NutriPATH
INTEGRATIVE PATHOLOGY SERVICES

LIPOSCREEN LDL SUBFRACTIONS (serum)

Traditional lipid profiles do not identify the risk of cardiovascular diseases that are caused by the presence of small dense LDL and IDL particles. Dangerous LDL particles may hide behind normal cholesterol levels and, conversely, elevated cholesterol levels do not inevitably have to be associated with a heart attack risk.

Demographic studies have shown that the classical lipid profiles of patients with coronary artery diseases do not significantly differ from those of healthy persons. Nearly 50% of the persons who develop a cardiac disease have 'normal' cholesterol levels. LDL cholesterol, the lipid that is most frequently associated with cardiovascular diseases, is heterogeneous and consists of up to seven sub-fractions. Large circulating LDL particles are less atherogenic.

Lipid Profiles - Principle of analytics

There are five major lipoprotein classes: chylomicrons, very low density lipoprotein (VLDL), intermediate density lipoprotein (IDL), low density lipoprotein (LDL) and high density lipoprotein (HDL).

LipoScreen separates and quantifies all lipoprotein subfractions including the large, less atherogenic LDL-1 and LDL-2 and the small, highly atherogenic LDL-3 to LDL-7. The test also measures VLDL and IDL cholesterol linked with type III dyslipidaemia and associated hyperlipoproteinaemias.

Approximately 50% of patients without heart attack have higher cholesterol levels. A considerable portion of heart attack patients have low cholesterol levels. Individual differences exist in particular with respect to the LDL levels and here, even more importantly, in the size distribution of the LDL particles. *The small LDL particles in particular have a very high atherogenic potential.* Therefore, it is less important how much cholesterol a patient has, but which type of cholesterol is elevated and which size distribution the cholesterol particles have. These are the parameters the risk assessment and the therapy depend on. Lipoprotein cholesterol measurements are used as an aid in evaluating lipid metabolism disorders when used in conjunction with other lipid tests, patient risk assessment and clinical evaluation.

INDICATIONS FOR LIPID TESTING	
Atherosclerotic cardiovascular disease	Diseases associated with altered lipid metabolism e.g. nephrotic syndrome, pancreatitis, hepatic disease, and hypo and hyperthyroidism
Primary dyslipidemia	Secondary dyslipidemia e.g. diabetes mellitus, disorders of gastrointestinal absorption, chronic renal failure
Any form of atherosclerotic disease	Signs or symptoms of dyslipidemias e.g. skin lesions, initial screen for coronary heart disease

Lipoprotein Subclasses and CAD Risk

Not all lipoprotein subclasses have the same atherogenic potential.

- Large buoyant LDL-1 and 2 are associated with average CAD risk.
- Presence of small dense LDL-3 through 7 are associated with 3 times greater risk for CAD independent of other risk factors.
- IDL levels above the normal reference range are also associated with increased CAD risk.
- Levels of small VLDL remnants above the normal reference range are also associated with increased CAD risk.

Example graphs on the report

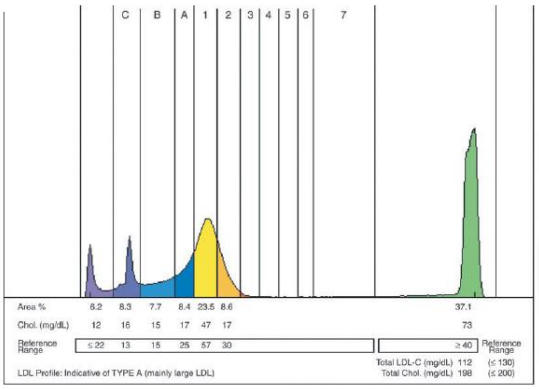

Figure 1. Typical *NORMAL* Liposcreen profile

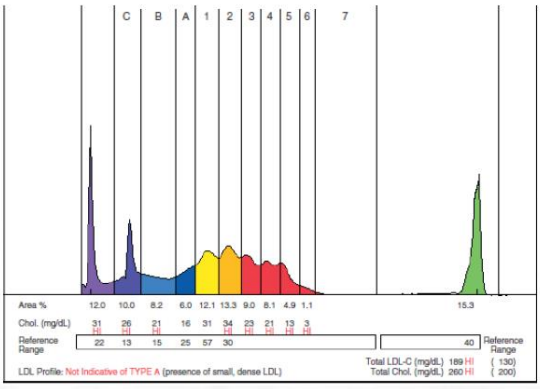

Figure 2. Typical *ABNORMAL* Liposcreen profile

Figure 1: Individuals exhibiting lipoprotein profiles, consisting primarily of the larger, buoyant LDL-1 and LDL-2 subfractions, a ***NORMAL*** lipoprotein pattern/profile. Figure 2: Individuals exhibiting lipoprotein profiles, consisting primarily of the smaller and denser subfractions (LDL- 3 through LDL-7), an ***ABNORMAL*** lipoprotein pattern/profile. This pattern is associated with a 3-fold increased risk of MI, independent of sex, age and relative weight.

LIPOSCREEN LDL SUBFRACTIONS (serum) [Test code: 4028]

- Cholesterol, Triglycerides, HDL, LDL, LDL/HDL ratios; VLDL, IDL-1, IDL-2, IDL-3, LDL-1, LDL-2, LDL-3, LDL-4, LDL-5, LDL-6, LDL-7

Other cardiovascular and hypercholesterolemia tests available:

- **Cardiovascular Profile – Comprehensive [4001]:** Cholesterol, Triglycerides, HDL, LDL, ratios, Fasting Glucose, Homocysteine, Apolipoproteins A & B, Lipoprotein (a), Fibrinogen, hsCRP
- **Cardiovascular Profile – Comprehensive 2 [4027]:** Cholesterol, Triglycerides, HDL, LDL, ratios, Fasting Glucose, Homocysteine, Apolipoproteins A & B, Lipoprotein (a), Fibrinogen, hsCRP and LIPOSCREEN LDL subfractions (x7)
- **Oxidised LDL [4029]**: Oxidised LDL
- **HDL Subfractions [4030]**: Cholesterol, Triglycerides, HDL, HDL subfractions (x3)
- **LIPOSCREEN LDL Subfractions & Oxidised LDL [4031]**: Cholesterol, Triglycerides, HDL, LDL, VLDL, IDL, LDL subfractions (x7), Oxidised LDL
- **LIPOSCREEN LDL Subfractions & Oxidised LDL & HDL Subfractions [4032]**: Cholesterol, Triglycerides, HDL, LDL, VLDL, IDL, LDL subfractions (x7), Oxidised LDL; HDL subfractions (x3)

How to order a test kit:

To order a test kit simply request the test name and/or test code on a NutriPATH request form and have the patient phone NutriPATH Customer Service on 1300 688 522.

NutriPATH
Integrative Pathology Services

Phone 1300 688 522 for further details

www.nutripath.com.au