

*Accession Number:*  
*Order Number:*  
*Reference Number:*  
*Patient:*  
*Age:*                      *Sex:*  
*Date of Birth:*  
*Date Collected:*  
*Date Received:*  
*Report Date:*  
*Telephone:*  
*Fax:*  
*Reprinted:*  
*Comment:*

**0290 Cardio/ION<sup>®</sup> Profile**

Ordering Physician:

Date Received:

Date Reported:

### Cardiovascular Health Profile - Serum, Plasma & Erythrocytes

Methodology: Automated Chemistry, Immunometric Assay, Competitive Immunology, HPLC, ICP-MS

Results

Reference Limits

#### Lipoprotein Factors

Total Cholesterol	394	H		< 200	mg/dL
HDL Cholesterol	105			>= 50	mg/dL
LDL Cholesterol (Direct)	275	H		< 130	mg/dL
Triglycerides	74			< 150	mg/dL
Lipoprotein (a)	45	H		<= 37	mg/dL

#### Lipoprotein Ratios

LDL/HDL	2.6	<= 3.3
Total/HDL	3.8	<= 4.5

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

\*Adapted from the Framingham Heart Study

#### Chronic Inflammatory Markers

Ferritin	59		6 - 159	ng/mL
Fibrinogen	350		175 - 425	mg/dL
c-Reactive Protein (HS)	2.1		<= 3.0	mg/L

Cardio CRP value (mg/L)	CHD Risk Level	* If the cardio CRP concentration exceeds 10 mg/L after repeat testing, the patient should be evaluated for noncardiovascular etiologies.
<1	Low	
1-3	Average	
>3 (up to 10)*	High	

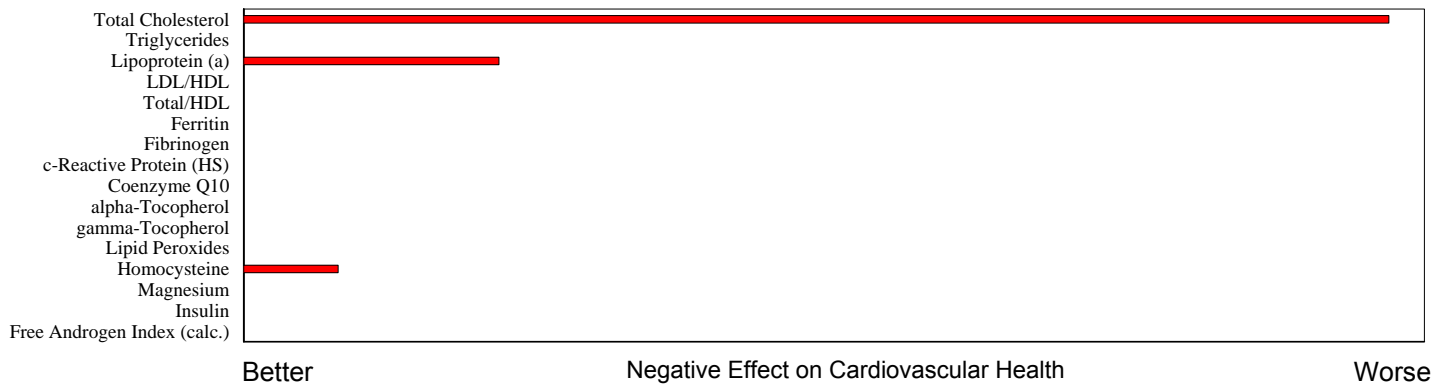
#### Other Important Indicators

Insulin	4.1		2.0 - 12.0	µIU/mL
Testosterone	30		<= 51	ng/dL
Sex Hormone Binding Globulin	46		18 - 114	nmol/L
Free Androgen Index (calc.)	2.3		<= 4.6	

Quintile Ranking: 1st | 2nd | 3rd | 4th | 5th | **95% Reference Interval**

Magnesium	44		34 - 63	ppm	
<b>Oxidant Stress Factors</b>					
Homocysteine	10.8	H		3.0 - 14.0	nmol/mL
Coenzyme Q10	0.80			0.48 - 3.04	mg/L
alpha-Tocopherol	12.5			6.8 - 31.7	mg/L
gamma-Tocopherol	0.67			0.06 - 2.99	mg/L
Lipid Peroxides	0.70			<= 2.60	nmol/mL

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



Most of the nutritional and metabolic measurements included in the Cardio/ION profile are associated to some degree with your cardiovascular health. However, those shown on the previous page of this report are ones that most strongly and specifically affect your cardiovascular health. Some factors are favorable for cardiac health when they are high, while others should be low. The chart above helps you to see where the most significant abnormalities are; the longest bars on the chart show the most abnormal results on a scale of increasing negative effects on cardiovascular health.

The "Cardiovascular Index" chart below shows your test results with all of the factors summarized as a single index. Depending on your results, some steps that your doctor may want you to take to improve your cardiovascular health are shown in the tables of recommendations at the end of these pages. It is important that you follow your doctor's instructions to achieve the lowest index.

**Cardiovascular Index = 2.8**



- These guidelines are intended as a starting point for the clinician who requested the test and are based only on the laboratory results included in this report. Final recommendations should be implemented by the clinician with consideration of medical history and current clinical observations.
- These tests are not intended for the diagnosis of specific disorders.

Ordering Physician:

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Date Reported:

### Amino Acids 20 Profile - Plasma

Methodology: High Performance Liquid Chromatography

Ranges: Ages 13 and over.

#### Essential Amino Acids

##### Limiting Amino Acids

	Results µmol/L	Quintile Ranking	95% Reference Interval
		1st   2nd   3rd   4th   5th	
1 Lysine	158	117   203	99 - 234
2 Methionine	17	16   26	14 - 30
3 Tryptophan	49	35   59	30 - 67

##### Branched Chain Amino Acids

4 Isoleucine	63	40   72	33 - 89
5 Leucine	113	80   137	68 - 161
6 Valine	225	143   240	123 - 282

##### Other Essential Amino Acids

7 Phenylalanine	44	43   64	39 - 74
8 Histidine	65	48   72	41 - 82
9 Threonine	88	76   151	63 - 181

##### Conditionally Essential Amino Acids

10 Arginine	65	48   96	37 - 114
11 Taurine	49	31   73	26 - 100
12 Glycine	300	162   348	136 - 430
13 Serine	114	66   115	57 - 133

**Amino Acids 20 Profile - Plasma**

Methodology: High Performance Liquid Chromatography

Ranges are for ages 13 and over.

**Functional Categories**

**Vascular Function**

	Results µmol/L	Quintile Ranking	95% Reference Interval
		1st   2nd   3rd   4th   5th	
14 Arginine	65	48   96	37 - 114
15 Taurine	49	31   73	26 - 100

**Neurotransmitters and Precursors**

16 Phenylalanine	44	43   64	39 - 74
17 Tyrosine	41	38   70	29 - 80
18 Tryptophan	49	35   59	30 - 67
19 Glutamic Acid	51	29   95	23 - 136
20 Taurine	49	31   73	26 - 100

**Sulfur Amino Acids (Glutathione - related)**

21 Methionine	17	16   26	14 - 30
22 Taurine	49	31   73	26 - 100

**Urea Cycle and Ammonia Detoxification**

23 Arginine	65	48   96	37 - 114
24 Citrulline	17 <b>L</b>	20   38	15 - 44
25 Ornithine	39	32   81	23 - 109
26 Glutamine	544	397   585	338 - 630
27 Asparagine	38	30   49	26 - 56
28 Aspartic Acid	7.0	4.8   9.7	4.2 - 12.5

**Ratios**

29 Phenylalanine/Tyrosine	1.07	1.44	<= 1.44
30 Glutamic Acid/Glutamine	0.09	0.06   0.21	0.05 - 0.35
31 Tryptophan/LNAA*	0.101	0.100   0.106	0.095 - 0.106

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

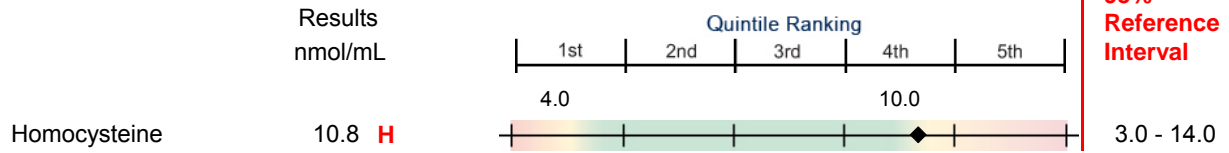
Ordering Physician:

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Date Reported:

**Homocysteine Assay - Plasma**

Methodology: Competitive Immunoassay



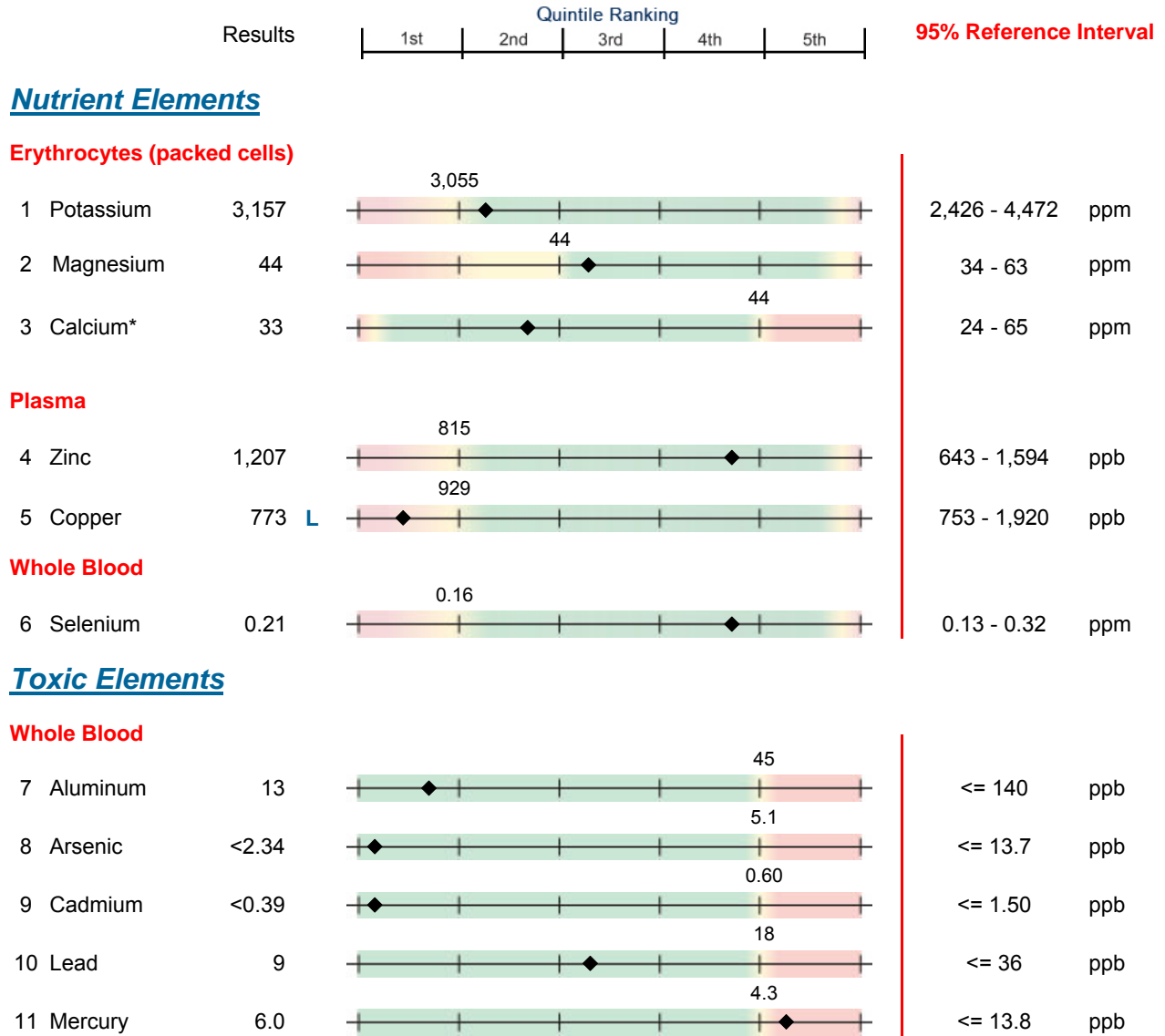
Ordering Physician:

Date Received:

Date Reported:

### Nutrient & Toxic Elements Profile - Blood

Methodology: Inductively Coupled Plasma /Mass Spectroscopy



\*Relevant to membrane permeability, not nutritional status.

Toxic metals are flagged high when the result is above the 95% Reference Interval. Results for whole blood toxic elements that are within normal limits do not rule out metal accumulation in other tissues. This can be evaluated with urinary porphyrin or urine elements tests.

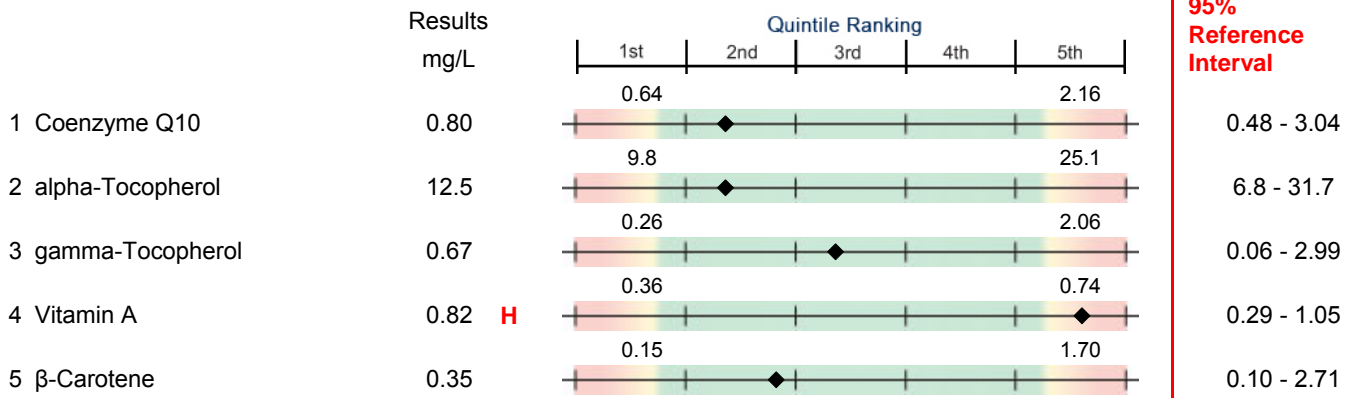
Ordering Physician:

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### CoEnzyme Q10 Plus Vitamins Profile - Serum

Methodology: High Performance Liquid Chromatography



### Lipid Peroxide Assay - Serum

Methodology: High Performance Liquid Chromatography



### DNA/Oxidative Stress Marker Assay - Urine

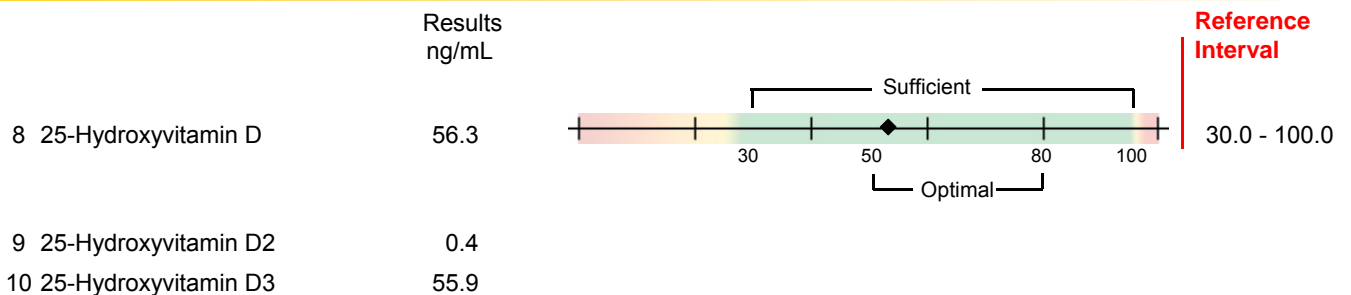
Methodology: LC/Tandem Mass Spectroscopy, Colorimetric

Ranges are for ages 13 and over.



### Vitamin D Profile - Serum

Methodology: LC/Tandem Mass Spectroscopy



Total 25-Hydroxyvitamin D is considered the best assessment of vitamin D status. The test reflects vitamin D from all sources (diet, supplements, and sun exposure). A 2011 Endocrine Society Clinical Practice Guideline suggested vitamin D deficiency be defined as < 20 ng/ml, insufficiency as 21-29 ng/ml, and sufficiency as 30-100 ng/ml.<sup>1</sup> The Vitamin D Council has proposed 50-80 ng/ml as optimal, and 100 ng/ml as an upper limit.<sup>2</sup> 25-Hydroxyvitamin D3 is from sun exposure, vitamin D-rich foods, or vitamin D3 supplements. 25-Hydroxyvitamin D2 is only from fortified foods or supplements.

- Holick MF, Binkley, NC, Bischoff-Ferrari, HA, et al. Evaluation, treatment, and prevention of vitamin D deficiency: an Endocrine Society clinical practice guideline. *J Clin Endocrinol Metab.* July 2011, 96(7):1911-1930.
- Vitamin D Council <http://www.vitamindcouncil.org>.

Conversion factors: nmol/L = ng/mL x 2.5 | ng/mL = nmol/L x 0.4

\* <DL = less than detection limit



Ordering Physician:

Date Received:

Date Reported:

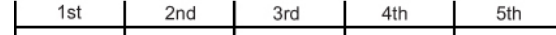
### Fatty Acids Profile - Plasma

Methodology: Capillary Gas Chromatography/Mass Spectrometry

Ranges: Ages 13 and over.

Results  
µmol/L

Quintile Ranking



95%  
Reference  
Interval

#### Polyunsaturated Omega-3

1	Alpha Linolenic (18:3n3)	18 L	20	13 - 80
2	Eicosapentaenoic (20:5n3)	10 L	17	5 - 210
3	Docosapentaenoic (22:5n3)	11 L	16	11 - 50
4	Docosahexaenoic (22:6n3)	32 L	59	31 - 213

#### Polyunsaturated Omega-6

5	Linoleic (18:2n6)	642 L	930, 1,669	821 - 2,032
6	Gamma Linolenic (18:3n6)	11	7, 33	5 - 46
7	Eicosadienoic (20:2n6)	5.1 L	6.4, 15.3	5.2 - 22.5
8	Dihomogamma Linolenic (20:3n6)	35	34, 102	27 - 140
9	Arachidonic (20:4n6)	209	201, 451	158 - 521
10	Docosadienoic (22:2n6)	<0.23	0.9	<= 2.0
11	Docosatetraenoic (22:4n6)	4.6	3.7, 13.8	2.6 - 18.1

#### Polyunsaturated Omega-9

12	Mead (20:3n9)	2.9	5.3	<= 8.3
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#### Monounsaturated

13	Myristoleic (14:1n5)	2.0	1.2, 6.1	0.8 - 9.7
14	Palmitoleic (16:1n7)	28 L	40, 155	30 - 256
15	Vaccenic (18:1n7)	26 L	48, 93	40 - 122
16	Oleic (18:1n9)	561	555, 1,182	466 - 1,470
17	11-Eicosenoic (20:1n9)	2.6 L	4.6, 10.3	3.7 - 18.1
18	Nervonic (24:1n9)	<1.1 L	1.1, 2.2	1.1 - 2.7

**Fatty Acids Profile - Plasma**

Methodology: Capillary Gas Chromatography/Mass Spectrometry

Ranges: Ages 13 and over.

**Saturated**

	Results µmol/L	Quintile Ranking	95% Reference Interval
		1st   2nd   3rd   4th   5th	
19 Capric (10:0)	4.8 <b>H</b>	1.4         4.0	0.7 - 6.2
20 Lauric (12:0)	6.9	3.3         14.5	2.2 - 27.3
21 Myristic (14:0)	34	20         87	15 - 139
22 Palmitic (16:0)	924	792         1,794	667 - 2,526
23 Stearic (18:0)	367	294         511	250 - 629
24 Arachidic (20:0)	1.7	1.5         3.2	1.3 - 4.7
25 Behenic (22:0)	0.9	0.8         2.0	0.6 - 2.9
26 Lignoceric (24:0)	0.86	0.84         1.66	0.63 - 2.45
27 Hexacosanoic (26:0)	<0.27	0.36	<= 0.43

**Odd Chain**

28 Pentadecanoic (15:0)	7.8	14.5	<= 20.6
29 Heptadecanoic (17:0)	9.7	19.3	<= 24.4
30 Nonadecanoic (19:0)	0.91	1.51	<= 1.89
31 Heneicosanoic (21:0)	<0.38	0.50	<= 0.74
32 Tricosanoic (23:0)	<0.37	0.62	<= 0.78

**Trans**

33 Palmitelaidic (16:1n7t)	<0.4	0.4	<= 1.8
34 Total C:18 Trans	35	42	<= 59

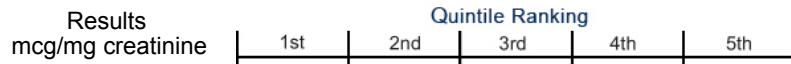
**Ratios**

35 LA/DGLA	18	30	11 - 46
36 EPA/DGLA	0.29	0.24	0.07 - 5.98
37 AA/EPA	21 <b>H</b>	20	1 - 57
38 Triene/Tetraene	0.014	0.016	<= 0.023

**Organix® Comprehensive Profile - Urine**

Methodology: LC/Tandem Mass Spectroscopy, Colorimetric

Ranges: Ages 13 and over.



**95%  
Reference  
Interval**

**Nutrient Markers**

**Fatty Acid Metabolism**

(Carnitine & B2)



**Carbohydrate Metabolism**

(B1, B3, Cr, Lipoic Acid, CoQ10)



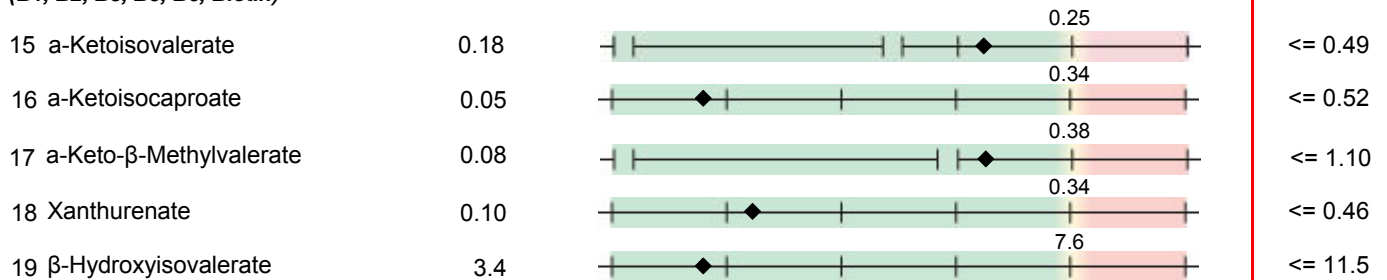
**Energy Production (Citric Acid Cycle)**

(B comp., Q10, Amino acids, Mg)



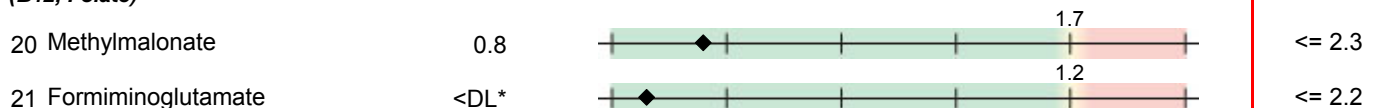
**B-Complex Vitamin Markers**

(B1, B2, B3, B5, B6, Biotin)



**Methylation Cofactor Markers**

(B12, Folate)



**Organix® Comprehensive Profile - Urine**

Methodology: LC/Tandem Mass Spectroscopy, Colorimetric

Ranges: Ages 13 and over.



**95%  
Reference  
Interval**

**Cell Regulation Markers**

**Neurotransmitter Metabolism Markers**

(Tyrosine, Tryptophan, B6, antioxidants)

Item	Results	Quintile Ranking	95% Reference Interval
22 Vanilmandelate	1.0 L	1.6 - 3.9	1.2 - 5.3
23 Homovanillate	1.4 L	1.9 - 5.7	1.4 - 7.6
24 5-Hydroxyindoleacetate	2.1	2.1 - 5.6	1.6 - 9.8
25 Kynurenate	0.3	1.0	<= 1.5
26 Quinolinate	2.3	4.0	<= 5.8
27 Picolinate	2.8	8.0	2.8 - 13.5

**Oxidative Damage and Antioxidant Markers**

(Vitamin C and other antioxidants)

28 p-Hydroxyphenyllactate	0.19	0.39	<= 0.66
29 8-Hydroxy-2-deoxyguanosine	2.0	5.3	<= 7.6

(Units for 8-Hydroxy-2-deoxyguanosine are ng/mg creatinine).

**Toxicants and Detoxification**

**Detoxification Indicators**

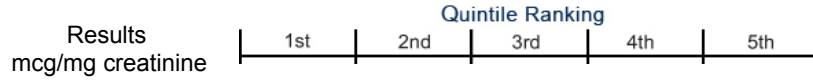
(Arg, NAC, Met, Mg and antioxidants)

30 2-Methylhippurate	0.087 H	0.084	<= 0.192
31 Orotate	0.16	0.69	<= 1.01
32 Glucarate	1.1	6.3	<= 10.7
33 a-Hydroxybutyrate	0.2	0.3	<= 0.9
34 Pyroglutamate	34	59	28 - 88
35 Sulfate	938 L	958 - 2,347	690 - 2,988

**Organix® Comprehensive Profile - Urine**

Methodology: LC/Tandem Mass Spectroscopy, Colorimetric

Ranges: Ages 13 and over.



**Compounds of Bacterial or Yeast/Fungal Origin**

**Bacterial - general**

Item	Results	Quintile Ranking	Reference Range
36 Benzoate	5.2 <b>H</b>	0.6	<= 9.3
37 Hippurate	8	548	<= 1,070
38 Phenylacetate	<DL*	0.11	<= 0.18
39 Phenylpropionate	<DL*		<= 0.06
40 p-Hydroxybenzoate	0.6	1.1	<= 1.8
41 p-Hydroxyphenylacetate	<DL*	19	<= 34
42 Indican	5	64	<= 90
43 Tricarballoylate	0.56	0.73	<= 1.41

**L. acidophilus / general bacterial**

44 D-Lactate	1.9	1.9	<= 4.3
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**Clostridial species**

45 3,4-Dihydroxyphenylpropionate	<DL*		<= 0.05
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**Yeast / Fungal**

46 D-Arabinitol	12	36	<= 73
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Creatinine = 200 mg/dL

\* <DL = less than detection limit

\*\* >LIN = greater than linearity limit

## 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 H or L appears when the patient result is in the fifth quintile (80%) of the population. An additional X next to an analyte indicates that the patient result is outside the 95% reference interval for that analyte.

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 preceding laboratory reports provide the detail upon which these thermometers are based.

### Cardiovascular System

Arginine	Homocysteine <b>H</b>	Calcium	Magnesium
CoQ10	a-Tocopherol	Lipid Peroxide	8-OHdG
AA/EPA <b>H</b>			



Low significance

High significance

### Fatigue

Isoleucine	Leucine	Phenylalanine	Valine
Magnesium	CoQ10	Adipate	Suberate
AKG	Succinate <b>H</b>	Malate	Xanthurenate
MeMalonate	FIGLU		

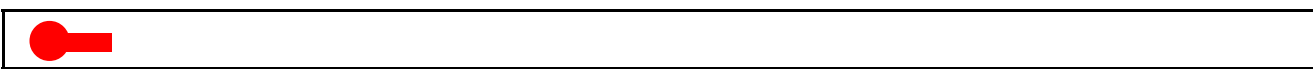


Low significance

High significance

### Metabolic Syndrome (Syndrome X)

Magnesium	Palmitic	Stearic	AHB
BHB	BHiVal		



Low significance

High significance

### Mental/Emotional

Tryptophan	Tyrosine	Magnesium	EPA <b>L</b>
DHA <b>L</b>	Xanthurenate	MeMalonate	FIGLU
VMA <b>L X</b>	5-HIA		



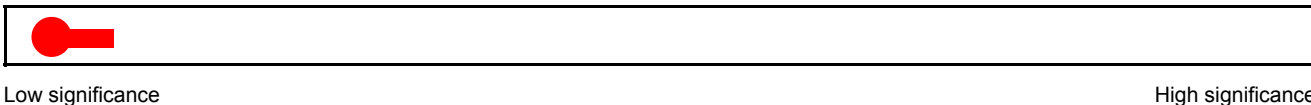
Low significance

High significance

# ION Analyte Pattern Analysis

## Intestinal Bacterial Metabolites

PhAc	PhProp	pOHBenz	pOHPhAc
Indican	Tricarb	D-Lactate	3,4-DHPP

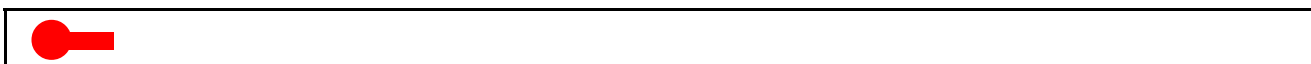


Low significance

High significance

## Intestinal Yeasts / Fungal Metabolites

D-Arabinitol

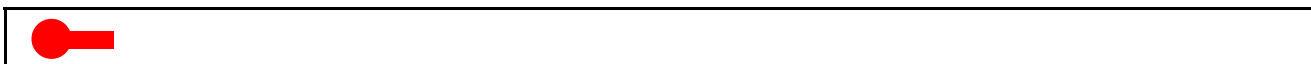


Low significance

High significance

## Digestion/Absorption

Arginine	Histidine	Isoleucine	Leucine
Lysine	Methionine	Phenylalanine	Threonine
Tryptophan	Valine	Selenium	

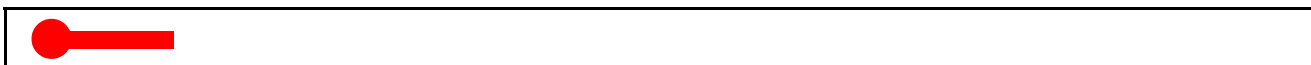


Low significance

High significance

## Toxic Exposure

Aluminum	Arsenic	Cadmium	Lead
Mercury	Palmitelaidic	C18TrFa	Citrate <b>H</b>
Cis-Aconitate	Isocitrate	Quinolate	2-MeHipp <b>H</b>
Orotate	Glucarate		

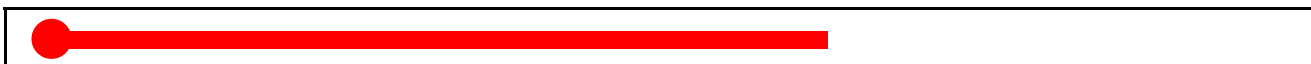


Low significance

High significance

## Detoxification Impairment

Methionine	Glycine	Serine	Taurine
Glutamine	Pyroglutamate	Sulfate <b>L</b>	Benzoate <b>H</b>



Low significance

High significance

# ION Analyte Pattern Analysis

## Oxidative Stress/Antioxidant Insufficiency

Taurine	Selenium	Lead	Mercury	<b>H</b>
a-Tocopherol	g-Tocopherol	Vitamin A	b-Carotene	
Lipid Peroxide	8-OHdG	pOHPHac	Sulfate	<b>L</b>

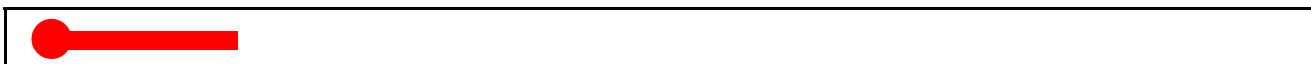


Low significance

High significance

## Mitochondrial Functional Impairment

Magnesium	CoQ10	Adipate	Suberate
Ethylmalonate	Pyruvate	L-Lactate	AHB
BHB	Succinate	Fumarate	Malate

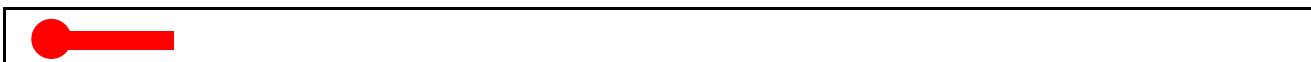


Low significance

High significance

## Amino Acid Insufficiency

Arginine	Histidine	Isoleucine	Leucine
Lysine	Methionine	Phenylalanine	Threonine
Tryptophan	Valine	AKG	Succinate
Sulfate	<b>L</b>		<b>H</b>

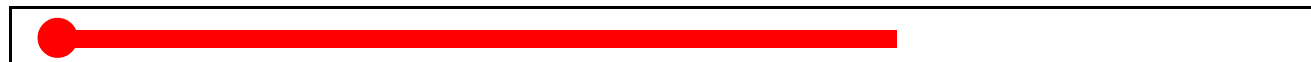


Low significance

High significance

## Essential Fatty Acid Insufficiency

AA	ALA	<b>L</b>	EPA	<b>L</b>	DHA	<b>L</b>
LA	<b>LX</b>	GLA	DGLA		Palmitoleic	
Triene/Tetraene						



Low significance

High significance

## Disordered Methyl Group (Single carbon) Transfer

Homocysteine	<b>H</b>	Pentadeca	Heptadeca	Nonadecanoic
Tricosanoic		Xanthurenate	MeMalonate	FIGLU
Kynurenate				



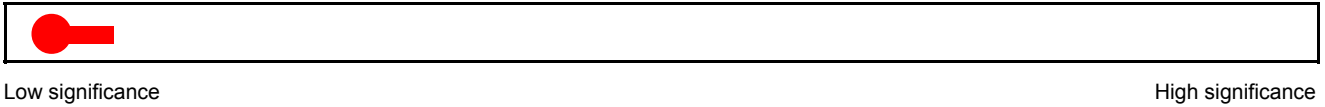
Low significance

High significance



## Disordered Tryptophan Metabolism

Tryptophan	Xanthurenate	5-HIA	Kynurenate
Quinolinate	Indican		



<u>Abbreviation</u>	<u>Analyte Name</u>	<u>Abbreviation</u>	<u>Analyte Name</u>
2-MeHipp	2-Methylhippurate	FIGLU	Formiminoglutamate
5-HIA	5-Hydroxyindoleacetate	g-Tocopherol	gamma-Tocopherol
8-OhdG	8-Hydroxy-2-deoxyguanosine	GLA	Gamma Linoleic (18:3n6)
AA/EPA	Arachidonic (20:4n6)/Eicosapentaenoic (20:5n3)	Heptadeca	Heptadecanoic (17:0)
AHB	a-Hydroxybutyrate	Hcys	Homocysteine
AKG	a-ketoglutarate	HVA	Homovanillate
aKbMeVal	a-Keto-β-Methylvalerate	HMG	Hydroxymethylglutarate
aKiCap	a-Ketoisocaproate	LA	Linoleic (18:2n6)
aKiVal	a-Ketoisovalerate	MeMalonate	Methylmalonate
ALA	Alpha Linolenic (18:3n3)	Pentadeca	Pentadecanoic (15:0)
a-Tocopherol	alpha-Tocopherol	PhAc	Phenylacetate
BHB	β-Hydroxybutyrate	PhProp	Phenylpropionate
BHiVal	β-Hydroxyisovalerate	pHBenz	p-Hydroxybenzoate
C18TrFa	Total C:18 Trans	pHPhAc	p-Hydroxyphenylacetate
CoQ10	Coenzyme Q10	pHPhLac	p-Hydroxyphenyllactate
DGLA	Dihomogamma Linolenic (20:3n6)	Total C:18	Total c:18 Trans
DHA	Docosahexanoic (22:6n3)	Tricarb	Tricarallylate
3,4-DHPP	3,4-Dihydroxyphenylpropionate	Triene/Tetraene	Mead/Arachidonic Ratio
EPA	Eicosapentaenoic (20:5n3)	VMA	Vanilmandelate

## Supplement Recommendation Summary

With knowledge of a patient's full medical history and concerns, the ION Profile laboratory results may be used to help create an individually optimized nutritional support program. Based strictly on the results from this test, the summary table below shows estimates of nutrient doses that may help to normalize nutrient-dependent metabolic functions.

### Customized Vitamin and Mineral Formulation

Nutrients listed in this section are normally contained in a multi-vitamin preparation. "Base" amounts may be used to ensure health even when no abnormalities are found.

Customized preparations of the multi-vitamin/mineral formula shown below may be produced by compounding pharmacies.

	Daily Amounts	
	Base	Units Added
Vitamin A	2500 IU	
B-Carotene	5500 IU	
Vitamin C	250 mg	500 mg
Vitamin D	400 IU	
Vitamin E (Mixed Tocopherols)	100 IU	200 IU
Vitamin K*	100 mcg	
Thiamin (B1)	5 mg	
Riboflavin (B2)	5 mg	10 mg
Niacin (B3)	25 mg	
Pyridoxine (B6)	15 mg	50 mg
Folic Acid (or 5-Methyl-THF)	400 mcg	500 mcg
Vitamin B12	50 mcg	800 mcg
Biotin	100 mcg	600 mcg
Pantothenic Acid (B5)	25 mg	
Calcium Citrate	500 mg	
Iodine*	75 mcg	
Magnesium	250 mg	200 mg
Zinc	15 mg	
Selenium	100 mcg	50 mcg
Copper	1 mg	2 mg
Manganese*	5 mg	
Chromium	200 mcg	
Molybdenum*	25 mcg	
Boron*	1 mg	

\* Nutrients with an asterisk are not modified based on the ION test results.

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### ***Other Items Indicated for Individual Supplementation***

Various conditionally essential nutrients and other potentially beneficial interventions appear in this section only if relevant abnormalities are present. These ingredients are not included in the customized vitamin formula on the previous page.

Amino acids listed on this page result from functional markers of individual amino acid insufficiency and do not reflect amino acids measured in plasma.

<b>Item</b>	<b>Amount</b>
<b>Arginine</b>	500 mg
<b>Coenzyme Q10</b>	60 mg
<b>Fish Oil</b>	6 gm
<b>Glycine</b>	3000 mg
<b>N-Acetylcysteine</b>	400 mg

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## Customized Free-Form Amino Acids

The table below shows a customized amino acid formula based on the results of your laboratory profile. The formula is optimized by adding amounts shown in the Grams Added column according to the relative positions of results found.

Directions: Adults mix 1 and 1/2 measuring teaspoon (5g) in juice or water 2 times daily between meals as a dietary supplement, or as directed by a health care provider. Children under 12 years old: 3/4 teaspoon 1-2 times daily between meals. Children under 5 years old: Use 1/4 teaspoon, 1-3 times daily; adjust for body weight.

	Grams Added	% of Formula	Active mg/day
L-Arginine HCl (80% active)	1	10.65	852
L-Histidine HCl (74% active)	0	11.99	887
L-Isoleucine	0	8.25	825
L-Leucine	0	11.33	1,133
L-Lysine HCl (80% active)	0	10.32	826
L-Methionine	2	7.43	743
L-Phenylalanine	4	12.66	1,266
Taurine	0	0.00	0
L-Threonine	2	7.78	778
L-Tryptophan	0	1.94	194
L-Valine	0	9.92	992
Pyridoxal-5-phosphate	0	0.27	26
Alpha-ketoglutaric acid	0	7.69	746

Total grams added	9
Base Formula amount	291
Total Weight	300

<input checked="" type="checkbox"/> <input type="checkbox"/>	L-5-Hydroxytryptophan	0	0.65	39
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This formula is intended to optimize essential and conditionally essential amino acid intake. Other non-essential amino acids can be produced in human tissues. Pyridoxal-5-phosphate (an active form of vitamin B6) and alpha-ketoglutaric acid are key factors needed for the body's utilization of amino acids.

The formula may be ordered as a powder that dissolves easily in beverages or may be added to foods such as applesauce. Other forms of supplemental dietary protein or amino acids may need to be restricted while using your customized formula. If enhanced energy levels prevent sleep, avoid bedtime use.

This formula 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.

In addition to the above customized amino acid formula, this patient may benefit from further use of single amino acids, as evidenced by profiles other than plasma amino acids. See the category, "Other Indicated Nutrients" on your Supplement Recommendation Summary Page.