Dr. Ingrid Pincott
300-1170 Shoppers Row
Campbell River,B.C. V9W- 2C8
250-286-3655/1-800-898-6699
email:drpincott@drpincott.com
www.DrPincott.com

SPECTRACELL (LPP) Lipoprotein Particle Profile Report, PLA2, and Other Cardiovascular Risk Factors

Date:

Patient Name:
I have ordered a LPP test for you because your LDL's are too high, or your triglycerides are too high or your HDL's are too low. By having your blood evaluated for other risk factors gives us more information regarding your treatment program to prevent a cardiovascular event ie a heart attack or a stroke. SpectraCell Laboraties uses gold standard technology to measure the actual number of the LDL particles and the sizes of LDL and HDL cholesterol to assess risk.

50% of people who have had a cardiovascular event have normal cholesterol using Basic Lipid Panel (BLP) calculations. LPP Plus and Lp-PLA2 heart disease risk is better predicted and treatment programs provided to prevent this risk.

LDL's are composed of three components: Lp(a), LDL4+3+2+1 and IDL (Intermediate Dense Lipoprotein). The average LDL particle contains 50% cholesterol.

LPP testing measures **LDL III and LDL IV** the smallest most dense LDL lipoproteins. These are the most atherogenic because their small size allows them to more easily penetrate the endothelial wall of blood vessels.
LDL III normal is less than 300nmol/L. **Yours are**
This is lowered when total LDL and triglycerides are lowered.
LDL IV normal is less than 100 nmol/L. **Yours are**
This is often found with Lpa and lowering these with berberine, essential fatty acids, niacin, Lipomatrix. If HDL 2b is elevated and VLDL and HDL 3 are low then elevated LDLIV is NOT a bad thing.

Dense LDL's are associated with a 4 fold increased risk for CAD and 6.9 fold risk of heart attack. This is treated with niacin, omega 3 fatty acids and agents that increase insulin sensitivity. Even if your LDL number is normal but are dense this is an independent risk factor for CVD.

LDL size overall:

Lp(a) (normal is less than 30 mg/dl) is an independent genetic risk factor for premature vascular disease, heart attack or strokes. They easily oxidize and are very atherogenic and contribute to clot formation. Along with trying to lower Lp(a) therapies will also include reducing LDL and triglycerides. Gingko, ASA and niacin lowers Lp(a). If these are elevated in a 50-60 year old this is a good prediction for a premature CV event. This can elevate in post menopausal women increasing their risk. Statins may elevate Lp(a) in some patients but does NOT lower it. Lifestyle has no impact on Lp(a). Having a value over 30 doubles one's risk for CAD (Coronary Artery Disease). **Yours is**

Remnant lipoproteins (normal is less than 150nmol/L is a risk factor associated with coronary heart disease and is related to insulin resistance. This is highly atherogenic, causing platelet aggregation and impairs vascular relaxation. It is also a major component of plaque. It is a remnant lipoprotein that carries cholesterol into the arterial wall making it more atherogenic. These are often elevated in those with metabolic syndrome of insulin resistance. **Yours are**

Insulin Resistance: In this LPP test the factors that relate to IR are TG >150mg/dl, low HDL less than 40mg/dl in men and 50mg/dl in women and elevated LDLIII ad LDLIV, the small LDL particles and remnant lipoproteins less 150nmol/L.

To help reduce insulin resistance lower carbohydrates, sugars and alcohol in your diet, and take remedies such as niacin, omega 3 essential fats, chromium and or berberine.

VLDL Particles: normal is less than 85nmol/L. **Yours are**

TRIGLYCERIDES: a measure of blood sugar control and insulin resistance along with remnant lipoproteins and VLDL3. Normal is less than 150nmol/l. **Yours are**

Fasting Insulin: If greater than 21 uIU/ml then treatment for Insulin resistance recommended to prevent CVD. **Yours is**

Metabolic Traits: If you have a low HDL, high triglycerides and high LDL III and LDL IV this puts you at a risk for insulin resistance. We will also look at waist circumference, fasting blood sugar or HgA1c and blood pressure. **You have**

Total HDL Particle Count: normal is greater than 8000nmol/L. **Yours are**

HDL subfractions: HDL 3 is the most protective in higher levels. The higher the level the lower the risk. HDL2b measures the buoyancy of the HDL cholesterol. If low even if total cholesterol is normal, it infers and independent risk for diabetics with peripheral vascular disease. Exercise, omega 3 fatty acids, and niacin raises HDL 2. Most cholesterol tests just measure HDL3 which underestimates the real atherogenic risk to patients.

HDL 2b normal is greater than 1500 nmol/L in males and females 1750nmol/L. This large HDL lipoprotein clears excess cholesterol. **You have**

Non HDL particles is the best overall indicator of CVD risk. Normal is less than 800 nmol/L. The higher the count the greater the probability of particle penetration of the arterial wall regardless of the total amount of the cholesterol. **Yours are**

Total LDL Particles: normal is less than 900. This accurately measures LDL particle number. This is a better discriminator of risk than is the calculated LDL cholesterol number. **Yours are**

Lp-PLA2 is an independent risk factor for cardiovascular disease and stroke events. If you have an elevated CRP along with elevated PLA2 then your risk is increased 4X, if elevated PLA2 and elevated blood pressure then 6.4X risk and if you add an elevated CRP then your risk is increased by 11.4X. Can be elevated in periodontal disease. **Ideal is less than:**

Vitamin D: low levels associated with increased risk for primary CAD events, stroke, diabetes and peripheral artery disease. **Ideal is 150nmol/l:**

CRP: high sensitivity: non specific inflammatory marker but when elevated above 3.0 can increase risk of CVD, and can be associated with insulin resistance and metabolic syndrome. Can be elevated in periodontal disease. **Ideal is less than 1.0**

Homocysteine: ideal 5-7; independent risk factor for CHD events and stroke. Each increase of 5umol/L raises the risk for CHD by 20%.

GGT: if elevated can be associated with hypertension, diabetes, obesity, fatty liver and insulin resistance.

Uric acid: elevated levels increase risk of hypertension, obesity, kidney disease, insulin resistance and diabetes. If have elevated uric acid and hypertension then 3-5 fold increase risk of CAD.

Ferritin: Too much iron in the body increases inflammation and if severely elevated may be a sign of fatty liver. Normal is 50-130. Levels over 200 donating blood is recommended.

The following are questions and answers from Atherotech.com

Q: What is the difference between the LPP Cholesterol Test and the routine lipid panel?

A: The LPP Test provides all the information found in a routine lipid panel, plus measurements of all known cholesterol subclasses that play an important role in the development of CAD. The additional information provided by the LLP Test improves the ability to predict heart disease risk to a far greater number of patients.

The routine cholesterol test detects only about 40% of people at risk. In contrast to the routine lipid panel, the LLP directly measures LDL cholesterol and all other lipid risk factors to detect greater numbers of patients who are at risk for heart disease and diabetes.

Q: Why is a direct measurement of LDL cholesterol important?

A: National Cholesterol Education Program in the US (NCEP/ATP III, AACE, and ADA/ACC) recommends that LDL cholesterol be directly measured independent of a patient's fasting status. Currently, the LDL cholesterol is not directly measured using the routine lipid panel. Rather, it is estimated using the Friedewald equation: [LDL] = [total cholesterol] – [HDL] – [triglycerides/5]. Thus, estimated LDL cholesterol levels are falsely low in patients with elevated triglycerides, and it does not correlate well in patients with diabetes, coronary disease, or other atherosclerotic diseases.

Q: How can the LLP Test help customize patient treatment?

A: The availability of more sophisticated cholesterol treatments points to broader use of the LLP Test because results will help physicians more specifically match a drug or combination of drugs with a patient's cholesterol profile. The LLP Test's breakdown of lipid subfractions is vital in determining appropriate treatments. For example, elevated IDL doubles the risk for CAD and requires a statin plus niacin in combination. Lp(a) is 10 times more atherogenic than LDL cholesterol on a mg-for-mg basis and requires niacin.

Q: What is meant by "emerging risk factors" for heart disease?

A: The NCEP ATP III guidelines discuss a number of emerging risk factors for heart disease, including small, dense LDL and lipoprotein "a" (Lp(a)), and triglyceride rich remnant lipoproteins. LDL is not present in the circulation as one well-defined structure; rather it is present as a continuum of size and density. The presence of small, dense LDL quadruples the risk of heart disease compared with the same total LDL concentration present in a large, buoyant form. Lp(a) is a genetic risk factor that has been shown to be 10 times more atherogenic than LDL on a mg per deciliter basis. Thus, it is important to measure Lp(a) in patients with a family history of premature atherosclerosis. Importantly, these emerging risk factors are not measured by the routine lipid panel

Q: Can the LLP Test detect the metabolic syndrome?

A: The "atherogenic lipid triad" of low HDL, high triglycerides, and small, dense LDL frequently present in patients with metabolic syndrome—is described in NCEP ATP III guidelines as a widespread and under diagnosed health problem.

Q: Do the NCEP guidelines point to the use of an expanded lipid panel like the LLP Test?

A: The NCEP ATP III guidelines offer new opportunities to improve the early detection and treatment of heart disease. ATP III focuses attention on the metabolic syndrome, as well as several emerging risk factors and secondary targets of therapy that are not measured with the routine lipid panel. The LLP Test allows clinicians to comply with ATP III at a cost comparable to the routine lipid panel.