

Comprehensive Cardiovascular Assessment

sample type: **BLOOD**

Comprehensive Cardiovascular Assessment analyzes blood for lipid markers, ratios, and independent risk factors. Together, these markers provide a thorough assessment of cardiovascular health status, revealing the biochemical environment associated with inflammation, lipid deposits, endothelial dysfunction, clotting factors and other primary mechanisms underlying cardiovascular disease.

Nearly 50% of all heart attack victims have normal levels of traditional early warning markers for cardiovascular disease (CVD), including total cholesterol. For this reason, improved clinical tools are needed to identify patients with a predisposition to CVD who can benefit from timely, preventative intervention. The **Comprehensive Cardiovascular Assessment** measures state-of-the-art, independent markers that illuminate the clinical complexity of CVD.

Markers for CVD

- **Homocysteine** is an amino acid that functions as an intermediate in methionine metabolism. It can rise in response to nutritional deficiencies of B12, folate, B6, or betaine. High levels of homocysteine have been linked to damaged endothelium, increased platelet aggregation, and the formation of atherosclerotic lesions.
- **Lipoprotein(a) or Lp(a)** is a marker strongly influenced by heredity. It has been cited for its causative role in atherothrombogenesis and its strong association with both coronary and peripheral cardiac events. Lp(a) promotes the deposit of fatty wastes and other debris in atherosclerotic lesions.
- **C-reactive protein (CRP)** is an important independent marker for inflammation. High levels reflect overactivity of inflammatory cytokines linked to coagulation and vascular endothelium damage. Evidence suggests that previous infection with pathogens such as Chlamydia pneumoniae or Helicobacter pylori may act as an initiating trigger for this chronic inflammation. Elevated CRP has also been linked to a poorer long-term prognosis in individuals with a recent history of a cardiac event.
- **Fibrinogen** plays a key role in arterial occlusion by promoting thrombus formation, endothelial injury and hyperviscosity. Triglycerides may become elevated by diets containing excess amounts of saturated fats or carbohydrates. These elevations are implicated in the progression of both coronary and peripheral atherosclerosis. HDL and LDL cholesterol, Apo-A1, Apo-B, total cholesterol and their ratios assess specific dynamics of lipid metabolism and their potential impact on CVD.

A composite **Cardiovascular Index** provides an overall indication of synergistic risk. The index incorporates a multivariate analysis of all the individual lipid scores and the independent CV factors.

A wide range of nutritional, lifestyle, and dietary interventions can be used to improve the patient's biochemical profile and optimize cardiovascular health.

• Analytes:

lipoprotein(a)
homocysteine
fibrinogen
C-reactive protein
triglycerides
total cholesterol
LDL cholesterol
apolipoprotein B
apolipoprotein A-1
total cholesterol/HDL
Apo B/Apo A-1
cardiovascular index

• Specimen Requirements:

- 3 ml plasma and
- 4 ml serum, fasting

• Before Patient Takes this Test:

- Fast overnight (at least 12 hours)
- Inform practitioner about medication and supplement use, including aspirin and cholesterol-lowering drugs
- See instructions inside test kit for details

Comprehensive Cardiovascular Assessment



63 Zillicoa Street
Asheville, NC 28801
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Patient: **SAMPLE PATIENT**

Order Number:
Completed: October 22, 2009
Received: October 22, 2009
Collected: October 22, 2009

Age: 57
Sex: M
MRN:

CV Factors

Optimal Range

| | | |
|-------------------|-----|---------------|
| Triglycerides | 75 | <= 149 mg/dL |
| Total Cholesterol | 175 | 150-199 mg/dL |
| LDL Cholesterol | 75 | <= 99 mg/dL |
| Apo B | 75 | 55-140 mg/dL |

Independent CV Factors

Optimal Range

| | | |
|--------------|-------|-------------------|
| Lp(a) | 15 | <= 32 mg/dL |
| Homocysteine | 7.50 | 3.00-10.00 umol/L |
| hs-CRP | 0.50 | <= 1.00 mg/L |
| Fibrinogen | 300.0 | 180.0-350.0 mg/dL |

Protective Factors

Optimal Range

| | | |
|-----------------|-----|---------------|
| HDL Cholesterol | 75 | >= 40 mg/dL |
| Apo A-1 | 200 | 110-205 mg/dL |

Ratios

Optimal Range

| | | |
|-------------------------|------|-----------|
| Total Cholesterol / HDL | 2.3 | 1.0-4.8 |
| Apo B / Apo A-1 | 0.38 | 0.35-1.00 |

This test reveals important clinical information about:

- **Standard lipid risk markers for cardiovascular disease (CVD) risk**, including triglycerides, total cholesterol, LDL cholesterol, and Apo B
- **Protective factors HDL cholesterol and Apo A-1**, along with significant lipid ratios
- **Independent risk factors for CVD risk**, including C-reactive protein, homocysteine, Lp(a), and fibrinogen
- **Synergy of risk factors**, reflected by an overall Cardiovascular Risk Index

For test kits, clinical support, or more information contact:

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More detailed publications with references are also available: www.GDX.net