



CardioGenomicPlus® Profile

sample type: **BLOOD or BUCCAL**

CardioGenomicPlus® Profile evaluates genetic variations, called single nucleotide polymorphisms (SNPs), in genes that modulate blood pressure regulation, lipid balance, nutrient metabolism, inflammation, and oxidative stress.

The test uncovers potential genetic susceptibility to:

- Hypercholesteremia
- Atherosclerosis
- Obesity
- Hypertension
- Coronary Artery Disease
- Myocardial Infarction
- Thromboses
- Endothelial Dysfunction
- Stroke

Cholesterol Regulation and Atherosclerosis

ApoE (apolipoprotein E)

CETP (cholesteryl ester transfer protein)

SELE (selectin E)

These genes affect how the body breaks down and clears fats and how cholesterol is processed. They also affect lipid balance, plaque formation, and blood vessel integrity and function.

Methylation

MTHFR (methylenetetrahydrofolate reductase)

Polymorphisms of this enzyme can disrupt the metabolism of homocysteine, resulting in its accumulation as well as impaired methylation. The presence of these SNPs can increase risk of cardiovascular disease, blood vessel damage, thromboses (blood clots), stroke, and degenerative aging.

Hypertension

GNB3 (guanine nucleotide-binding protein)

AGT (angiotensin)

AGTR1 (angiotensin II receptor-1)

Polymorphisms of these genes are associated with blood vessel constriction, sodium and water retention, obesity, and increased susceptibility to hypertension.

Coagulation

Factor 2 (prothrombin)

Factor 5 (Leiden)

PAI-1 (Plasminogen activator inhibitor-1)

GP3a (Glycoprotein 3)

These genetic variants can over-activate blood clotting processes, increasing the risk of sudden cardiac events such as thromboses, heart attacks, and strokes.

Reduction-Oxidation Balance

CYBA*8 (cytochrome b-245-alpha)

This genetic variant mediates the balance between oxidative stress and antioxidant defense in smooth muscle cells lining blood vessels.

• Specimen Requirements:

- **Blood**—One 6 ml blood sample in EDTA tube

• Before Taking this Test:

- See instructions inside test kit for more details

CardioGenomicPlus Profile



Genova Diagnostics
Innovative Testing for Optimal Health

63 Zillicoa Street
Asheville, NC 28801
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Patient: **SAMPLE PATIENT**
Age: 54
Sex: M
MRN:

Order Number:
Completed: January 31, 2008
Received: January 26, 2008
Collected: January 15, 2008

| Apo E | Apolipoprotein E : CHOLESTEROL REGULATION |
|--|---|
| <p>Location: Chromosome 19</p> <p>APOE APO E2: cys / cys APO E3: cys / arg APO E4: arg / arg Your Genotype:</p> | <p>Apolipoprotein E (Apo E) plays a key role in lipid metabolism by helping to remove dietary cholesterol (chylomicrons and VLDL) from the bloodstream.</p> |
| <p>2 3</p> <p>The two SNPs lead to 3 possible variants for each chromosome, known as ApoE2, E3, & E4.</p> | <p>Health Implications</p> <ul style="list-style-type: none"> · The APO E2/3 genotype is common, accounting for 10-15% of most populations · APO E2 is associated with lower LDL cholesterol and higher HDL-C, but higher triglycerides (as found in Metabolic Syndrome) compared to the other genotypes · APO E2 also confers a lower risk of atherosclerosis, myocardial infarction, stroke, and osteoporosis, and higher antioxidant activity <p>Treatment Options</p> <ul style="list-style-type: none"> · The cholesterol-lowering effect of a low saturated fat and low cholesterol diet is least effective with E2 individuals · Minimize high-glycemic index foods, which produce the largest triglyceride (TG) response in E2 carriers · Dietary fiber, fish oils, and exercise generally improve the lipid profile in this genotype; fish oils reduce TGs most effectively in E2 individuals · Alcohol may reduce LDL-C in men (neutral in women) · E2 individuals generally respond the most favorably to statins and would therefore likely respond to statin mimetics such as inositol hexaniacinate, red rice yeast, and policosanol · Gemfibrozil may be particularly effective at lowering TGs and total cholesterol · HRT improves the lipid profile in this genotype, although oral estrogen may significantly increase TGs |

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| <p>Key</p> <ul style="list-style-type: none"> - - Neither chromosome carries the genetic variation. + - One chromosome (of two) carries the genetic variation. + + Both chromosomes carry the genetic variation. <p><i>(You inherit one chromosome from each parent)</i></p> | <ul style="list-style-type: none"> + ↑ Gene activity increased + ↓ Gene activity decreased |
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Customized commentary includes:

Health Implications

Outlines disease risks associated with specific SNP results

Minimizing Risk

Suggests possible dietary, environmental, lifestyle, supplement, and pharmaceutical interventions to optimize genomic potential of patient

Further Evaluation

Alerts to the potential for related physiological imbalances and the clinical need for follow-up assessment

Related Phenotype Assessments

Baseline:

To assess baseline expression of genetic tendency

Follow-up:

To regularly monitor therapeutic interventions that modify genetic expression

- **Comprehensive Cardiovascular Profile 2.0**
- **Amino Acids Analysis** (plasma or urine)
- **Elemental Analysis** (hair, urine, or packed erythrocytes)

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

Client Services
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800-522-4762 • Fax: 828-252-9303 • www.GDX.net/cs

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