



# MuirLab Marquee

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## Lipoprotein(a) – Lp(a)

### *Introduction*

For many years, serum triglyceride and cholesterol testing (including the LDL and HDL fractions) has been used to help evaluate an individual's risk for heart disease. Increasingly, these tests are being used to successfully monitor the results of lifestyle intervention and drug treatment. So why does MuirLab foresee a growing use for an additional serum test, namely lipoprotein(a)?

The frustrating truth is that cholesterol and triglyceride testing are not completely predictive of cardiovascular risk. Too many patients with "normal" lab results still turn out to have heart disease. Testing for lipoprotein(a) (abbreviated as Lp(a)) addresses this "prediction gap" by providing additional risk information that complements the rest of the cardiac risk assessment.

### *Clinical Significance*

Lipoprotein a (Lpa) is an LDL-like lipoprotein that contains one molecule of apo (a) covalently linked by a disulfide bridge with one molecule of apo B100. Lpa is a specific family of lipoprotein particles whose protein moiety is composed of Apo B linked to a variable mass that has not been found in any other lipoprotein. It is a genetically determined macromolecular complex that has been identified as an independent risk factor for premature CHD and more strongly related to the risk than are HDL-C and LDL-C or apo A-1 and B. Increased Lpa concentration is associated as a risk factor for stroke and myocardial infarction.

Lpa measurements do not correlate with any of the Medicare panel components and significant elevations are prevalent in patients with desirable cholesterol and triglyceride levels. Diet and lipid lowering drugs do not have a major impact on Lpa levels.

### *Appropriate Use of Test*

Screening for Lp(a) should, therefore, be considered under the following circumstances:

- 1) patient or family history of premature atherosclerotic heart disease
- 2) familial history of hyperlipidemia
- 3) established atherosclerotic heart disease with a normal routine lipid profile
- 4) hyperlipidemia refractory to therapy

- 5) history of recurrent arterial stenosis.

Lp(a) is also effective for management of diabetes and renal insufficiency.

### *Diabetes*

LDL particle size abnormalities are extremely common in diabetes. Recent reviews have described that 35% of diabetics demonstrate abnormally elevated levels of Lpa. This type of dyslipidemia has shown to present with a three-fold increased rate for cardiovascular events in diabetics based on Lpa alone.

### *Renal Disease*

Elevated Lpa levels have been consistently reported in patients with renal disease, specifically in Proteinuric patients and patients receiving hemodialysis or chronic peritoneal dialysis

### *Methodology*

The Lipoprotein (a) Polymedco test system is intended to measure lipoprotein (a) in serum. The methodology is Immunoturbidimetric Immunoassay performed on the Dade Dimension RXL. Normal Range for adults is < 30 mg/dl. Reference ranges for this method have not been established for different ethnic populations or disease states.

Lp(a) concentrations have been shown to be genetically determined and vary with ethnic populations--concentrations are lower in Caucasians than in individuals whose ancestry originated in Africa or the Indian subcontinent. One study in the US showed that mean plasma levels of Lpa were approximately twice as high in African people or people of African descent compared to levels in Caucasians.

Because Lpa behaves like an acute phase protein, it should not be measured during periods of active inflammation and should not be measured for at least 1 month after a myocardial infarction or stroke.

### *Specimen Requirements*

Serum or lithium plasma. Fasting is not necessary as Lpa is not significantly affected by diet. Stability is 48 hours after collection when stored at 2-8 degrees C. Lipemia and hemolysis may interfere with this assay.

## Test Highlights & References

**Test Code:** 17603 Lipoprotein(a)  
**Methodology:** Immunoturbidimetric Dimension RXL  
**Performed:** Daily  
**Reported:** Same day  
**Specimen Required:** Serum or lithium heparin plasma  
**Transport:** Routine courier pickup

**CPT Codes:** 83520

### References:

- ◆ Polymedco, Inc. 510 Furnace Dock Rd. Cortlandt Manor, N.Y. 10567 1-800-431-2123
- ◆ Laboratory Medicine. July 2001, Number 7 volume 32 page 386
- ◆ Laboratory Medicine. June 2003, Number 6 volume 34 page 476
- ◆ MLO. The Ubiquitous Lipids and related diseases: A laboratory perspective by Henry O. Ogedegbe PHD, BA (ASCP), C (ASCP) SC, and David W. Brown, PHD, MT (ASCP)