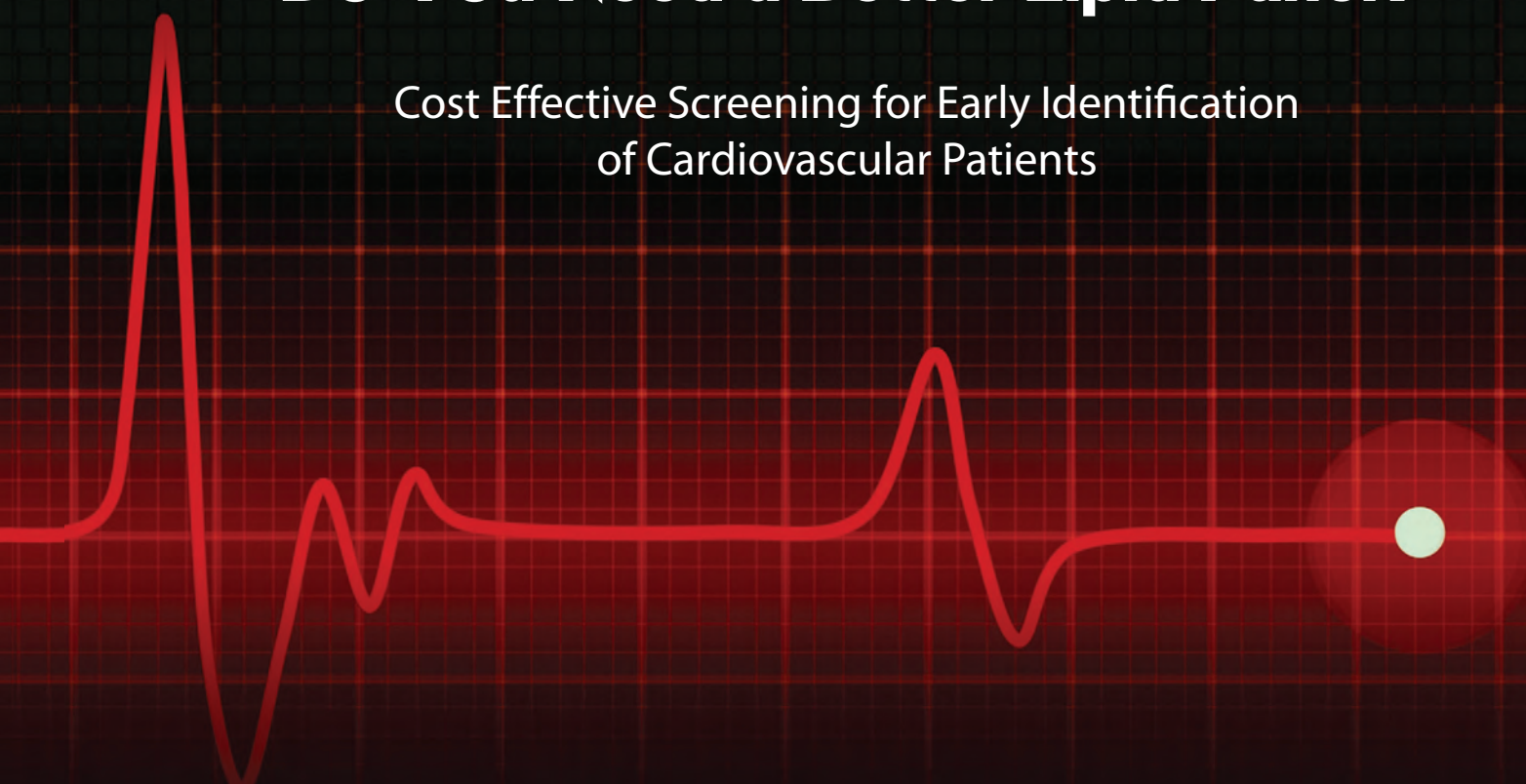




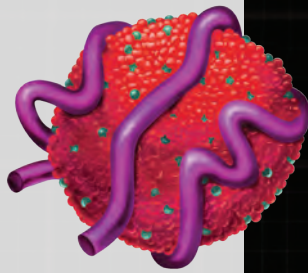
# Do You Need a Better Lipid Panel?

Cost Effective Screening for Early Identification  
of Cardiovascular Patients



## The Facts:

Elevated Lp(a) causes heart disease and is genetically inherited. Lowering Lp(a) lowers risk, and the Helena Lp(a) method is superior to Lp(a) mass assays.



These are the facts that have come from several recent studies involving Lp(a) and heart disease.<sup>1,2,3,4</sup>

At Copenhagen University, examination of genetic data on over 40,000 people found those with the top 10% of Lp(a) had up to three times the risk of disease.<sup>2</sup>

Researchers at the University of Oxford combed through 50,000 genetic variants looking for a link to early disease. They found two – both strongly associated with increased Lp(a) level and increased risk of heart disease. They also found that treatment to lower Lp(a) reduced the risk.<sup>3</sup>

Scientists at Brigham and Women's Hospital – Harvard Medical School studied Lp(a) in 28,000 healthy menopausal women and found those with the highest Lp(a) had the highest probability of heart disease. Hormone replacement therapy reduced their Lp(a) and nearly abolished their added risk.<sup>4</sup>

1. McConnell, et al. *Circulation*. 2007; 116:11, 818.
2. Kamstrup, et al. *JAMA*. 2009; 301 (22); 2331 – 2339.
3. Clarke, et al. *N Engl J Med*. 2009; 361: 2518-28.
4. Danik, et al. *JACC*. 2008; 52: 124-13.
5. Baudhuin, et al. *Clin Chem* 2003; 49:6, Suppl, F-61.
6. McConnell, et al. *Circulation* 2007; 116: 11 818.
7. McConnell, JP. *CVD Prevention Intl Sym*. Feb 2013.

## What is the Best Way to Measure Lp(a)?

Directly measuring the cholesterol content of HDL, LDL, VLDL and Lp(a) by electrophoresis is the best predictor of stenosis and vulnerable plaque when compared to Lp(a) mass and 11 other risk factors.<sup>5</sup>

Laboratory results were compared with angiography data on 504 patients, including 271 with >50% stenosis, along with Helena Lp(a)-c, Lp(a) mass and other risk markers. Helena Lp(a)-c proved a significant predictor of CDH risk, while Lp(a) mass was not very relevant. Four years later, 425 of the initial 504 patients were available for followup. Helena Lp(a)-c remained the clear winner for predicting cardiovascular events.<sup>6</sup>

## The Mayo Clinic Original 4-Year Study

### HR for CVD Events in 425 non-AMI: Multivariate Analysis

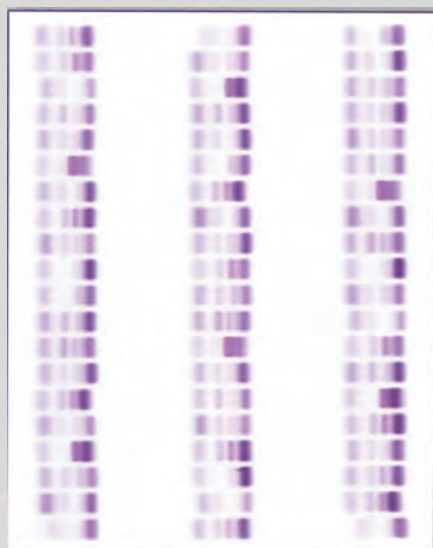
Variable	Hazard Ratio
Lp(a)-c (Helena) per 5 mg/dL	3.2
LDL Size	1.9
Fibrinogen	1.6
Age	1.3
Hypertension	1.3
Lp(a)-PLA2	1.3
Smoking	1.2
Male Gender	1.2
Log CRP	1.1
LDL Cholesterol	1.0
Log Triglyceride	0.97
HDL Cholesterol	0.83
Lp(a) Mass > 30 mg/dL	0.60

Joseph P McConnell, PhD  
GSCLS/SES-AACC, 2004,  
Atlanta, GA



## Who Should Be Screened for Lp(a)?

- Patients at high to moderate risk of cardiovascular disease
- Patients with strong family history of CAD
- Patients over the age of 50 yrs
- Post-menopausal women



HDL —  
Lp(a)-c —  
LDL —  
VLDL —

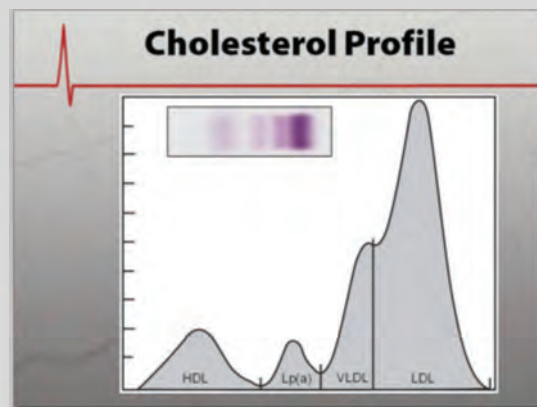
*The Helena method simultaneously measures HDL, Lp(a)-c, LDL and VLDL for up to 100\* patients in one process.*

## The Helena Lp(a) Method

- Directly measures HDL, LDL, VLDL, Lp(a)-c
- No fasting required
- Excellent correlation to reference methods

The NCEP ATP III guidelines recommend that direct LDL measurement methods be used as they are unaffected by triglycerides and patient fasting.

*\*Five different plate sizes are available to accommodate from 1 to 100 samples.*



## The Helena Lp(a) Value:

Measures only the cholesterol contained in the Lp(a) particles and provides a more specific assessment of cardiovascular risk than Lp(a) mass measurement, which is affected by isoform size.<sup>7</sup>

Lp(a) mass or immunoassays measure the protein content of Lp(a), but do not always reliably reflect the atherogenicity of Lp(a). To date, more than 50 different sized apo(a) protein isoforms have been identified. Larger apo(a) isoforms are less atherogenic than smaller isoforms. Unfortunately, all commercially available Lp(a) mass assays, to some extent, overestimate Lp(a) and coronary risk when larger isoforms are present. Even worse, risk may be underestimated when small, highly atherogenic molecules are present.



*Lp(a) exists in many sizes, from 60,000 to 800,000 daltons. Lp(a) mass assays are effected by isoform size; Lp(a)-c is not.*

## The Standard Lipid Profiling Technique Used Today:

- Is **Compromised** due to the reliability of the LDL calculations...
- Is **Inadequate** to evaluate the presence of emerging risk factors...
- Is **Insensitive** in detecting additional risk factors (like Lp(a) ) in high risk patients with normal lipid levels...
- Is **Insufficient** to develop effective treatment of potential lipoprotein abnormalities!\*

*\* Herbert K Naito, Symposium Proceedings,  
AACC Annual Meeting, July 27, 2004*

**For more information, call toll free 800-231-5663  
[www.helena.com](http://www.helena.com)**

