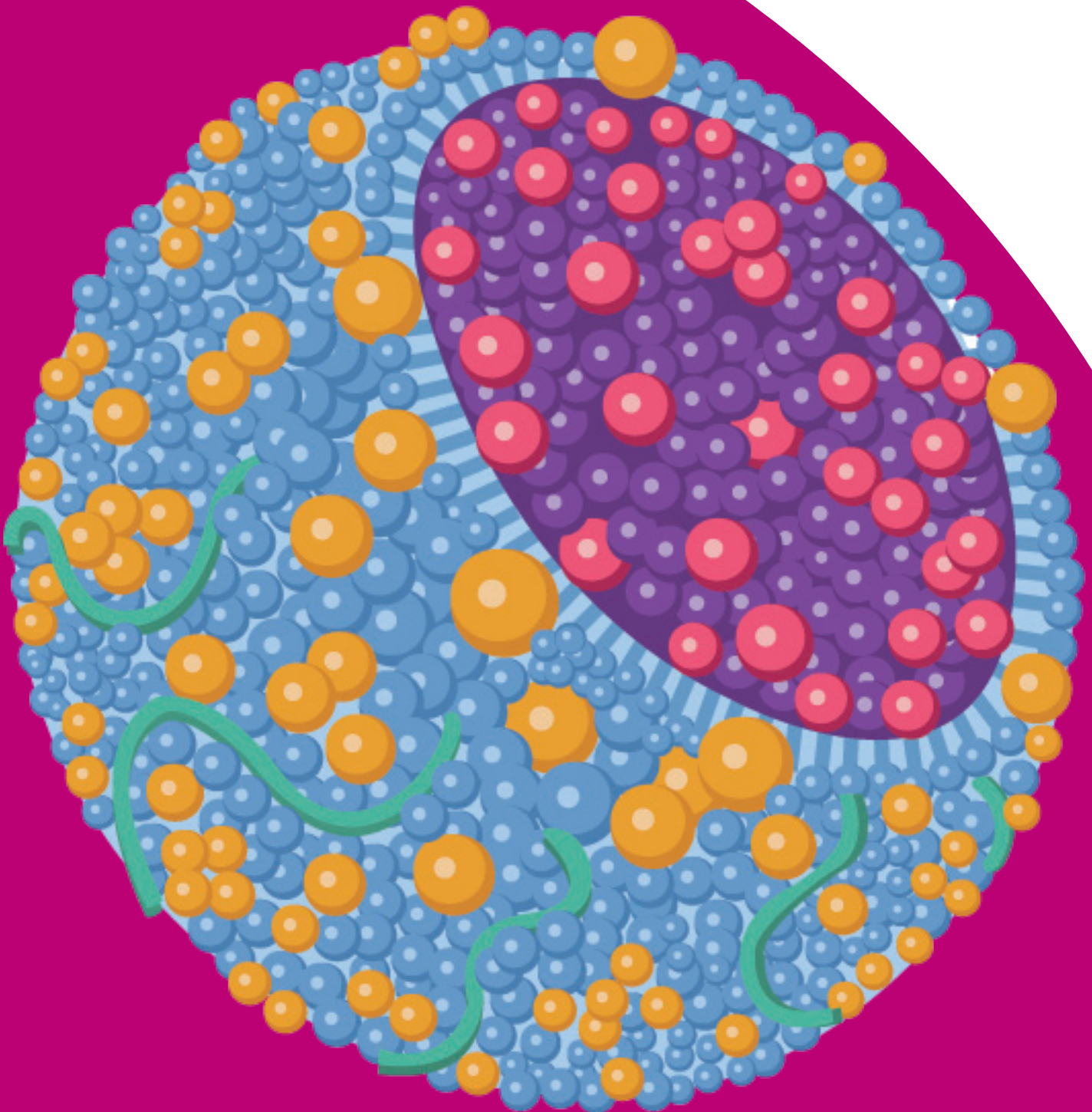




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# LDL Detail Aid



# LDL Detail Aid

...to know the real value of LDL

Elevated levels of LDL cholesterol constitute a major risk factor for Coronary Heart Disease.

## LDL Cholesterol Measurement

There are several methods available for the determination of LDL cholesterol:

### Estimation of LDL Cholesterol using the Friedewald Equation

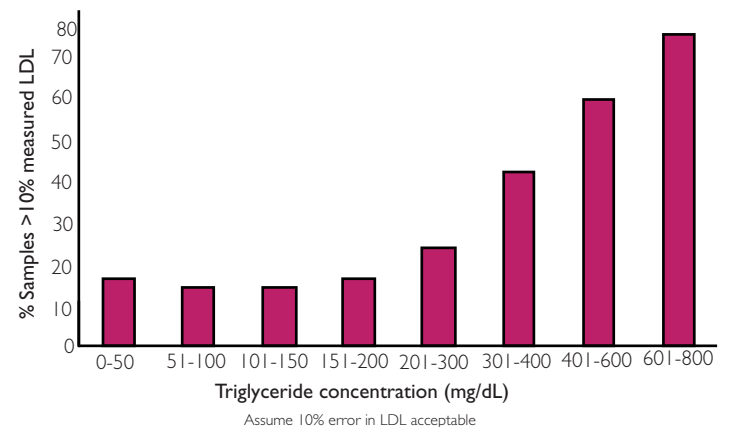
The Friedewald equation enables the estimation of LDL cholesterol when triglyceride and HDL levels are known. However, it is only accurate when triglyceride levels are below 400mg/dl, chylomicrons are absent and the sample does not contain beta-VLDL. Research shows that at triglyceride levels more than 250mg/dl, over 20% of samples are mis-estimated using Friedewald calculation.

Due to the limitations of the Friedewald equation, the National Cholesterol Education Programme (NCEP) USA recommends the direct measurement of LDL cholesterol.

### Recommended Method – Ultracentrifugation

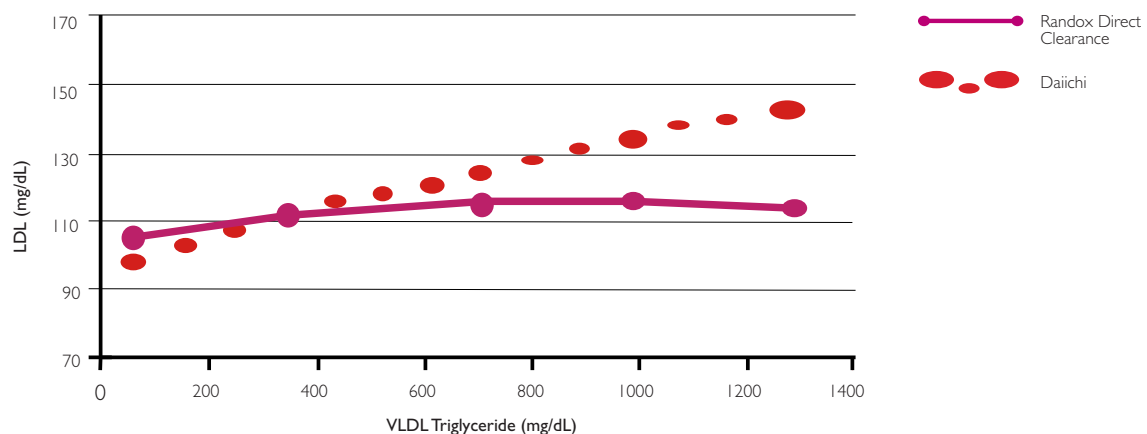
The ultracentrifugation method is the preferred method for LDL determination. It allows for the selection of specific types of lipoproteins based on their density. Although highly accurate, ultracentrifugation methods have several disadvantages in that they are time and labour consuming, difficult to automate and require specialised equipment, which many laboratories cannot afford.

### Mis-estimation of LDL cholesterol by the Friedewald formula\* as triglyceride levels increase



### Direct Methods

Most commercially available direct LDL cholesterol assays are based on the clearance method, however the detergents and buffering systems used may vary, leading to differences in assay performance. The graph below shows the effects of VLDL on a competitor method.

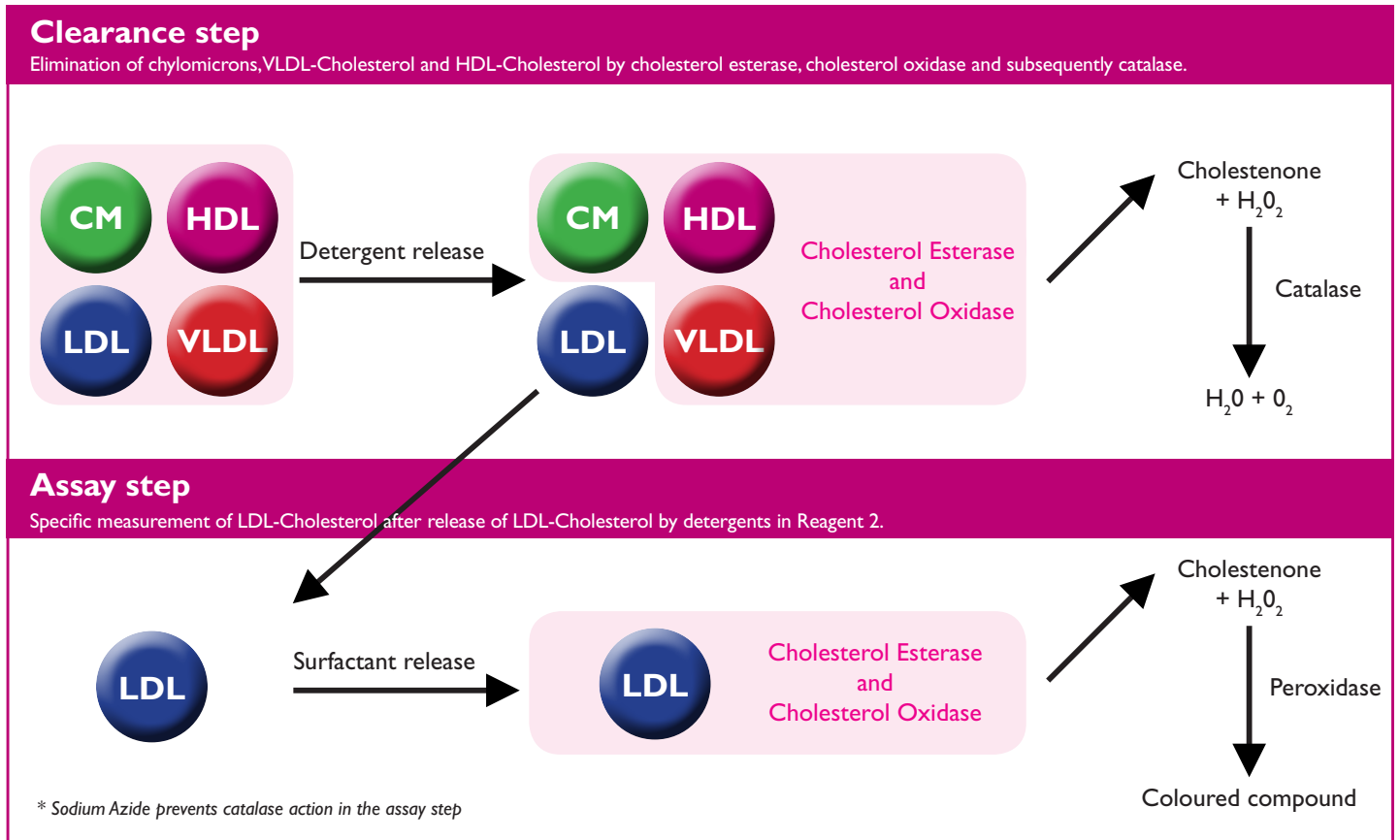


### Randox Direct Clearance Method

To overcome the limitations of the Friedewald equation and the ultracentrifugation method, Randox has developed a clearance method for the direct measurement of LDL cholesterol. Unlike most commercially available direct LDL assays the Randox advanced reagent formulation enables the rapid clearance

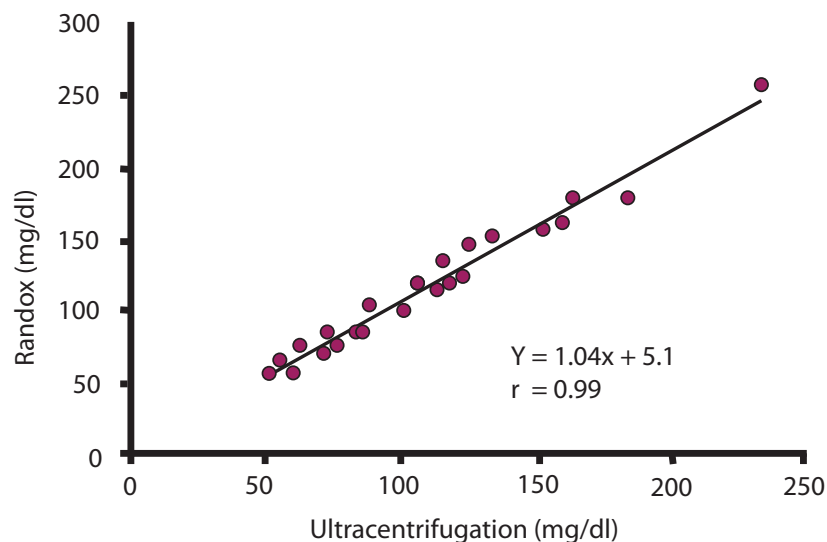
of turbidity resulting in reduced interference from bilirubin and triglycerides. The assay works by removing all non-LDL components in the first step of the reaction enabling LDL cholesterol to be accurately and specifically measured in the second step.

## Reaction Principle The assay consists of two distinct reaction steps



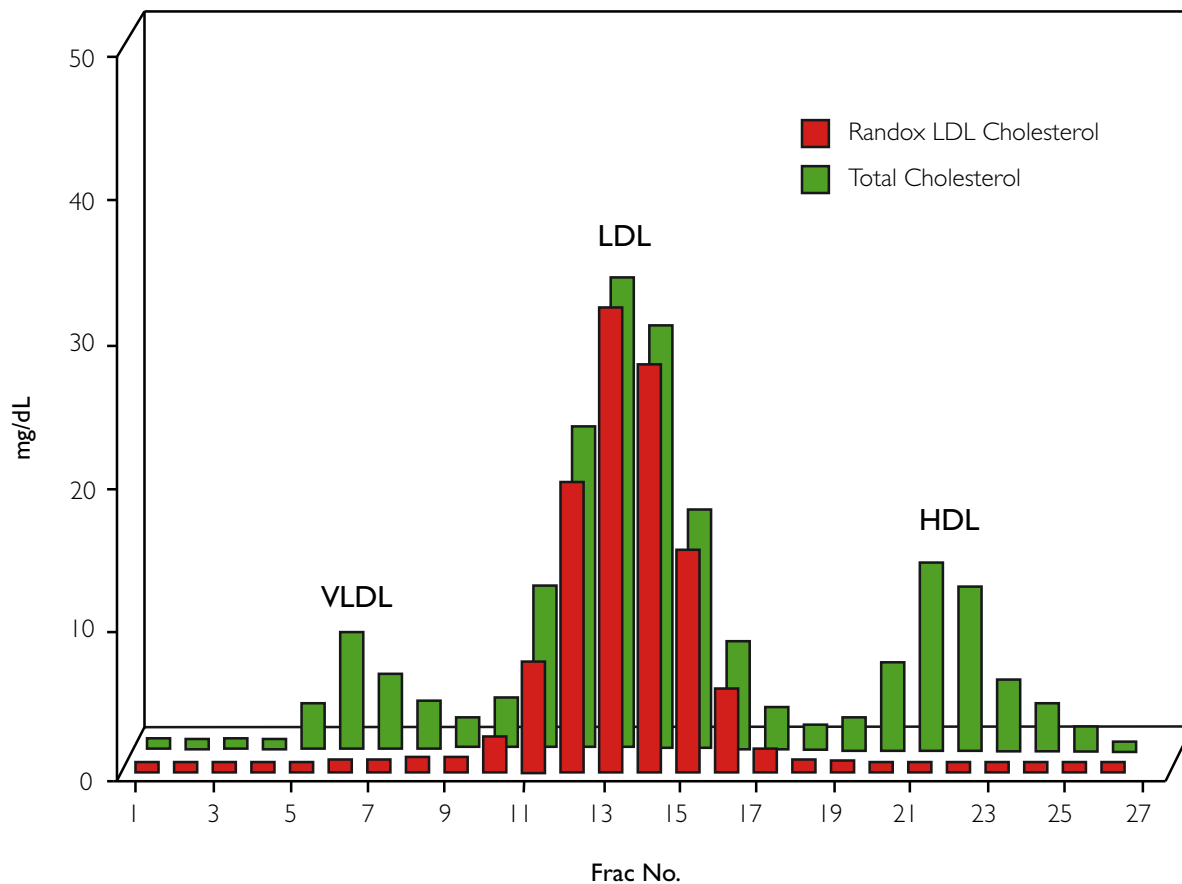
## Correlation with ultracentrifugation method

The accuracy of our direct clearance method has been verified by direct comparison to the recommended ultracentrifugation method. The graph below shows the excellent correlation obtained between the Randox direct clearance assay and ultracentrifugation method.



# Specificity of Radox Direct Clearance Assay for LDL Cholesterol

Specificity of the Radox direct clearance LDL assay was verified against gel filtration. The diagram below shows just how specific the Radox direct clearance method is for LDL Cholesterol. Our kit was found to only react with the LDL fractions separated by gel filtration.



## Benefits of the Radox Direct Clearance Method for LDL Measurement

- Liquid stable ready-to-use reagents
- Research shows at high levels of triglyceride >200mg/dl over 20% of samples are mis-estimated using Friedewald calculation
- Highly specific for LDL Cholesterol
- Reduced interference from bilirubin and triglycerides
- Advanced reagent formulation enables rapid clearance of turbidity resulting in minimal interference from patient samples
- Excellent correlation of Radox method to the ultracentrifugation method
- No sample preparation required
- Excellent onboard stability
- Fully automated, suitable for use on a wide range of clinical analysers

\* Friedewald formula has been reported to misclassify up to 50% of patients. Cohen et al (1997) Canadian Journal of Cardiology 13B No. 0762

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