LIPOPROTEIN-ASSOCIATED PHOSPHOLIPASE A2 (LP-PLA₂) ACTIVITY
NOVEL AND EFFECTIVE TESTING FOR PREDICTION OF CORONARY HEART DISEASE
A NOVEL AND EFFECTIVE TEST FOR CHD PREDICTION

- Novel risk prediction of CHD in patients with no prior history of cardiovascular events
- Prognostic value independent of standard lipid profile testing
- Validated in thousands of patients in multicenter substudy using a cutpoint of 225 nmol/min/mL
- Avoids lot-to-lot variability and preanalytical issues found in previous version of test (commonly referred to as “mass” assay)

TOTAL CHD EVENT RATES

<table>
<thead>
<tr>
<th>PLAC Activity (nmol/min/mL)</th>
<th>Probability of an Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 225</td>
<td>0.00</td>
</tr>
<tr>
<td>≥ 225</td>
<td>0.12</td>
</tr>
</tbody>
</table>

Fig. 1

PLAC ACTIVITY PREDICTION OF CHD EVENTS

<table>
<thead>
<tr>
<th>p value</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Composite of All Three CHD Events</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td>Myocardial Infarction</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td>Cardiac Revascularization</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td>Cardiac Mortality</td>
<td>&lt; 0.001</td>
</tr>
</tbody>
</table>

Fig. 2

Lipoprotein-associated phospholipase A2 (Lp-PLA$_2$) is an inflammatory protein produced in the vascular intima and is highly upregulated in atherosclerotic plaques, especially within the necrotic core and macrophages surrounding vulnerable plaques. It circulates bound to low density lipoproteins and, to a lesser extent, high density lipoproteins. Patients with higher plaque burden have higher circulating Lp-PLA$_2$.

Individuals with increased Lp-PLA$_2$ (PLAC) activity are at higher risk of coronary heart disease events and stroke. In one population-based study using the REGARDS* cohort, individuals with ≥ 225 nmol/min/mL were at increased risk of coronary heart disease (CHD) events.$^1$

Recently, elevated Lp-PLA$_2$ activity was found to associate with faster stenosis progression in patients with mild aortic stenosis.$^2$

Assessing patient risk of CHD events remains a challenge in primary prevention. In fact, patients with low to moderate CHD risk still have a significant risk of events over 10 years.$^3$

When assessing CHD risk, cholesterol testing alone is not always enough.$^4$
WHEN SHOULD I ORDER?

- Identify persons at increased risk for CHD events
- Predict novel risk of CHD in patients with no prior history of cardiovascular events
- Obtain a prognostic value independent of standard lipid profile testing
- For use in conjunction with clinical evaluation and patient risk assessment

WHICH TEST SHOULD I ORDER?

- Lipoprotein-Associated Phospholipase A2 Activity, Serum (Mayo ID: PLACA)

DEMONSTRATED ACROSS MULTIPLE CLINICAL TRIALS AND PATIENT POPULATIONS

- The greater the Lp-PLA2 Activity, the greater the risk of fatal and non-fatal CHD events Fig. 3
- PLAC Activity above 225 identifies patients at increased risk of CHD events across patient type and population Fig. 4
- Absolute risk of CHD events is 2.1 times greater with a positive PLAC Test Fig. 4

**LP-PLA₂ ACTIVITY & CHD* RISK**

- 5221 events, 17 studies
- Kaplan-Meier Absolute Risk/Rate Analysis
- Rates of CHD event rates by patient types

All graphs adapted from “When Assessing Your Patient Risk for Coronary Heart Disease...” educational booklet. Used with permission from diaDexus, Inc, San Francisco, CA.

* REasons for Geographic And Racial Differences in Stroke
TAP INTO THE EXPERTISE OF MAYO CLINIC

The Cardiovascular Laboratory Medicine Group within Mayo Clinic works to accommodate the growing demand for development, validation, and use of analytes to predict risk for both primary and secondary prevention.

Focused on acute-care cardiology, risk stratification, and genomics, the group integrates laboratory cardiology with its colleagues in cardiology, pediatric cardiology, genetics, cardio-thoracic and vascular surgery—as well as cerebrovascular specialists in neurology.

FOR MORE INFORMATION ABOUT CARDIOVASCULAR TESTING, VISIT

MayoMedicalLaboratories.com/cardiology

REFERENCES
1. The PLAC Test for Lp-PLA2 Activity Package Insert.
6. Adapted from the PLAC Test for Lp-PLA2 Activity Package Insert