Pacific Biomarkers
The Value of Expertise

LpPLA2 Mass (Lipoprotein-associated Phospholipase A2)

Analyte: Lipoprotein-Associated A2 Mass

Specimen Type: Serum, EDTA Plasma

Optimum Volume: 0.3 mL

Stability:

2-8 Degrees C	-20 Degrees C	-70 Degrees C
1 week	1 month	4.7y; 9mo*

Reporting Units: ng/mL

Method: ELISA

Biological or Clinical Significance:

Lipoprotein-associated phospholipase A2 (Lp-PLA2) is a calcium-independent serine lipase that is associated with low-density lipoprotein (LDL) in human plasma and serum and is distinct from other phospholipases, such as the various secretory and cytosolic types of PLA2. Lp-PLA2 is produced by macrophages and is expressed in greater concentrations in atherosclerotic lesions. Several lines of evidence suggest that oxidation of LDL plays a critical step in the development and progression of atherosclerosis. Lp-PLA2 participates in the oxidative modification of LDL by hydrolyzing oxidized phosphatidylcholines, generating lysophosphatidylcholine and oxidized free fatty acids, both of which are potent proinflammatory products, which potentially contribute to the formation of atherosclerotic plaques.

Since the original report that plasma Lp-PLA2 is independently associated with the risk for development of coronary heart disease by Packard and coworkers (see reference 1) in 2000, many other reports have supported this conclusion (see, e.g., references 2 and 3). Recently, Lp-PLA2 has been firmly implicated in release of lysophospholipid and oxidized fatty acids in lipoprotein(a) (Lp(a)) particles (see reference 4). This finding may help to explain the increased risk for CHD in subjects with elevated levels of serum Lp(a).

Principle of Test Method:

The Lp-PLA2 assay is a sandwich enzyme immunoassay designed to measure Lp-PLA2 in human serum and plasma. *Note: -70 degrees C stability 4.7 years for serum and 9 month for plasma.

References:

1. Packard CJ, O'Reilly DS, Caslake MJ, McMahon AD, Ford I, Cooney J et al. Lipoprotein-associated phospholipase A2 as an independent predictor of coronary heart disease. West of Scotland Coronary Prevention Study Group. N Engl J Med. 2000; 343:1148-1155.

2. Ballantyne CM, Hoogeveen RC, Bang H, Coresh J, Folsom AR, Heiss G, and Sharrett AR. Lipoprotein-associated phospholipase A2, high-sensitivity C-reactive protein, and risk for incident coronary heart disease in middle-aged men and women in the atherosclerosis risk in communities (ARIC) study. Circulation 2004; 109:837-842.

3. Brilakis ES, McConnell JP, Lennon RJ, Elesber AA, Meyer JG, Berger PB. Association of lipoprotein-associated phospholipase A2 levels with coronary artery disease risk factors, angiographic coronary artery disease, and major adverse events at follow-up. Eur Heart J. 2005; 26:137-144.

4. Tsimikas S, Tsironis LD, Tselepis AD. New insights into the role of lipoprotein(a)-associated lipoprotein-associated phospholipase A2 in atherosclerosis and cardiovascular disease. Arterioscler Thromb Vasc Biol. 2007; 27:2094-2099.

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