Small LDL Cholesterol
A vital MI risk marker
**Small LDL Cholesterol**

### What is small LDL cholesterol?
- Small LDL is a subtype of LDL cholesterol
- LDLs vary in size through genetic determination and dietary lipid intake.
- They all transport triglycerides and cholesterol to the tissues, but their atherogenesis varies according to their size.
- Smaller particles such as sLDL more readily permeate the inner arterial wall and are more susceptible to oxidation.

### Clinical significance of sLDL
- sLDL is particularly atherogenic; a person with elevated sLDL has a 3-fold increased risk of myocardial infarction.\(^1\)
- Measurement of sLDL allows the clinician to obtain a more comprehensive picture of lipid risk factors and tailor treatment accordingly.
- Reducing sLDL levels will reduce the risk of CVD and MI.
- Elevated levels of sLDL arise from multiple sources. A major factor is sedentary lifestyle with a diet high in saturated fat. Insulin resistance and pre-diabetes have also been implicated, as has genetic predisposition.

### Methods of detection
- Ultracentrifugation and electrophoresis based methods are options for the measurement of sLDL cholesterol.
- These methods are both laborious and time consuming.\(^2\)
- Randox sLDL-‘Ex-Seiken’ test is a direct method for the quantitative determination of sLDL cholesterol using automated chemistry analysers capable of accommodating two-reagent assays.
- The test is completed within 10 minutes.

### Key features
- Liquid ready to use reagent
- Wide measuring range: 4.0 – 100 mg/dL
- Completely automated protocols
- Interference - The following analyte concentrations were found not to affect the assay:
  - Ascorbic acid 50 mg/dL
  - Haemoglobin 500 mg/dL
  - Bilirubin 30 mg/dL
  - Triglycerides 1000 mg/dL
- Excellent precision – within run precision was assessed in 10 replicated measurements and CVs were below 3%.
- Save time and resources with the Randox Direct sLDL kit and achieve rapid, reliable results you can trust.

### Test procedure
The assay consists of two steps and is based on the use of well-characterised surfactants and enzymes that selectively react with certain groups of lipoproteins.

#### First Step
\[
\text{chylomicrons, VLDL, IDL, L LDL and HDL} \xrightarrow{\text{CHE & CO}} \text{Cholesterol} + \text{Fatty acid} + \text{H}_2\text{O}_2
\]
\[
2 \text{H}_2\text{O}_2 \xrightarrow{\text{catalase}} 2\text{H}_2\text{O} + \text{O}_2
\]

#### Second Step
\[
s\text{LDL-C} \xrightarrow{\text{CHE & CO}} \text{Cholesterol} + \text{Fatty acid} + \text{H}_2\text{O}_2
\]
\[
2 \text{H}_2\text{O}_2 + 4\text{-aminoantipyrine} + \text{TOOS}^{*} \xrightarrow{\text{POD}} \text{Purple-red color} + 4\text{H}_2\text{O}
\]

* N-Ethyl-n-(2-hydroxy-3-sulfopropyl)-3-methylaniline

### Ordering Details:

<table>
<thead>
<tr>
<th>Description</th>
<th>Cat. No.</th>
<th>Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct sLDL kit</td>
<td>562616</td>
<td>R1 1x19.8</td>
</tr>
<tr>
<td></td>
<td></td>
<td>R2 1x8.6</td>
</tr>
</tbody>
</table>

#### Controls and Calibrators for Direct sLDL kit:

<table>
<thead>
<tr>
<th>Description</th>
<th>Cat. No.</th>
<th>Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>sLDL Calibrator</td>
<td>CH5050</td>
<td>3x1 ml</td>
</tr>
<tr>
<td>sLDL Control Level 1</td>
<td>LE5013</td>
<td>3x1 ml</td>
</tr>
<tr>
<td>sLDL Control Level 2</td>
<td>LE5014</td>
<td>3x1 ml</td>
</tr>
<tr>
<td>sLDL Control Level 3</td>
<td>LE5015</td>
<td>3x1 ml</td>
</tr>
</tbody>
</table>

### References

---

**The only direct automated sLDL kit on the market**