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Newsletter

LIPOPROTEIN(a)

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What is Lipoprotein(a)?

Lipoprotein(a) is composed of a lipid core of apoB-100 and LDL cholesterol, surrounded by a unique glycoprotein apolipoprotein(a). Lipoprotein(a) is naturally present in human plasma in very low concentrations. Apolipoprotein(a) has striking structural homology with human plasminogen, which suggests a function for lipoprotein(a) in thrombogenesis. Although its exact physiological function remains unknown, studies also suggest that it may be involved in the wound healing response. Lipoprotein(a) strongly contributes to coronary heart disease (CHD) risk when LDL-cholesterol and lipoprotein(a) are elevated simultaneously.

Lipoprotein(a) and CHD Risk

Current evidence indicates lipoprotein(a):

- Is independently associated with CHD
- Is a risk factor for premature CHD in persons < 50 years of age and in the elderly (older than 70 years)
- If elevated, increases risk for CHD in combination with other CHD risk factors

High lipoprotein(a) concentration has been shown to predict risk of angina, and the risk is substantially increased with concomitant high LDL-cholesterol levels.

Broadly speaking, there are 4 major categories of lipid abnormalities in humans:

- Elevated low-density lipoprotein cholesterol (LDL-C)
- Low high-density lipoprotein cholesterol (HDL-C)
- Elevated triglycerides
- Elevated lipoprotein(a) [Lp(a)]

LDL-C, HDL-C and triglyceride levels are affected by diet. By contrast, Lp(a) plasma levels are mediated largely by the LPA gene locus present on chromosome 6q22–23, with small-to-negligible effects of diet.

Metabolism

It is believed that plasma concentrations of Lp(a) are determined chiefly by rates of hepatic synthesis of apolipoprotein(a), although the site of formation of Lp(a) has not been definitively identified. Lp(a) is thought to be catabolised primarily by hepatic and renal pathways, but these metabolic routes do not appear to govern plasma Lp(a) levels.

Laboratory Analysis

Reference ranges of Lp(a) vary and depend on assay and reporting laboratories. Several types of Lp(a) assays are currently available, prominent among them are sandwich enzyme-linked immunosorbent assays (ELISAs), non-competitive ELISAs, latex immunoassays, immunonephelometric assays, immunoturbidometric and fluorescence assays.

Whom to screen

It is recommended that Lp(a) should be measured once in all subjects at high risk of CVD/CHD who present with:

- Premature cardiovascular disease (CVD)
- Familial hypercholesterolaemia
- A family history of premature CVD and/or elevated Lp(a)
- Recurrent CVD despite optimal lipid-lowering treatment
- ≥ 5% 10-year risk of fatal CVD according to the European guidelines (SCORE system)

When Lp(a) is used as a risk marker, the cut-off value is > 50 mg/dL.

Lipoprotein(a) measurement at Lancet Laboratories

- *Principle of method:* Immunoturbidimetry
- *Specimen requirements:* Serum
- *Turnaround-time:* Contact your local laboratory

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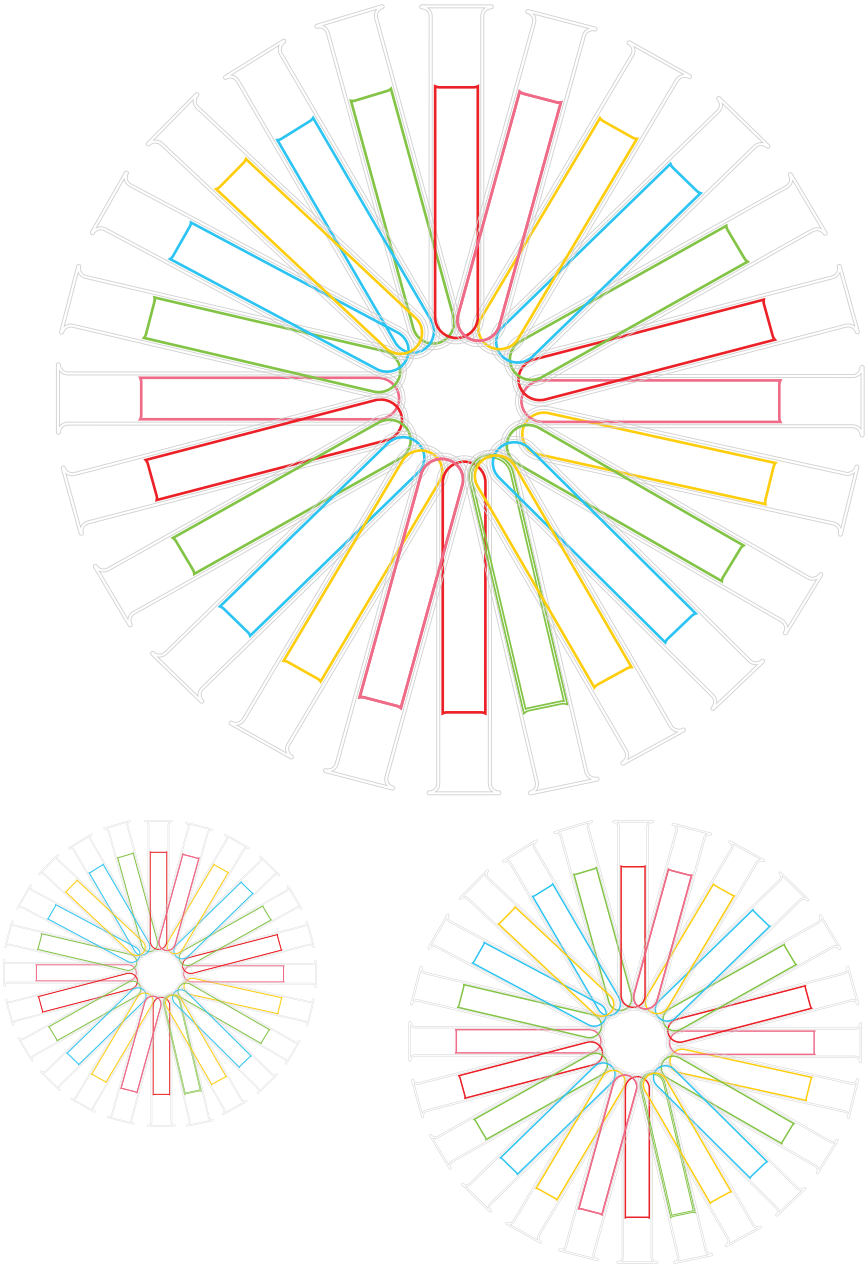

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