TEST ID: APLAB
APOLIPOPROTEIN A1 AND B, PLASMA

USEFUL FOR
- Assessment of residual risk in patients at target non-HDL-C (or LDL-C)
- Follow-up studies in individuals with non-HDL-C (or LDL-C) values inconsistent with risk factors or clinical presentation
- Definitive studies of cardiac risk factors in individuals with significant family histories of coronary artery disease or other increased risk factors

CLINICAL INFORMATION
Apolipoprotein B (ApoB) is the primary protein component of low-density lipoprotein (LDL). Apolipoprotein A1 (ApoA1) is the primary protein associated with high-density lipoprotein (HDL). Both ApoB and ApoA1 are more strongly associated with cardiovascular disease than the corresponding lipoprotein cholesterol fraction (See APLA1 / Apolipoprotein A1, Plasma and APLB / Apolipoprotein B, Plasma). However, the most powerful risk prediction value of these proteins appears to be in their ratio (ie, ApoB:ApoA1).

ApoB is present in all atherogenic lipoproteins including LDL, Lp(a), intermediate-density lipoprotein (IDL), and very low-density lipoprotein (VLDL) remnants. ApoA1 is the nucleating protein around which HDL forms during reverse cholesterol transport. Therefore, the ApoB:ApoA1 ratio represents the balance between atherogenic and antiatherogenic lipoproteins. Several large prospective studies have shown that the ApoB:ApoA1 ratio performs as well, and often better, than traditional lipids as an indicator of risk.1-3

INTERPRETATION
- Reduced ApoA1 confers increased risk of coronary artery disease. ApoA1 <25 mg/dL may be helpful to aid in the detection of a genetic disorder such as Tangier disease.
- Elevated ApoB:ApoA1 ratio confers increased risk of coronary artery disease.
- Expected values in normal (no cardiovascular or genetic disease) adults are 48 to 124 mg/dL for ApoB and 106 to 220 mg/dL ApoA1.

REFERENCE VALUES
Apolipoprotein A1
≥ 18 years: 106-220 mg/dL

Apolipoprotein B
≥ 18 years: 48-124 mg/dL

*Reference values have not been established for patients who are < 18 years of age.

ANALYTIC TIME
1 day

CONTENT AND VALUES SUBJECT TO CHANGE. SEE THE MAYO MEDICAL LABORATORIES TEST CATALOG FOR CURRENT INFORMATION.
**SUPPORTIVE DATA**

Elevated ApoB:ApoA1 ratio confers increased risk of coronary artery disease. Several large prospective studies have shown that the ApoB:ApoA1 ratio performs as well and often better than traditional lipids as an indicator of risk. The following table summarizes the risk of fatal myocardial infarction conferred per 1SD increment in ApoB:ApoA1 ratio and LDL-C in 2 large clinical studies.

<table>
<thead>
<tr>
<th>CLINICAL STUDY</th>
<th>STUDY DESIGN</th>
<th>N</th>
<th>APOB:APOA1 HAZARD RATION (95CI) PER 1SD</th>
<th>LDL-C HAZARD RATIO (95CI) PER 1SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>INTERHEART</td>
<td>Case/Control</td>
<td>21,465</td>
<td>1.59 (1.53-1.64)</td>
<td>1.28 (1.25-1.32)</td>
</tr>
<tr>
<td>AMORIS</td>
<td>Prospective</td>
<td>175,553</td>
<td>1.53 (1.25-1.88)</td>
<td>1.24 (1.12-1.37)</td>
</tr>
</tbody>
</table>

**CLINICAL REFERENCE**

