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Ordering Physician:

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*Accession Number:* **A1202070014**  
*Reference Number:*  
*Patient:* **Sample Report**  
*Age:* **50** *Sex:* **Female**  
*Date of Birth:* **02/05/1962**  
*Date Collected:* **2/6/12**  
*Date Received:* **2/7/12**  
*Report Date:* **2/13/12**  
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*Reprinted:* **5/8/12**  
*Comment:*

**0090 ION Profile**

**Amino Acid Analysis - 20 Plasma**

Methodology: ION Exchange HPLC

Ranges: Ages 13 and over.

**Essential Amino Acids**

**Limiting Amino Acids**

	Results umol/L	Quintile Ranking					95% Reference Interval
		1st	2nd	3rd	4th	5th	
1 Lysine	164	117				203	99 - 234
2 Methionine	24	16				26	14 - 30
3 Tryptophan	40	35				59	30 - 67

**Branched Chain Amino Acids**

4 Isoleucine	39 L	40				72	33 - 89
5 Leucine	75 L	80				137	68 - 161
6 Valine	133 L	143				240	123 - 282

**Other Essential Amino Acids**

7 Phenylalanine	51	43				64	39 - 74
8 Histidine	45 L	48				72	41 - 82
9 Threonine	98	76				151	63 - 181

**Conditionally Essential Amino Acids**

10 Arginine	71	48				96	37 - 114
11 Taurine	43	31				73	26 - 100
12 Glycine	194	162				348	136 - 430
13 Serine	84	66				115	57 - 133

**Amino Acid Analysis - 20 Plasma**

Methodology: ION Exchange HPLC

Ranges: Ages 13 and over.

**Functional Categories**

**Vascular Function**

Results umol/L	Quintile Ranking	95% Reference Interval
	1st   2nd   3rd   4th   5th	
14 Arginine 71	48  -----  96	37 - 114
15 Taurine 43	31  -----  73	26 - 100

**Neurotransmitters and Precursors**

16 Phenylalanine 51	43  -----  64	39 - 74
17 Tyrosine 54	38  -----  70	29 - 80
18 Tryptophan 40	35  -----  59	30 - 67
19 Glutamic Acid 88	29  -----  95	23 - 136
20 Taurine 43	31  -----  73	26 - 100

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

21 Methionine 24	16  -----  26	14 - 30
22 Taurine 43	31  -----  73	26 - 100

**Urea Cycle and Ammonia Detoxification**

23 Arginine 71	48  -----  96	37 - 114
24 Citrulline 30	20  -----  38	15 - 44
25 Ornithine 70	32  -----  81	23 - 109
26 Glutamine 469	397  -----  585	338 - 630
27 Asparagine 27 L	30  -----  49	26 - 56
28 Aspartic Acid 9.0	4.8  -----  9.7	4.2 - 12.5

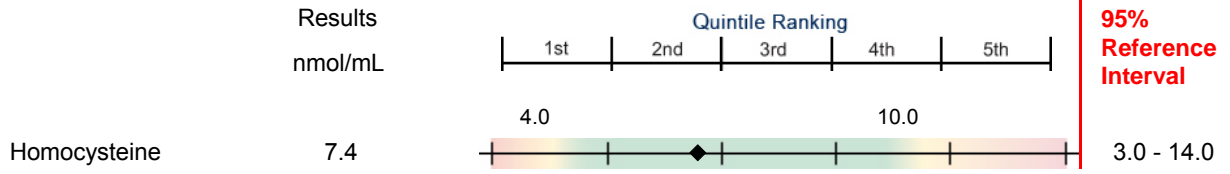
**Ratios**

29 Phenylalanine/Tyrosine 0.94	0.06  -----  1.44	<= 1.44
30 Glutamic Acid/Glutamine 0.19	0.06  -----  0.21	0.05 - 0.35
31 Tryptophan/LNAA* 0.103	0.100  -----  0.106	0.095 - 0.106

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

**Homocysteine**

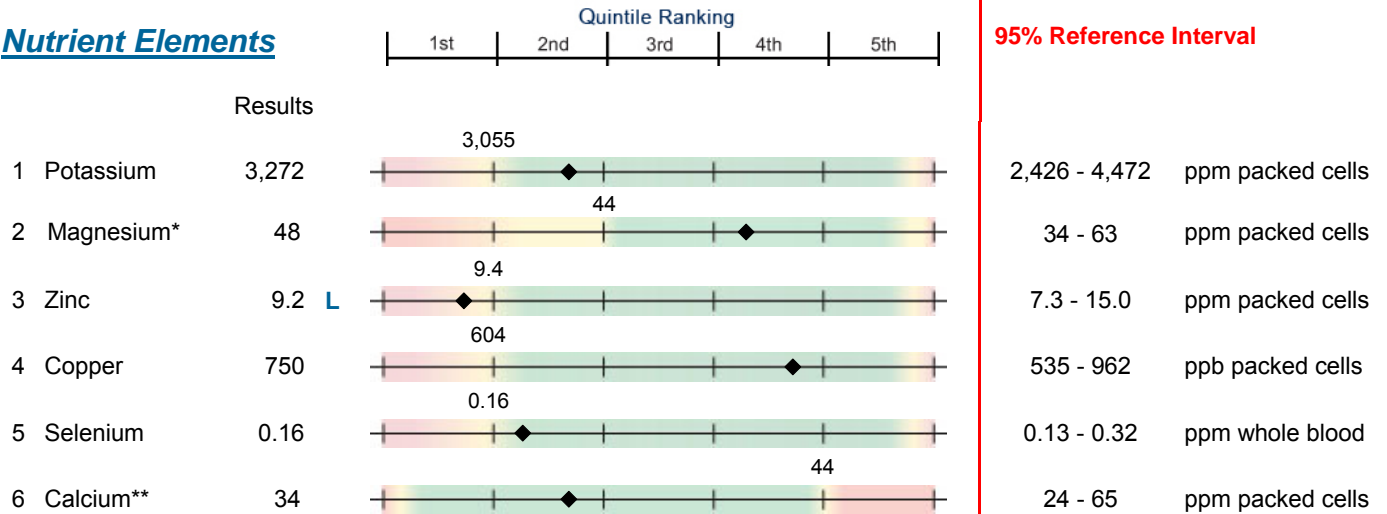
Methodology: Competitive Immunoassay



**Element - Erythrocytes and Whole Blood**

Methodology: Inductively Coupled Plasma /Mass Spectroscopy

**Nutrient Elements**



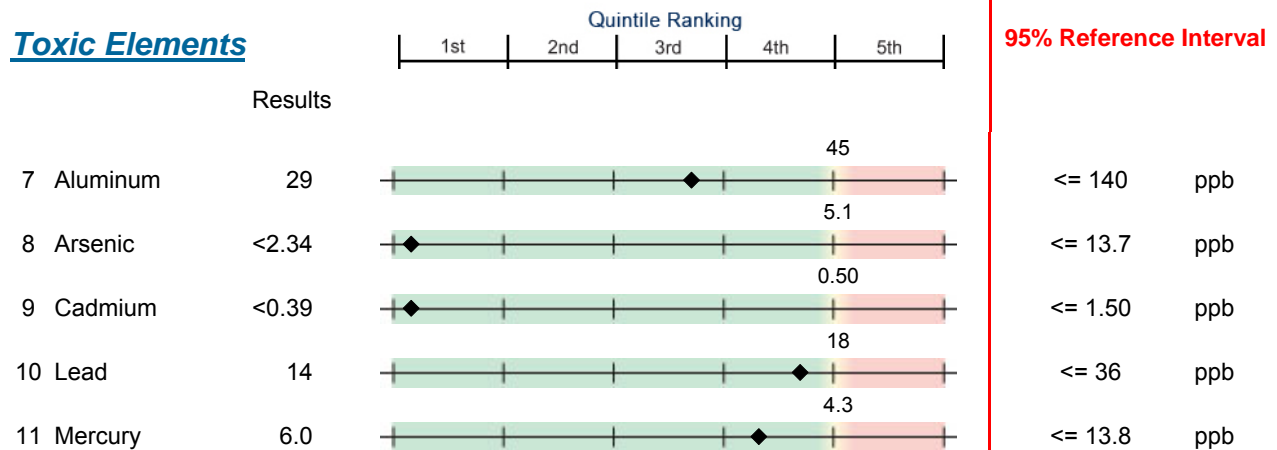
\*The expanded abnormal range approximates the population at risk for magnesium insufficiency disorders. See: Johnson S, Med Hypotheses. Feb 2001;56(2):163-170.

\*\*Relevant to membrane permeability, not nutritional status.

**Element - Erythrocytes and Whole Blood**

Methodology: Inductively Coupled Plasma /Mass Spectroscopy

**Toxic Elements**



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 by urinary porphyrin or 24-hour urine chelation challenge tests.

**Lead Levels Considered Elevated in Adults (1)**

- ◆ At levels above 800 ppb serious, permanent health damage may occur.
- ◆ Between 400 and 800 ppb serious health damage may be occurring, even if there are no symptoms.
- ◆ Between 250 and 400 ppb regular exposure is occurring. There is some evidence of potential physiological problems.
- ◆ Between 100 and 250 ppb exposure is occurring and may be building up in the body .

In children, lead levels even below 100 ppb are associated with IQ deficits (2) and in adults, levels as low as 50-90 ppb cause an increased risk of death from all causes, cardiovascular disease and cancer. (3)

(1) Lead Exposure in Adults. A Guide for Health Care Providers, State of New York, Department of Public Health.

(2) Lanphear BP, Hornung R, Khoury J, et al. Low-level environmental lead exposure and children's intellectual function: an international pooled analysis. *Environ Health Perspect.* Jul 2005;113(7):894-899.

(3) Schober, Susan et al. Blood Lead Levels and Death from All Causes, Cardiovascular Disease, and Cancer: Results from the NHANES IV Mortality Study. *Environmental Health Perspect.* Oct 2006; 114(10):1538-1541.

**CoEnzyme Q10 Plus Vitamin Panel - Serum**

Methodology: High Performance Liquid Chromatography

Ranges: Ages 13 and over.

	Results	Quintile Ranking					95% Reference Interval
	mg/L	1st	2nd	3rd	4th	5th	
1 Coenzyme Q10	1.03	0.64				2.16	0.48 - 3.04
2 alpha-Tocopherol	8.6 L	9.8				25.1	6.8 - 31.7
3 gamma-Tocopherol	1.11	0.26				2.06	0.06 - 2.99
4 Vitamin A	0.56	0.36				0.74	0.29 - 1.05
5 β-Carotene	0.21	0.15				1.70	0.10 - 2.71

**Lipid Peroxide - Serum**

Methodology: High Performance Liquid Chromatography

	Results		95% Reference Interval
	nmol/mL		
6 Lipid Peroxides	1.25	1.72	<= 2.60

**8-Hydroxy-2 deoxyguanosine - Urine**

Methodology: LC/Tandem Mass Spectroscopy, Colorimetric

Ranges: Ages 13 and over.

	Results		95% Reference Interval
	ng/mg creatinine		
7 8-Hydroxy-2-deoxyguanosine	2.6	5.3	<= 7.6

**Vitamin D - Serum**

Methodology: LC/Tandem Mass Spectroscopy

	Results		Reference Interval
	ng/mL		
8 25-Hydroxyvitamin D	80	Sufficient: 30-100 Optimal: 50-80	30 - 100
9 25-Hydroxyvitamin D2	30		
10 25-Hydroxyvitamin D3	50		

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

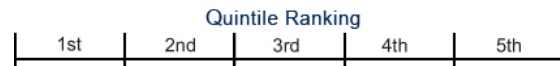
**Fatty Acids - Plasma**

Methodology: Capillary Gas Chromatography/Mass Spectrometry

Ranges: Ages 13 and over.

Results

uM



95%  
Reference  
Interval

**Polyunsaturated Omega-3**

Item	Value	Reference Interval
1 Alpha Linolenic (18:3n3)	41	13 - 80
2 Eicosapentaenoic (20:5n3)	18	5 - 210
3 Docosapentaenoic (22:5n3)	11 L	11 - 50
4 Docosahexaenoic (22:6n3)	19 L	31 - 213

**Polyunsaturated Omega-6**

Item	Value	Reference Interval
5 Linoleic (18:2n6)	454 L	821 - 2,032
6 Gamma Linolenic (18:3n6)	10	5 - 46
7 Eicosadienoic (20:2n6)	4.5 L	5.2 - 22.5
8 Dihomogamma Linolenic (20:3n6)	13 L	27 - 140
9 Arachidonic (20:4n6)	151 L	158 - 521
10 Docosadienoic (22:2n6)	<0.23	<= 2.0
11 Docosatetraenoic (22:4n6)	2.8 L	2.6 - 18.1

**Polyunsaturated Omega-9**

12 Mead (20:3n9)	0.6	<= 8.3
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**Monounsaturated**

Item	Value	Reference Interval
13 Myristoleic (14:1n5)	<0.8 L	0.8 - 9.7
14 Palmitoleic (16:1n7)	13 L	30 - 256
15 Vaccenic (18:1n7)	21 L	40 - 122
16 Oleic (18:1n9)	366 L	466 - 1,470
17 11-Eicosenoic (20:1n9)	3.7 L	3.7 - 18.1
18 Nervonic (24:1n9)	<1.1 L	1.1 - 2.4

**Fatty Acids - Plasma**

Methodology: Capillary Gas Chromatography/Mass Spectrometry

Ranges: Ages 13 and over.



**Organix™ Comprehensive - Urine**

Methodology: LC/Tandem Mass Spectroscopy, Colorimetric

Results are expressed as mcg/mg creatinine.

Ranges: Ages 13 and over.



95%  
Reference  
Interval

**Nutrient Markers**

Results

**Fatty Acid Metabolism**

(Carnitine & B2)

Item	Result	Quintile Ranking	95% Reference Interval
1 Adipate	5.5	4th	<= 11.1
2 Suberate	2.1	4th	<= 4.6
3 Ethylmalonate	1.4	1st	<= 6.3

**Carbohydrate Metabolism**

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

Item	Result	Quintile Ranking	95% Reference Interval
4 Pyruvate	<DL*	4th	<= 6.4
5 L-Lactate	3.2	1st	1.6 - 57.1
6 β-Hydroxybutyrate	<DL*	4th	<= 9.9

**Energy Production (Citric Acid Cycle)**

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

Item	Result	Quintile Ranking	95% Reference Interval
7 Citrate	267	2nd	56 - 987
8 Cis-Aconitate	47	4th	18 - 78
9 Isocitrate	49	1st	39 - 143
10 α-Ketoglutarate	<DL*	4th	<= 35.0
11 Succinate	15.6 H	4th	<= 20.9
12 Fumarate	0.62 H	4th	<= 1.35
13 Malate	0.3	2nd	<= 3.1
14 Hydroxymethylglutarate	4.3 H	4th	<= 5.1

**B-Complex Vitamin Markers**

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

Item	Result	Quintile Ranking	95% Reference Interval
15 α-Ketoisovalerate	<DL*	4th	<= 0.49
16 α-Ketoisocaproate	0.05	1st	<= 0.52
17 α-Keto-β-Methylvalerate	<DL*	4th	<= 1.10
18 Xanthurenate	0.78 H	4th	<= 0.46
19 β-Hydroxyisovalerate	2.4	1st	<= 11.5

**Methylation Cofactor Markers**

(B12, Folate)

Item	Result	Quintile Ranking	95% Reference Interval
20 Methylmalonate	0.5	1st	<= 2.3
21 Formiminoglutamate	0.1	1st	<= 2.2

**Organix™ Comprehensive - Urine**

Methodology: LC/Tandem Mass Spectroscopy, Colorimetric

Ranges: Ages 13 and over.

**Cell Regulation Markers**



**95%  
Reference  
Interval**

**Neurotransmitter Metabolism Markers**

(Tyrosine, Tryptophan, B6, antioxidants)

Item	Value	Quintile	95% Reference Interval
22 Vanilmandelate	3.8	4th	1.2 - 5.3
23 Homovanillate	5.7	4th	1.4 - 7.6
24 5-Hydroxyindoleacetate	1.6 L	1st	1.6 - 9.8
25 Kynurenate	1.1 H	4th	<= 1.5
26 Quinolinate	1.3	1st	<= 5.8
27 Picolinate	2.7 L	1st	2.8 - 13.5

**Oxidative Damage and Antioxidant Markers**

(Vitamin C and other antioxidants)

28 p-Hydroxyphenyllactate	0.87 H	4th	<= 0.66
29 8-Hydroxy-2-deoxyguanosine *	2.6	2nd	<= 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	0.082	4th	<= 0.192
31 Orotate	0.09	1st	<= 1.01
32 Glucarate	2.7	2nd	<= 10.7
33 a-Hydroxybutyrate	0.3	1st	<= 0.9
34 Pyroglutamate	40	2nd	28 - 88
35 Sulfate	2,024	4th	690 - 2,988

**Organix™ Comprehensive - Urine**

Methodology: LC/Tandem Mass Spectroscopy, Colorimetric

Ranges: Ages 13 and over.

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



**95% Reference Interval**

**Bacterial - general**

Compound	Value	Quintile Ranking	95% Reference Interval
36 Benzoate	<DL*	0.6	<= 9.3
37 Hippurate	417	548	<= 1,070
38 Phenylacetate	<DL*	0.11	<= 0.18
39 Phenylpropionate	<DL*		<= 0.06
40 p-Hydroxybenzoate	<DL*	1.1	<= 1.8
41 p-Hydroxyphenylacetate	39 <b>H</b>	19	<= 34
42 Indican	45	64	<= 90
43 Tricarballic acid	0.46	0.73	<= 1.41

**L. acidophilus / general bacterial**

44 D-Lactate	0.4	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	36		<= 73
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Creatinine = 210 mg/dL

\* <DL = less than detection limit

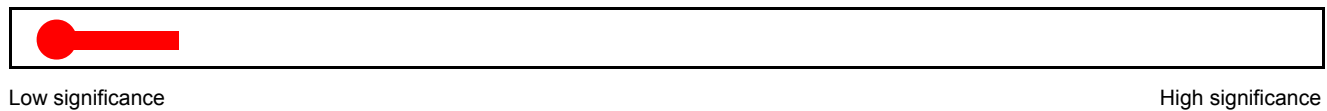
A multi-analyte report can provide greater insight about health risks and special nutrient needs. Patterns of abnormalities can reinforce the degree of significance indicated by a single measurement. Analytes from the various profiles in the ION report are combined below into categories associated with 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	Calcium	Magnesium
CoQ10	a-Tocopherol L	g-Tocopherol	Lipid Peroxide
8-OHdG	AA/EPA		



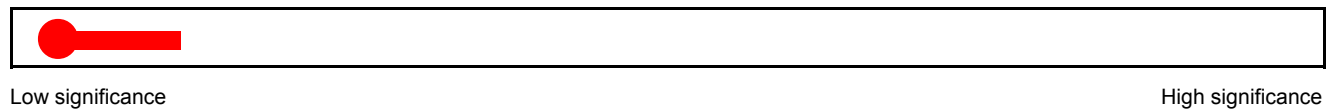
## Fatigue

Isoleucine L	Leucine L	Phenylalanine	Valine L
Magnesium	CoQ10	Adipate	Suberate
AKG	Succinate H	Malate	Xanthurenate X H
MeMalonate	FIGLU		



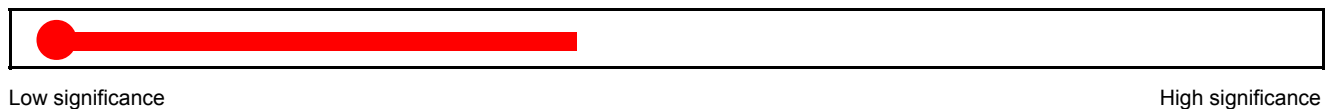
## Metabolic Syndrome (Syndrome X)

Magnesium	Zinc L	Palmitic	Stearic
AHB	BHB	BHiVal	



## Mental/Emotional

Tryptophan	Tyrosine	Magnesium	EPA
DHA X L	Xanthurenate X H	MeMalonate	FIGLU
VMA	5-HIA L		



## Intestinal Bacterial Metabolites

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

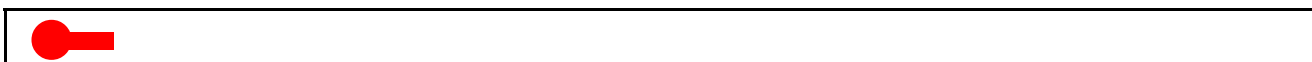


Low significance

High significance

## Intestinal Yeasts / Fungal Metabolites

D-Arabinitol

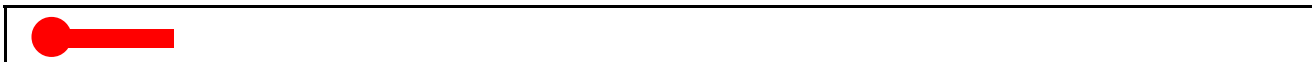


Low significance

High significance

## Digestion/Absorption

Arginine	Histidine	L	Isoleucine	L	Leucine	L
Lysine	Methionine		Phenylalanine		Threonine	
Tryptophan	Valine	L	Copper		Selenium	
Zinc		L				



Low significance

High significance

## Toxic Exposure

Aluminum	Cadmium	Lead	Mercury
Palmitelaidic	C18TrFa	Citrate	Cis-Aconitate
Isocitrate	Quinolate	2-MeHipp	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	Copper	Selenium	Zinc	L
Lead	Mercury	a-Tocopherol	L	Vitamin A
g-Tocopherol	b-Carotene	Lipid Peroxide	8-OHdG	
pOHPHlac	X H	Sulfate		

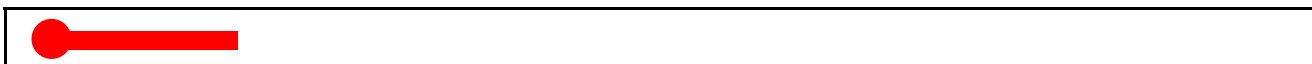


Low significance

High significance

## Mitochondrial Functional Impairment

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

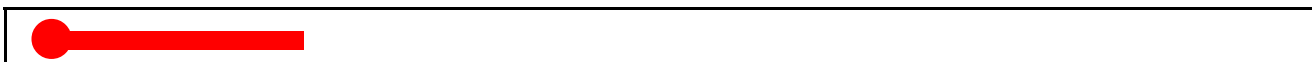


Low significance

High significance

## Amino Acid Insufficiency

Arginine	Histidine	L	Isoleucine	L	Leucine	L
Lysine	Methionine		Phenylalanine		Threonine	
Tryptophan	Valine	L	AKG		Succinate	H
Sulfate						



Low significance

High significance

## Essential Fatty Acid Insufficiency

AA	X L	ALA	EPA	DHA	X L
LA	X L	GLA	DGLA	X L	Palmitoleic
Triene/Tetraen					



Low significance

High significance

## Disordered Methyl Group (Single carbon) Transfer

Homocysteine	Pentadeca	Heptadeca	Nonadecanoic
Tricosanoic	Xanthurenate	X H	MeMalonate
Kynurenate	H	FIGLU	



Low significance

High significance

## Disordered Tryptophan Metabolism

Tryptophan	Xanthurenate	X H	5-HIA	L	Kynurenate	H
Quinolinate	Indican					



Low significance

High significance

Abbreviation	Analyte Name	Abbreviation	Analyte Name
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
aKbMeVal	a-Keto-β-Methylvalerate	HVA	Homovanillate
aKiCap	a-Ketoisocaproate	HMG	Hydroxymethylglutarate
aKiVal	a-Ketoisovalerate	LA	Linoleic (18:2n6)
AKG	a-Ketoglutarate	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 for insurance of 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	2000 mg
Vitamin D	400 IU	
Vitamin E (Mixed Tocopherols)	100 IU	400 IU
Vitamin K*	100 mcg	
Thiamin (B1)	5 mg	
Riboflavin (B2)	5 mg	10 mg
Niacin (B3)	25 mg	
Pyridoxine (B6)	15 mg	100 mg
Folic Acid (or 5-Methyl-THF)	400 mcg	
Vitamin B12	50 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	15 mg
Selenium	100 mcg	50 mcg
Copper	1 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.

MM02

***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>Potential to Benefit from Probiotics</b>	Low
<b>Black Currant Oil</b>	4 gm
<b>Coenzyme Q10</b>	60 mg
<b>Dietary Olive Oil</b>	2 gm
<b>Fish Oil</b>	3 gm
<b>Need for Other Antioxidants</b>	Moderate

## 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	9.66	773
L-Histidine HCl (74% active)	8	13.50	999
L-Isoleucine	6	9.46	946
L-Leucine	9	13.24	1,324
L-Lysine HCl (80% active)	0	9.33	746
L-Methionine	0	6.11	611
L-Phenylalanine	1	10.57	1,057
Taurine	1	0.33	33
L-Threonine	1	6.76	676
L-Tryptophan	2	2.42	242
L-Valine	8	11.63	1,163
Pyridoxal-5-phosphate	0	0.27	24
Alpha-ketoglutaric acid	0	7.69	674

Total grams added	37
Base Formula amount	263
Total Weight	300

✓ <input type="checkbox"/>	L-5-Hydroxytryptophan	0	0.73	49
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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.