GENOVA DIAGNOSTICS
3425 Corporate Way
Duluth, GA 30096

CardioION

3104 Cardio/ION® Profile - Blood/Urine

Cardiovascular Health Profile - Blood
Methodology: Automated Chemistry, Immunometric Assay, Enzymatic Assay, HPLC, ICP-MS

	Results		Reference Limit
Lipoprotein Factors			
1. Total Cholesterol	38		<200 mg/dL
2. HDL Cholesterol	20	L	>= 40 mg/dL
3. LDL Cholesterol (Direct)	<18		<130 mg/dL
4. Triglycerides	37		<150 mg/dL
5. Lipoprotein (a)	2		<= 37 mg/dL
Lipoprotein Ratios			
6. LDL/HDL	NR		<= 3.3
7. Total/HDL	1.9		<= 4.5

Male		Female		Risk(*)
LDL/HDL	Total/HDL	LDL/HDL	Total/HDL	
1.0	3.4	1.5	3.3	0.5x Average
3.6	5.0	3.2	4.4	1.0x Average
6.3	9.6	5.0	7.1	2.0x Average
8.0	23.4	6.1	11.0	3.0x Average

*Adapted from the Framingham Heart Study

Chronic Inflammatory Markers			
8. Ferritin	49		28 - 397 ng/mL
9. Fibrinogen	300		175 - 425 mg/dL
10. c-Reactive Protein (HS)	1.6		<= 3.0 mg/L

Cardio CRP value (mg/L)	CHD Risk Level
<1	Low
1-3	Average
>3 (up to 10)*	High

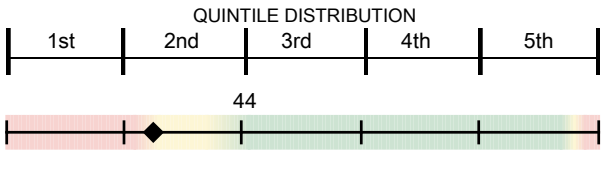
*If the cardio CRP concentration exceeds 10 mg/L after repeat testing, the patient should be evaluated for noncardiovascular etiologies.

Fibrinogen performed by Southern Clinical Laboratories
405 West Pike St., Suite A
Lawrenceville, GA 30045
Lab Director: Dr. Robert David

Cardiovascular Health Profile - Blood

Methodology: Automated Chemistry, Immunometric Assay, Enzymatic Assay, HPLC, ICP-MS

	Results		Reference Limit
Other Important Indicators			
11. Insulin	<2.0	L	2.0 - 12.0 uIU/mL
12. Testosterone	33	L	150 - 952 ng/dL
13. Sex Hormone Binding Globulin	163	H	13 - 71 nmol/L
14. Free Androgen Index (calc.)	0.7	L	12.0 - 121.0 Ratio
15. RBC Magnesium	40		34 - 63 ppm packed cells



Oxidant Stress Factors			
16. Homocysteine	5.0	4.0 – 10.0	3.0 - 14.0 nmol/mL
17. Coenzyme Q10	2.00	0.64 – 2.16	0.48 - 3.04 mg/L
18. Lipid Peroxides	1.00	1.72	<= 2.60 nmol/mL
19. alpha-Tocopherol	15.0	9.8 – 25.1	6.8 - 31.7 mg/L
20. gamma-Tocopherol	2.00	0.26 – 2.06	0.06 - 2.99 mg/L

NR = Not Reportable

Amino Acids 20 Profile - Plasma

Methodology: High Performance Liquid Chromatography

Ranges: Ages 13 and over.

		Results µmol/L	QUINTILE DISTRIBUTION (1st / 2nd / 3rd / 4th / 5th)	95% Reference Range
Essential Amino Acids				
Limiting Amino Acids				
1.	Lysine	175	117 – 203	99 - 234
2.	Methionine	25	16 – 26	14 - 30
3.	Tryptophan	45	35 – 59	30 - 67
Branched Chain Amino Acids				
4.	Isoleucine	49	40 – 72	33 - 89
5.	Leucine	125	80 – 137	68 - 161
6.	Valine	200	143 – 240	123 - 282
Other Essential Amino Acids				
7.	Phenylalanine	50	43 – 64	39 - 74
8.	Histidine	75	48 – 72	41 - 82
9.	Threonine	100	76 – 151	63 - 181
Conditionally Essential Amino Acids				
10.	Arginine	60	48 – 96	37 - 114
11.	Taurine	50	31 – 73	26 - 100
12.	Glycine	250	162 – 348	136 - 430
13.	Serine	125	66 – 115	57 - 133

Amino Acids 20 Profile - Plasma

Methodology: High Performance Liquid Chromatography

Ranges: Ages 13 and over.

		Results µmol/L	QUINTILE DISTRIBUTION 1st 2nd 3rd 4th 5th	95% Reference Range
Functional Categories				
Vascular Function				
14.	Arginine	60	48 96	37 - 114
15.	Taurine	50	31 73	26 - 100
Neurotransmitters and Precursors				
16.	Phenylalanine	50	43 64	39 - 74
17.	Tyrosine	50	38 70	29 - 80
18.	Tryptophan	45	35 59	30 - 67
19.	Glutamic Acid	50	29 95	23 - 136
20.	Taurine	50	31 73	26 - 100
Sulfur Amino Acids (Glutathione - related)				
21.	Methionine	25	16 26	14 - 30
22.	Taurine	50	31 73	26 - 100
Urea Cycle and Ammonia Detoxification				
23.	Arginine	60	48 96	37 - 114
24.	Citrulline	20	20 38	15 - 44
25.	Ornithine	50	32 81	23 - 109
26.	Glutamine	500	397 585	338 - 630
27.	Asparagine	40	30 49	26 - 56
28.	Aspartic Acid	10.0	4.8 9.7	4.2 - 12.5
Ratios				
29.	Phenylalanine/Tyrosine	1.00		<= 1.44
30.	Glutamic Acid/Glutamine	0.10	0.06 0.21	0.05 - 0.35
31.	Tryptophan/LNAA*	0.095	0.100 0.106	0.095 - 0.106

*Large neutral amino acids (Leu+Ile+Val+Phe+Tyr)

NR = Not Reportable

	Results	QUINTILE DISTRIBUTION (1st 2nd 3rd 4th 5th)	95% Reference Range

Homocysteine Assay - Plasma

Methodology: Enzymatic Assay

Ranges: Ages 13 and over.

1.	Homocysteine	5.0	4.0 – 10.0	3.0 - 14.0 nmol/mL

Nutrient & Toxic Elements Profile - Blood

Methodology: Inductively Coupled Plasma/Mass Spectrometry

Nutrient Elements

Erythrocytes (packed cells)

1.	Potassium	2,985	2,672	2,303 - 3,374 ppm
2.	Magnesium	40	44	34 - 63 ppm
3.	Calcium*	40	44	24 - 65 ppm

Plasma

4.	Zinc	1,000	815	643 - 1,594 ppb
5.	Copper	1,000	929	753 - 1,920 ppb

Whole Blood

6.	Selenium	0.30	0.16	0.13 - 0.32 ppm

Toxic Elements

Whole Blood

7.	Aluminum	10	45	<= 113 ppb
8.	Arsenic	10.0	5.1	<= 10.0 ppb
9.	Cadmium	1.00	0.60	<= 1.10 ppb
10.	Lead	10	18	<= 29 ppb
11.	Mercury	5.0	4.3	<= 9.8 ppb

*Relevant to membrane permeability, not nutritional status.

Results for whole blood toxic elements that are within normal limits do not rule out metal accumulation in other tissues.

NR = Not Reportable

Coenzyme Q10 Plus Vitamins Profile - Serum

Methodology: High Performance Liquid Chromatography

Ranges: Ages 13 and over.

		Results mg/L	QUINTILE DISTRIBUTION (1st 2nd 3rd 4th 5th)	95% Reference Range
1.	Coenzyme Q10	2.00	0.64 – 2.16	0.48 - 3.04
2.	alpha-Tocopherol	15.0	9.8 – 25.1	6.8 - 31.7
3.	gamma-Tocopherol	2.00	0.26 – 2.06	0.06 - 2.99
4.	Vitamin A (Retinol)	1.00	0.36 – 0.74	0.29 - 1.05
5.	β-Carotene	2.00	0.15 – 1.70	0.10 - 2.71

Lipid Peroxides Assay - Serum

Methodology: High Performance Liquid Chromatography

		Results nmol/mL		
6.	Lipid Peroxides	1.00	1.72	<= 2.60

DNA/Oxidative Stress Marker (8-OHdG) Assay - Urine

Methodology: LC/Tandem Mass Spectrometry, Colorimetric

Ranges: Ages 13 and over.

		Results ng/mg creatinine		
7.	8-Hydroxy-2-deoxyguanosine	1.4	5.3	<= 7.6

Vitamin D Profile - Serum

Methodology: Chemiluminescent

		Results ng/mL	Reference Range
8.	25-Hydroxyvitamin D ◆	50	30 - 100 ng/mL

Deficiency: <20 ng/mL
Insufficiency: 20-29 ng/mL
Sufficient: 30-100 ng/mL
Recommended: 50-80 ng/mL
Excessive: >100 ng/mL

There is no consensus in the literature regarding optimal levels of 25-Hydroxyvitamin D. Higher levels of 25-Hydroxyvitamin D may be concerning in some patient populations, such as renal failure. Levels below 30 ng/mL are considered insufficient by most medical associations.Treatment is at the discretion of the treating clinician.

Holick MF, et al. *J Clin Endocrinol Metab.* 2011;96(7):1911-1930.
Vitamin D Council: https://www.vitamindcouncil.org/

<DL = less than detection limit
NR = Not Reportable

25-Hydroxyvitamin D testing performed by Genova Diagnostics, Inc. 63 Zillicoa St., Asheville, NC 28801-0174. A. L. Peace-Brewer, PhD, D(ABMLI), Lab Director - CLIA Lic. #34D0655571 - Medicare Lic. #34-8475.

Fatty Acids Profile - Plasma

Methodology: Capillary Gas Chromatography/Mass Spectrometry

Ranges: Ages 13 and over

		Results µmol/L	QUINTILE DISTRIBUTION 1st 2nd 3rd 4th 5th	95% Reference Range
Polyunsaturated Omega-3				
1.	Alpha Linolenic (18:3n3)	15	20	13 - 80
2.	Eicosapentaenoic (20:5n3)	15	17	5 - 210
3.	Docosapentaenoic (22:5n3)	50	16	11 - 50
4.	Docosahexaenoic (22:6n3)	75	59	31 - 213
Polyunsaturated Omega-6				
5.	Linoleic (18:2n6)	1,000	930 1,669	821 - 2,032
6.	Gamma Linolenic (18:3n6)	15	7 33	5 - 46
7.	Eicosadienoic (20:2n6)	15.0	6.4 15.3	5.2 - 22.5
8.	Dihomogamma Linolenic (20:3n6)	50	34 102	27 - 140
9.	Arachidonic (20:4n6)	500	201 451	158 - 521
10.	Docosadienoic (22:2n6)	1.0	0.9	<= 2.0
11.	Docosatetraenoic (22:4n6)	15.0	3.7 13.8	2.6 - 18.1
Polyunsaturated Omega-9				
12.	Mead (20:3n9)	7.0	5.3	<= 8.3
Monounsaturated				
13.	Myristoleic (14:1n5)	7.0	1.2 6.1	0.8 - 9.7
14.	Palmitoleic (16:1n7)	250	40 155	30 - 256
15.	Vaccenic (18:1n7)	50	48 93	40 - 122
16.	Oleic (18:1n9)	1,000	555 1,182	466 - 1,470
17.	11-Eicosenoic (20:1n9)	15.0	4.6 10.3	3.7 - 18.1
18.	Nervonic (24:1n9)	2.0	1.1 2.2	1.1 - 2.7

Fatty Acids Profile - Plasma

Methodology: Capillary Gas Chromatography/Mass Spectrometry

Ranges: Ages 13 and over

		Results µmol/L	QUINTILE DISTRIBUTION (1st | 2nd | 3rd | 4th | 5th)	95% Reference Range
Saturated				
19.	Capric (10:0)	2.0	1.4 – 4.0	0.8 - 6.2
20.	Lauric (12:0)	20.0	3.3 – 14.5	2.2 - 27.3
21.	Myristic (14:0)	50	20 – 87	15 - 139
22.	Palmitic (16:0)	800	792 – 1,794	667 - 2,526
23.	Stearic (18:0)	300	294 – 511	250 - 629
24.	Arachidic (20:0)	4.0	1.5 – 3.2	1.3 - 4.7
25.	Behenic (22:0)	2.5	0.8 – 2.0	0.6 - 2.9
26.	Lignoceric (24:0)	2.00	0.84 – 1.66	0.63 - 2.45
27.	Hexacosanoic (26:0)	0.30	0.36	<= 0.43
Odd Chain				
28.	Pentadecanoic (15:0)	15.0	14.5	<= 20.6
29.	Heptadecanoic (17:0)	20.0	19.3	<= 24.4
30.	Nonadecanoic (19:0)	1.00	1.51	<= 1.89
31.	Heneicosanoic (21:0)	0.50	0.50	<= 0.74
32.	Tricosanoic (23:0)	0.50	0.62	<= 0.78
Trans				
33.	Palmitelaidic (16:1n7t)	1.0	0.4	<= 1.8
34.	Total C:18 Trans	50	42	<= 59
Ratios				
35.	LA/DGLA	20	30	11 - 46
36.	EPA/DGLA	0.30	0.24	0.07 - 5.98
37.	AA/EPA	33	20	1 - 57
38.	Triene/Tetraene	0.014	0.016	<= 0.023

NR = Not Reportable

Organix® Comprehensive Profile - Urine

Methodology: LC/Tandem Mass Spectrometry, Colorimetric

This report is not intended for the diagnosis of neonatal inborn errors of metabolism.

Ranges: Ages 13 and over

		Results mcg/mg creatinine		QUINTILE DISTRIBUTION 1st / 2nd / 3rd / 4th / 5th	95% Reference Range
Nutrient Markers					
Fatty Acid Metabolism *(Carnitine & B2)*					
1.	Adipate	2.9		6.2	<= 11.1
2.	Suberate	0.6		2.1	<= 4.6
3.	Ethylmalonate	2.9		3.6	<= 6.3
Carbohydrate Metabolism *(B1, B3, Cr, Lipoic Acid, CoQ10)*					
4.	Pyruvate	2.9		3.9	<= 6.4
5.	L-Lactate	<DL	L	8.5	0.6 - 16.4
6.	β-Hydroxybutyrate	0.6		2.1	<= 9.9
Energy Production (Citric Acid Cycle) *(B comp., CoQ10, Amino Acids, Mg)*					
7.	Citrate	57		601	56 - 987
8.	Cis-Aconitate	10	L	51	18 - 78
9.	Isocitrate	29	L	98	39 - 143
10.	α-Ketoglutarate	0.3		19.0	<= 35.0
11.	Succinate	2.9		11.6	<= 20.9
12.	Fumarate	0.57		0.59	<= 1.35
13.	Malate	0.6		1.4	<= 3.1
14.	Hydroxymethylglutarate	0.6		3.6	<= 5.1
B-Complex Vitamin Markers *(B1, B2, B3, B5, B6, Biotin)*					
15.	α-Ketoisovalerate	0.23		0.25	<= 0.49
16.	α-Ketoisocaproate	0.29		0.34	<= 0.52
17.	α-Keto-β-Methylvalerate	0.29		0.38	<= 1.10
18.	Xanthurenate	0.23		0.34	<= 0.46
19.	β-Hydroxyisovalerate	0.2		7.6	<= 11.5

Organix® Comprehensive Profile - Urine

Methodology: LC/Tandem Mass Spectrometry, Colorimetric

This report is not intended for the diagnosis of neonatal inborn errors of metabolism.

Ranges: Ages 13 and over

		Results mcg/mg creatinine		QUINTILE DISTRIBUTION 1st / 2nd / 3rd / 4th / 5th	95% Reference Range
Nutrient Markers					
Methylation Cofactor Markers *(B12, Folate)*					
20.	Methylmalonate	0.6		1.7	<= 2.3
21.	Formiminoglutamate	0.1		1.2	<= 2.2
Cell Regulation Markers					
Neurotransmitter Metabolism Markers *(Tyrosine, Tryptophan, B6, Antioxidants)*					
22.	Vanilmandelate	1.4		1.6 – 3.9	1.2 - 5.3
23.	Homovanillate	2.9		1.9 – 5.7	1.4 - 7.6
24.	5-Hydroxyindoleacetate	2.2		2.1 – 5.6	1.6 - 9.8
25.	Kynurenate	0.6		1.0	<= 1.5
26.	Quinolinate	2.9		4.0	<= 5.8
27.	Picolinate	5.7		8.0	2.8 - 13.5
Oxidative Damage and Antioxidant Markers *(Vitamin C and Other Antioxidants)*					
28.	p-Hydroxyphenyllactate	0.04		0.39	<= 0.66
29.	8-Hydroxy-2-deoxyguanosine	1.4		5.3	<= 7.6

(Units for 8-hydroxy-2-dexoyguanosine are ng/mg creatinine)

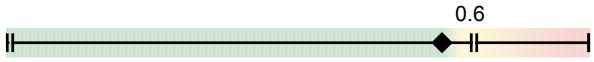
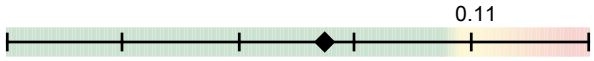
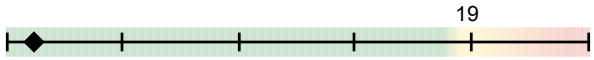
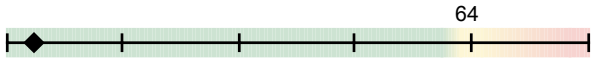
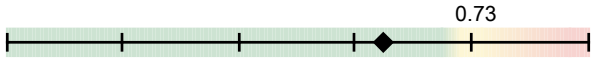
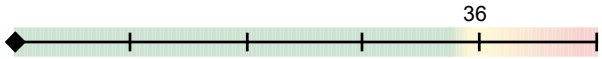
Toxicants and Detoxification					
Detoxification Indicators *(Arg, NAC, Met, Mg, Antioxidants)*					
30.	2-Methylhippurate	0.105		0.084	<= 0.192
31.	Orotate	0.57		0.69	<= 1.01
32.	Glucarate	0.6		6.3	<= 10.7
33.	α-Hydroxybutyrate	0.3		0.3	<= 0.9
34.	Pyroglutamate	21	L	59	28 - 88
35.	Sulfate	10	L	958 – 2,347	690 - 2,988

Organix® Comprehensive Profile - Urine

Methodology: LC/Tandem Mass Spectrometry, Colorimetric

This report is not intended for the diagnosis of neonatal inborn errors of metabolism.

Ranges: Ages 13 and over

		Results mcg/mg creatinine	QUINTILE DISTRIBUTION 1st 2nd 3rd 4th 5th	95% Reference Range
Compounds of Bacterial or Yeast/Fungal Origin				
Bacterial - General				
36.	Benzoate	0.6		<= 9.3
37.	Hippurate	3		<= 1,070
38.	Phenylacetate	0.06		<= 0.18
39.	Phenylpropionate	0.03		<= 0.06
40.	p-Hydroxybenzoate	0.6		<= 1.8
41.	p-Hydroxyphenylacetate	1		<= 34
42.	Indican	3		<= 90
43.	Tricarballylate	0.57		<= 1.41
L. acidophilus / General Bacterial				
44.	D-Lactate	<DL		<= 4.1
Clostridial Species				
45.	3,4-Dihydroxyphenylpropionate	<DL		<= 0.05
Yeast / Fungal				
46.	D-Arabinitol	<DL		<= 73

Creatinine = 175 mg/dL

<DL = less than detection limit
>UL = greater than upper linearity limit
NR = Not reportable

Commentary

The Diasorin Liaison 25-Hydroxyvitamin D Total Assay is certified by the CDC Vitamin D Standardization-Certification Program (CDC VDSCP).

The performance characteristics of all assays have been verified by Genova Diagnostics, Inc. Unless otherwise noted with ◆, the assay has not been cleared by the U.S. Food and Drug Administration.

3104 Cardio/ION Profile - Blood/Urine

ION Analyte Pattern Analysis

A multi-analyte report can provide greater insight about health risks and special nutrient needs. Patterns of abnormalities can reinforce the degree of significance indicated by a single measurement. Analytes from the various profiles in the ION report are combined below into categories associated with clinical/metabolic conditions.

The categories included cover the most common areas of concern relevant to these profiles. Above each thermometer are listed the analytes used to calculate the degree of significance. An ↑ or ↓ appears when the patient result is outside the fourth quintile of the population.

The thermometer advances to the right as the number and severity of relevant abnormalities increases. The longer the filled bar, the greater the degree of significance or likelihood that a health threat may exist in that category. The preceeding laboratory results provide the detail upon which these thermometers are based.

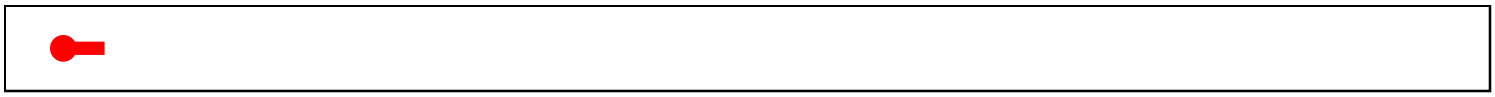
Cardiovascular System

Arginine	Homocysteine	Calcium	Magnesium ↓
Coenzyme Q10	alpha-Tocopherol	Lipid Peroxides	8-OHdG*
AA/EPA ↑			

Low Significance — High Significance

Fatigue

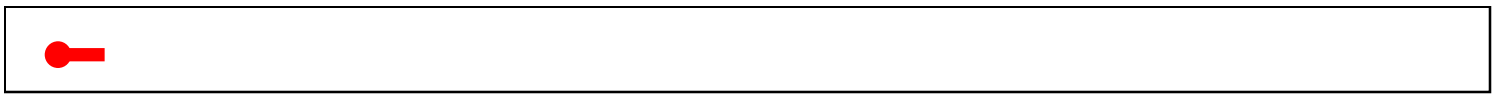
Isoleucine	Leucine	Phenylalanine	Valine
Magnesium ↓	Coenzyme Q10	Adipate	Suberate
α-Ketoglutarate	Succinate	Malate	Xanthurenate
Methylmalonate	Formiminoglutamate		



Low Significance — High Significance

Metabolic Syndrome (Syndrome X)

Magnesium ↓	Palmitic (16:0)	Stearic (18:0)	α-Hydroxybutyrate
β-Hydroxybutyrate	β-Hydroxyisovalerate		



Low Significance — High Significance

*8-OHdG = 8-Hydroxy-2-deoxyguanosine

3104 Cardio/ION Profile - Blood/Urine

Mental/Emotional

Tryptophan	Tyrosine	Magnesium ↓	Eicosapentanoic ↓
Docosahexaenoic	Xanthurenate	Methylmalonate	Formiminoglutamate
Vanilmandelate ↓	5-Hydroxyindoleacetate		

Low Significance — High Significance

Intestinal/Bacterial Metabolites

Phenylacetate	Phenylpropionate	p-Hydroxybenzoate	p-Hydroxyphenylacetate
Indican	Tricarballylate	D-Lactate	3,4-DHPP*

Low Significance — High Significance

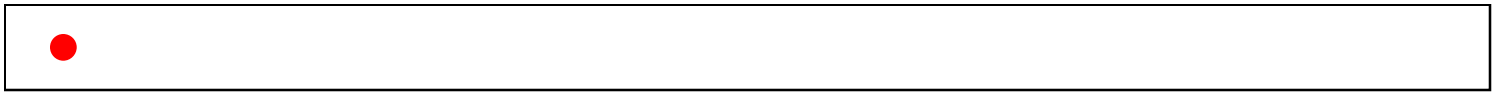
Intestinal Yeasts/FungalMetabolites

D-Arabinitol

Low Significance — High Significance

Digestion/Absorption

Arginine	Histidine	Isoleucine	Leucine
Lysine	Methionine	Phenylalanine	Threonine
Tryptophan	Valine	Selenium	



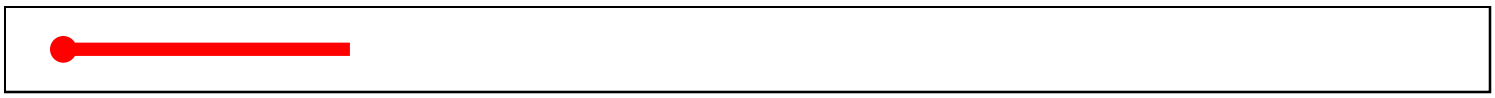
Low Significance — High Significance

*3,4-DHPP = 3,4-Dihydroxyphenylpropionate

3104 Cardio/ION Profile - Blood/Urine

Toxic Exposure

Aluminum	Arsenic	Cadmium	Lead
Mercury	Palmitelaidic (16:1n7t) ↑	Total C:18 Trans ↑	Citrate
Cis-Aconitate	Isocitrate	Quinolinate	2-Methylhippurate ↑
Orotate	Glucarate		



Low Significance — High Significance

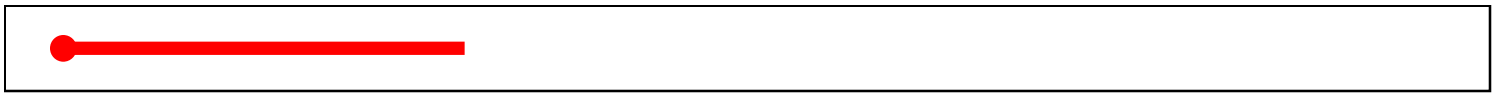
Detoxification Impairment

Methionine	Glycine	Serine	Taurine
Glutamine	Pyroglutamate ↓	Sulfate ↓	Benzoate

Low Significance — High Significance

Oxidative Stress/Antioxidant Insufficiency

Taurine	Selenium	Lead	Mercury
alpha-Tocopherol	gamma-Tocopherol	Vitamin A (Retinol)	β-Carotene
Lipid Peroxides	8-OHdG*	p-Hydroxyphenyllactate	Sulfate ↓



Low Significance — High Significance

Mitochondrial Functional Impairment

Magnesium ↓	Coenzyme Q10	Adipate	Suberate
Ethylmalonate	Pyruvate	L-Lactate	α-Hydroxybutyrate
β-Hydroxybutyrate	Succinate	Fumarate	Malate

Low Significance — High Significance

*8-OHdG = 8-Hydroxy-2-deoxyguanosine

3104 Cardio/ION Profile - Blood/Urine

Amino Acid Insufficiency

Arginine	Histidine	Isoleucine	Leucine
Lysine	Methionine	Phenylalanine	Threonine
Tryptophan	Valine	Sulfate ↓	

Low Significance — High Significance

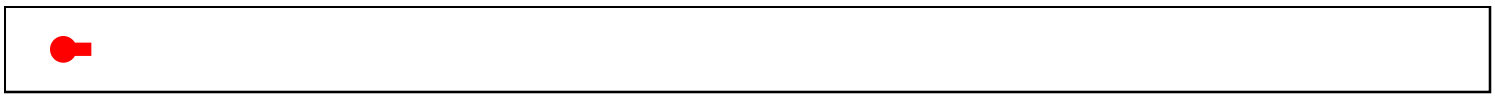
Essential Fatty Acid Insufficiency

Arachidonic	Alpha Linoleic ↓	Eicosapentaenoic ↓	Docosahexaenoic
Linoleic	Gamma Linolenic	Dihomogamma Linolenic	Palmitoleic ↑
Triene/Tetraene			

Low Significance — High Significance

Disordered Methyl Group (Single Carbon) Transfer

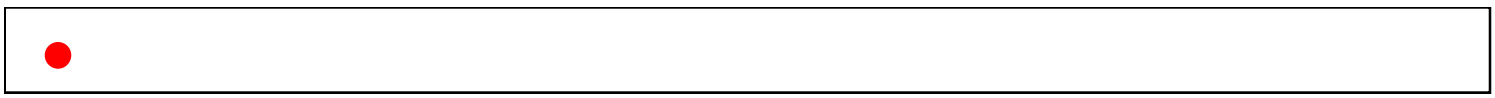
Homocysteine	Pentadecanoic ↑	Heptadecanoic ↑	Nonadecanoic
Tricosanoic	Xanthurenate	Methylmalonate	Formiminoglutamate
Kynurenate			



Low Significance — High Significance

Disordered Tryptophan Metabolism

Tryptophan	Xanthurenate	5-Hydroxyindoleacetate	Kynurenate
Quinolinate	Indican		



Low Significance — High Significance

3104 Cardio/ION Profile - Blood/Urine

Additional Considerations

This page is provided as a starting point that may guide decisions about medical treatment based on the test results. It is derived only from the laboratory results included in this report. Final recommendations should be based on consideration of the patient's medical history and current clinical condition.

Nutrient	Nutrient Need
Vitamin D	Moderate
N-Acetylcysteine	Low

Various conditionally essential nurients and other potentially beneficial interventions appear in this section only if relevant abnormalities are present.

3104 Cardio/ION Profile - Blood/Urine

General Supplement Ranges

These supplement ranges are not adjusted for age, sex, or gender.

Nutrient supplementation is at the discretion of the treating clinician. The supplement dose ranges provided below are meant for educational purposes only. These dosage ranges relate to findings commonly found on Genova's nutritional panels and do not apply to specific disease conditions where different dosages may be warranted.

Nutrient	Adult Dosage Range*
Vitamin A	0-5000 IU
Vitamin C	0-1000 mg
Vitamin D	0-2000 IU
Vitamin E (mixed tocopherols)	0-400 IU
Vitamin B-1 (Thiamin)	0-50 mg
Vitamin B-2 (Riboflavin)	0-50 mg
Vitamin B-3 (Niacin)	0-50 mg
Vitamin B-5 (Pantothenic Acid)	0-100 mg
Vitamin B-6 (Pyridoxine)	0-50 mg
Vitamin B-12 (Cobalamin)	0-1000 mcg
Folic Acid	0-1000 mcg
Biotin	0-400 mcg
Magnesium	0-400 mg
Zinc	0-25 mg
Selenium	0-200 mcg
Omega-3	0-3 gms
Carnitine	0-1000 mg
Coenzyme Q10	0-200 mg
Lipoic Acid	0-200 mg
N-Acetylcysteine	0-1000 mg
L-Arginine	0-1000 mg
Glycine	0-3000 mg
L-Glutamine	0-3000 mg
L-Isoleucine	0-500 mg
L-Leucine	0-1000 mg
L-Lysine	0-1000 mg
L-Methionine	0-500 mg
L-Phenylalanine	0-500 mg
Taurine	0-1000 mg
L-Tyrosine	0-1000 mg
L-Threonine	0-500 mg
L-Tryptophan	0-200 mg
L-Valine	0-500 mg

*Dosage ranges are adapted from the textbook *Nutritional Medicine* by Alan Gaby, M.D.[1]

1. Gaby AR. *Nutritional Medicine.* Vol 265: Fritz Perlberg Publishing; 2011.