calibrator is recommended.

It is recommended to run a normal and a pathological control serum which is commercially available to verify the performance of the measured procedure. The value of controls should fall within the established limit.

Each laboratory should establish corrective action in case of deviations in control recovery.

PERFORMANCE CHARACTERISTICS

WITHIN RUN

Sample	Mean Concentration	SD	CV %
Randox Lipid Control Level 1	32.16	0.56	1.73%
Randox Lipid Control Level 2	51.21	0.58	1.13%

RUN TO RUN

Sample	Mean Concentration	SD	CV %
Randox Lipid Control Level 1	31.67	0.43	1.36%
Randox Lipid Control Level 2	51.52	0.23	0.45%

LINEARITY

The method is linear upto a concentration of 150mg/dL. Dilute samples above this concentration 1:1 with 0.9% saline solution and repeat assay. Multiply the result by 2.

Limit of detection: The limit of detection for HDL Cholesterol is 2 mg/dL.

METHOD COMPARISON

A comparison of HDL Cholesterol with a commercially available assay (x) using 20 samples gave following results: $R^2 = 0.9900$

REFERENCE VALUES

Low Risk	> 50 mg/dl	> 60 mg/dl
Normal Risk	35-50 mg/dl	45-60 mg/dl
High Risk	< 35 mg/dl	< 45 mg/dl

The reference values are to be considered as indicative only. Every laboratory should establish its own normal range.

LIMITATION OF THE PROCEDURE

- For diagnostic purposes, the results should always be assessed in conjunction with the patient's medical history, clinical examination and other findings.

INTERFERENCE

- Hemoglobin: No interference found upto 500 mg/dL.
- Bilirubin: No interference found upto Bilirubin (free) 50 mg/dL, Bilirubin (Conjugated) 40m/dL.
- Ascorbic Acid: No interference found upto 50 mg/dL.
- These characteristics have been obtained using an automatic analyzer. Results may vary if a different instrument or a manual procedure is used.

BIBLIOGRAPHY

Matsuzaki Y., Kawaguchi E., Norita Y. et al Evaluation of Two Kinds of Reagents for Direct Determination of HDL-Cholesterol. J.Anal Bio Sc 1996; 19:419-427.

GLOSSARY OF SYMBOL

	Consult Instruction for Use
	Catalog Number
	Store between
	Manufacturer
	Keep away from sunlight

Paramcare Life Sciences Private Limited, G/F-12/13, Evershine-2,
Survey No. 307/3/1, Balitha N.H No 48, Vapi, Valsad, Gujarat, 396191.
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