



Patient: **ALEX
CHEN**
DOB: February 09, 2000
Sex: M
MRN: 0003162300

Order Number: **U4300902**

Reported: May 08, 2025
Received: April 30, 2025
Collected: April 29, 2025

Evexia Diagnostics
Will Blankenship MD
PO Box 1272
Washington, CT 06793-0272

3102 ION ® Profile - Blood/Urine

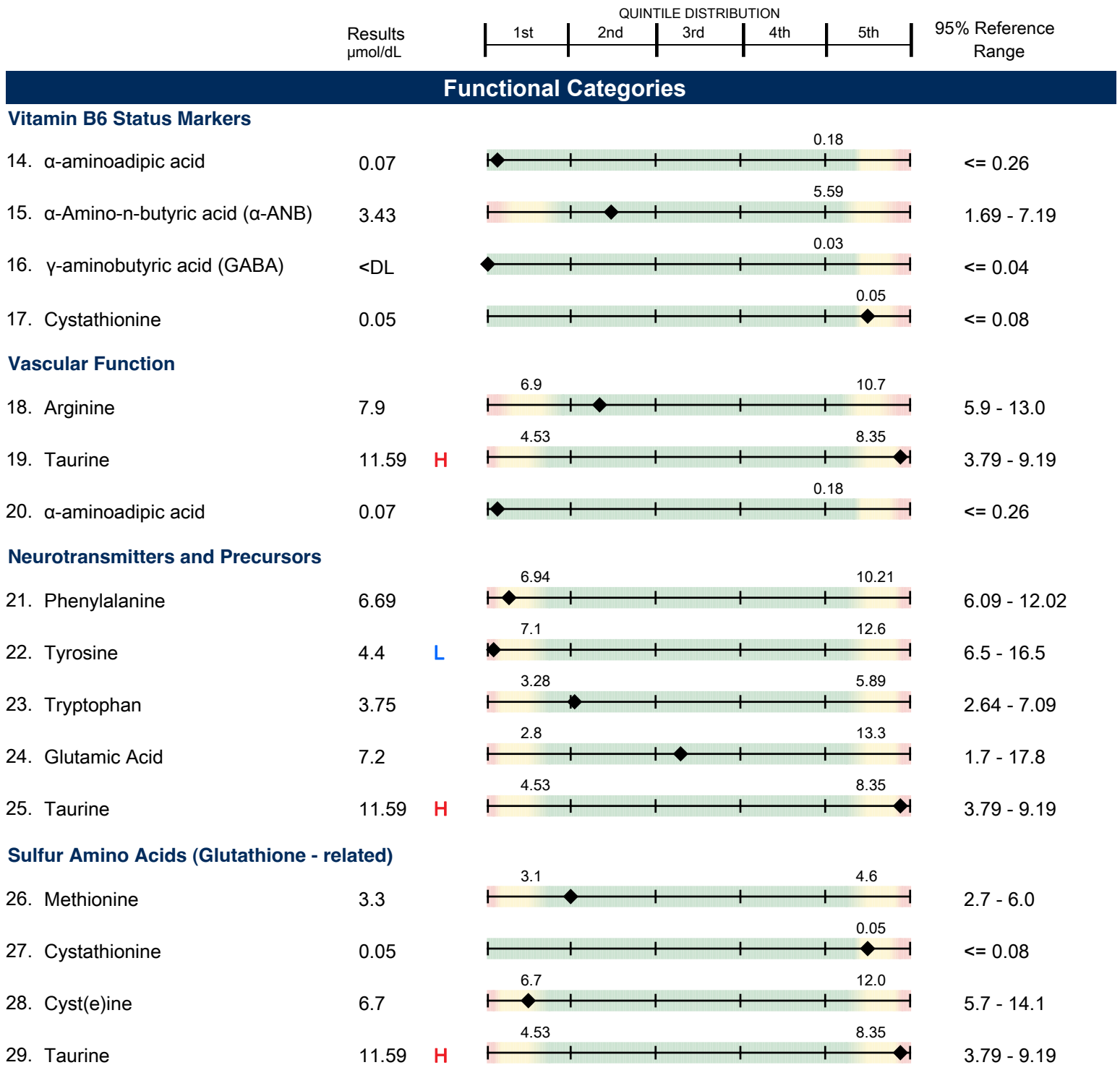
Amino Acids 40 Profile - Plasma

Methodology: LC/MS/MS



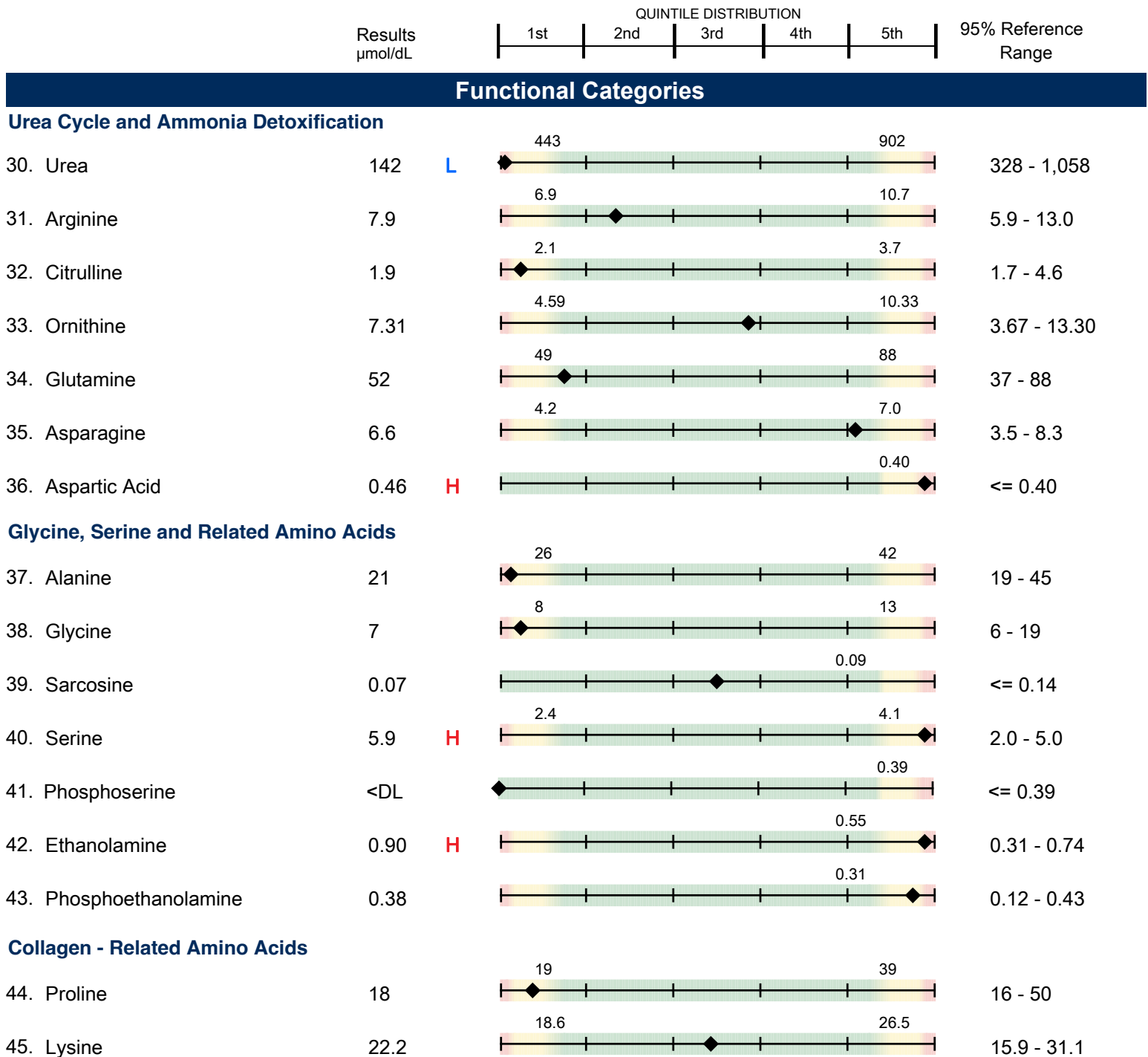
**Amino Acids 40 Profile** - Plasma

Methodology: LC/MS/MS



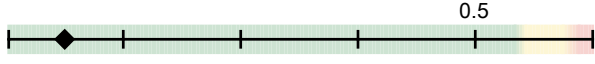
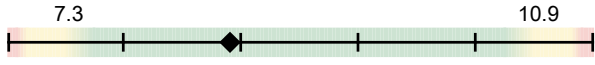
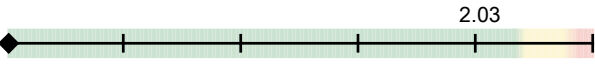
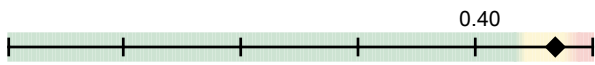
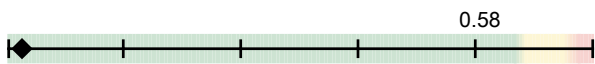
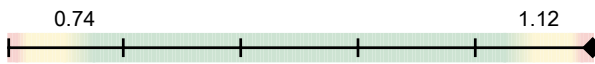
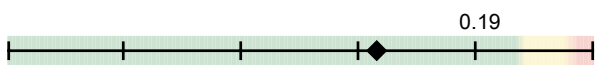
**Amino Acids 40 Profile** - Plasma

Methodology: LC/MS/MS



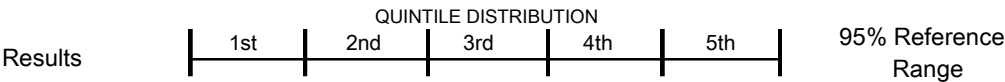
Amino Acids 40 Profile - Plasma

Methodology: LC/MS/MS

		QUINTILE DISTRIBUTION					95% Reference Range	
Results $\mu\text{mol/dL}$		1st	2nd	3rd	4th	5th		
Functional Categories								
β-Amino Acids and Derivatives								
46. β -Alanine	0.3						≤ 0.6	
47. Histidine	8.6						6.4 - 11.7	
48. 1-Methylhistidine	<DL						≤ 3.04	
DNA (Thymine) Degradation								
49. β -Aminoisobutyric Acid	0.58						≤ 0.72	
Muscle-Specific Amino Acids								
50. 3-Methylhistidine	0.26						≤ 0.72	
Ratios								
51. Phenylalanine/Tyrosine	1.52	H						0.60 - 1.35
52. Glutamic Acid/Glutamine	0.14						≤ 0.44	
53. α -ANB/Leucine	0.21						0.09 - 0.44	
54. Tryptophan/LNAA	0.063						0.034 - 0.092	

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

NR = Not Reportable



Homocysteine Assay - Plasma

Methodology: Enzymatic Assay

1. Homocysteine	15.6	H		5.2 - 11.4 umol/L
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Nutrient & Toxic Elements Profile - Blood

Methodology: Inductively Coupled Plasma/Mass Spectrometry

Nutrient Elements

Erythrocytes (packed cells)

1. Potassium	3,728	H		2,220 - 3,626 mcg/g
2. Magnesium	53.1			30.1 - 56.5 mcg/g

Plasma

3. Zinc	80.8			64.3 - 159.4 mcg/dL
4. Copper	90.5			75.3 - 192.0 mcg/dL

Whole Blood

5. Selenium	204			109 - 330 mcg/L
6. Manganese	11.8			3.0 - 16.5 mcg/L

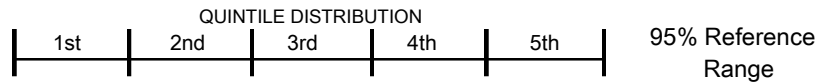
Toxic Elements

Whole Blood

7. Arsenic	0.9			<= 13.7 mcg/L
8. Cadmium	0.35			<= 1.22 mcg/L
9. Lead	0.71			<= 2.81 mcg/dL
10. Mercury	0.45			<= 4.35 mcg/L

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-pressure liquid chromatography (HPLC), LC/MS/MS

		Results		
1.	Coenzyme Q10	1.42		0.46 - 1.72 mcg/mL
2.	alpha-Tocopherol **	10.7		5.9 - 19.4 mg/L
3.	gamma-Tocopherol **	0.5 L		0.7 - 4.9 mg/L
4.	Vitamin A (Retinol) **	54.4		18.9 - 57.3 mcg/dL
5.	β-Carotene **	88		3 - 91 mcg/dL

**Indicates testing performed at Labcorp Burlington 1447 York Court, Burlington, NC 27215-3361 Lab Director = Sanjai Nagendra, MD CLIA # 34D0655059

Glutathione Assay - Whole Blood

Methodology: Colorimetric

		Results umol/L		
6.	Glutathione	786		>= 669 umol/L

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

Methodology: LC/MS/MS, TBARS (thiobarbituric acid reactive substances), Hexokinase/G-6-PDH

		Results		
7.	Lipid Peroxides	NR		<= umol/g creatinine
8.	8-Hydroxy-2-deoxyguanosine	14		<= 15 mcg/g creatinine

Vitamin D Profile - Serum

Methodology: Chemiluminescent

		Results ng/mL		Reference Range
9.	25 - Hydroxyvitamin D ♦	28 L		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

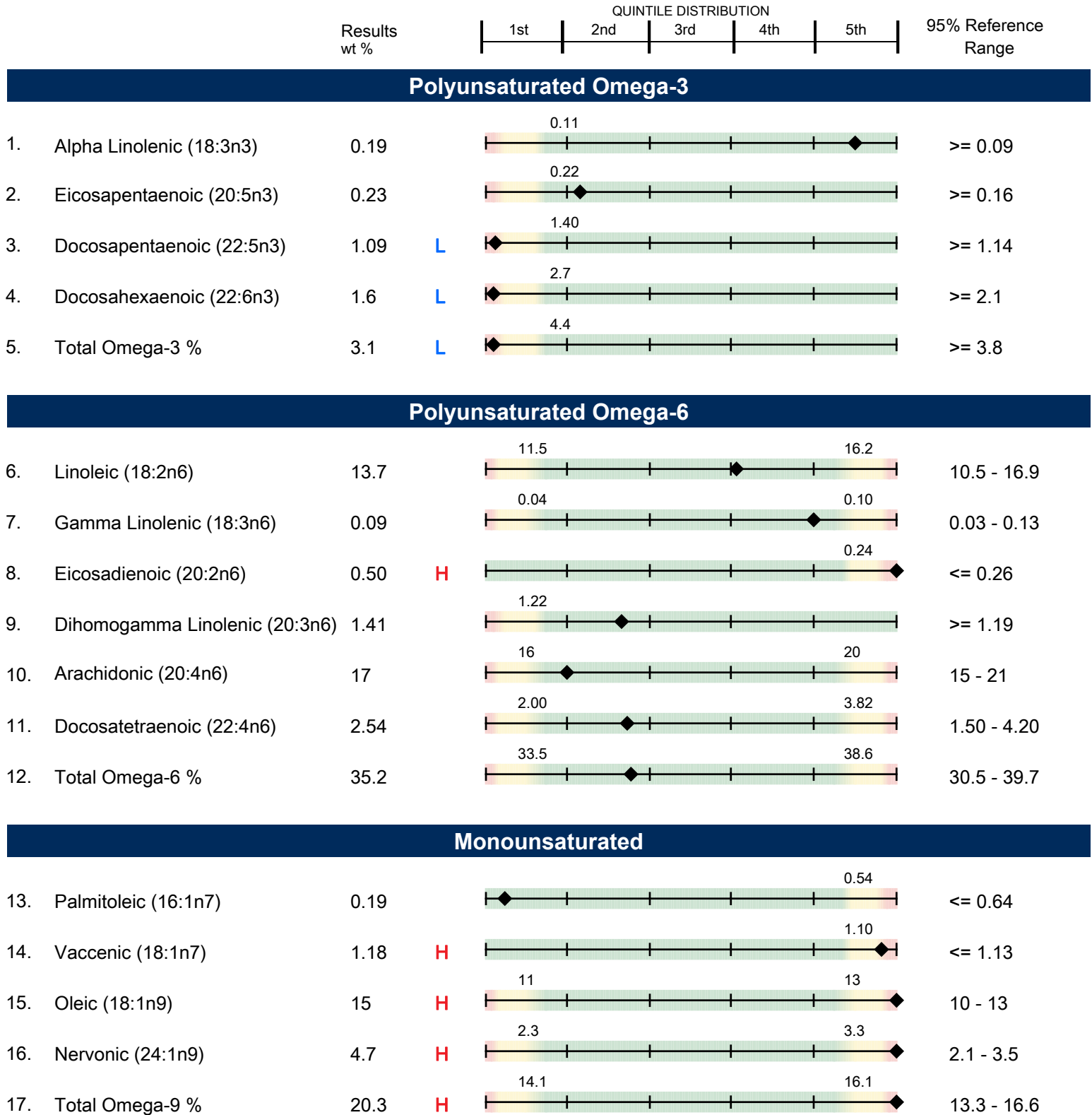
There is no consensus in the literature regarding optimal levels of 25-Hydroxyvitamin D. Higher levels of 25-Hydroxyvitamin D may be concerning in patients with renal failure. Levels below 30 ng/mL are considered insufficient by most medical associations.

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
 >UL = greater than upper linearity limit
 NR = Not Reportable

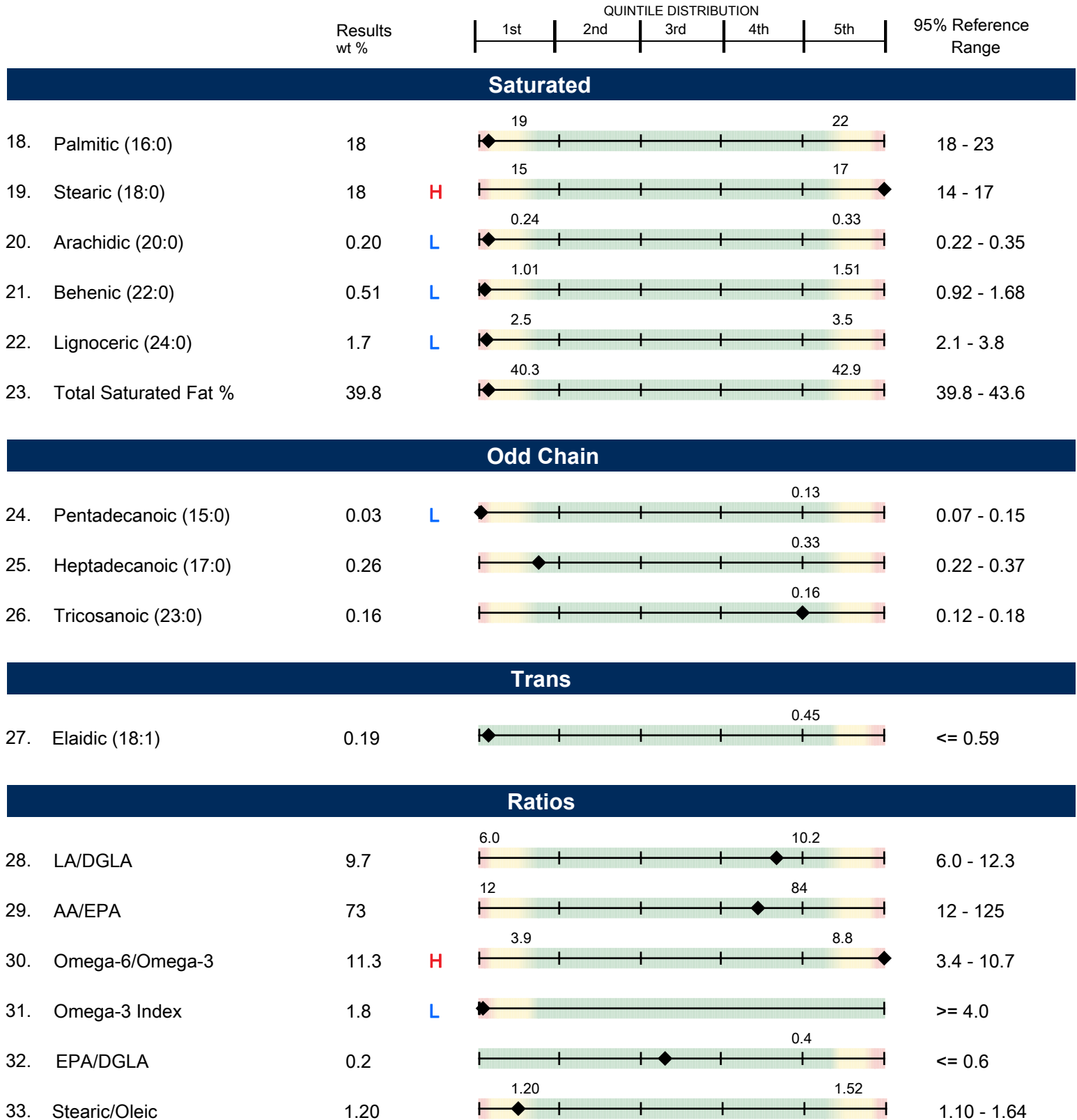
**Fatty Acids Profile - RBC**

Methodology: Gas Chromatography/Mass Spectrometry



**Fatty Acids Profile - RBC**

Methodology: Gas Chromatography/Mass Spectrometry



NR = Not Reportable

Organix® #3301 - Urine

Methodology: GC/MS, LC/MS/MS, Alkaline Picrate, Colorimetric

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

Results mmol/mol creatinine	QUINTILE DISTRIBUTION					95% Reference Range
	1st	2nd	3rd	4th	5th	

Nutrient Markers**Fatty Acid Metabolism***(Carnitine & B2)*

1. Adipate	1.6				2.3	<= 2.8
2. Suberate	1.7				1.7	<= 2.1

Carbohydrate Metabolism*(B1, B3, Cr, Lipoic Acid, CoQ10)*

3. Pyruvate	13				20	7 - 32
4. Lactate	7.5				16.7	1.9 - 19.8
5. β-Hydroxybutyrate	3.1	H			2.2	<= 2.8

Energy Production (Citric Acid Cycle)*(B Comp., CoQ10, Amino Acids, Mg)*

6. Citrate	265				370	40 - 520
7. Cis-Aconitate	16				22	10 - 36
8. Isocitrate	39				65	22 - 65
9. α-Ketoglutarate	17				27	4 - 52
10. Succinate	4.5				3.4	0.4 - 4.6
11. Malate	2.7				3.0	<= 3.0
12. Hydroxymethylglutarate	9				14	<= 15

B-Complex Vitamin Markers*(B1, B2, B3, B5, B6, Biotin)*

13. α-Ketoisovalerate	0.93				0.59	<= 0.97
14. α-Ketoisocaproate	0.24				0.59	<= 0.89
15. α-Keto-β-Methylvalerate	<DL				1.5	<= 2.1
16. α-Ketoadipate	0.5				1.0	<= 1.7
17. β-Hydroxyisovalerate	14				20	<= 29
18. β-Hydroxypropionate	17				16	5 - 22
19. Glutarate	0.57	H			0.36	<= 0.51
20. Isovalerylglycine	2.0				2.4	<= 3.7

Organix ® #3301 - Urine

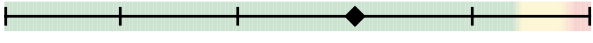
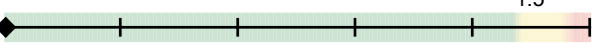
Methodology: GC/MS, LC/MS/MS, Alkaline Picrate, Colorimetric

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

Results mmol/mol creatinine	QUINTILE DISTRIBUTION					95% Reference Range
	1st	2nd	3rd	4th	5th	

Nutrient Markers**Methylation Cofactor Markers**

(B12, Folate)

21. Methylmalonate	1.3						<= 1.9
22. Formiminoglutamate	<DL						<= 1.5

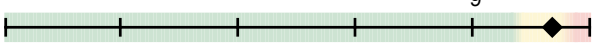
Cell Regulation Markers**Neurotransmitter Metabolism Markers**

(Tyrosine, Tryptophan, B6, Antioxidants)

23. Vanilmandelate	2.2			0.4 - 3.6
24. Homovanillate	7.3	H		1.2 - 5.3
25. 3-Methyl-4-Hydroxyphenylglycol	0.10			0.02 - 0.22
26. 5-Hydroxyindoleacetate	11.3			3.8 - 12.1
27. Kynurenate	<DL			<= 7.1
28. Quinolate	3.8			<= 9.1
29. Kynurenate/Quinolate	NR			>= 0.44
30. Xanthurenate	<DL			<= 0.96

Oxidative Damage and Antioxidant Markers

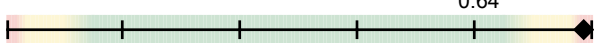
(Vitamin C and Other Antioxidants)

31. 8-Hydroxy-2-deoxyguanosine	14						<= 15
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(Units for 8-hydroxy-2-dexoyguanosine are mcg/g creatinine)

Toxicants and Detoxification**Detoxification Indicators**

(Arg, NAC, Met, Mg, Antioxidants)

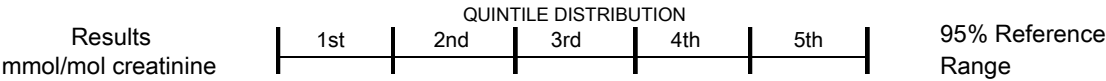
32. Orotate	1.07	H		0.33 - 1.01
33. α-Hydroxybutyrate	0.69			<= 0.83
34. Pyroglutamate	38	H		16 - 34
35. α-Hydroxyisobutyrate	4.2			<= 6.7
36. α-Ketophenylacetate	0.33			<= 0.46



Organix ® #3301 - Urine

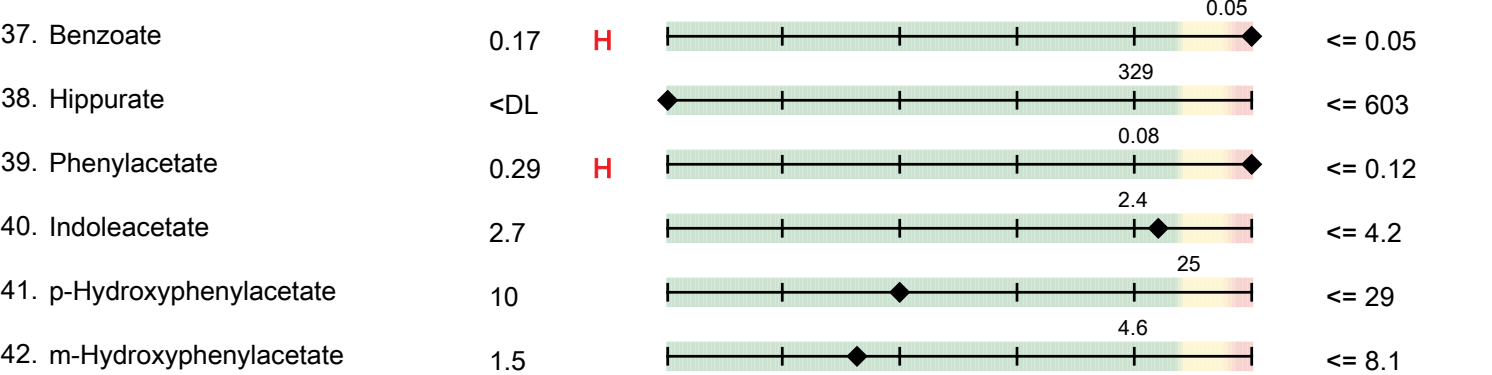
Methodology: GCMS, LC/MS/MS, Alkaline Picrate, Colorimetric

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

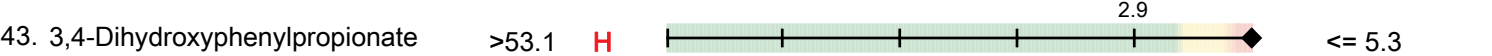


Compounds of Bacterial or Yeast/Fungal Origin

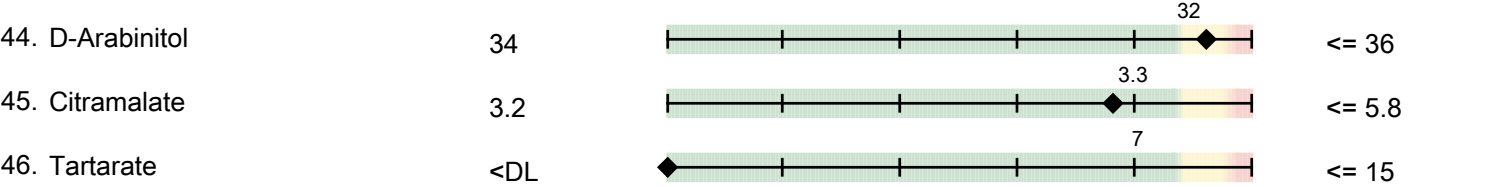
Bacterial - General



Clostridial Species

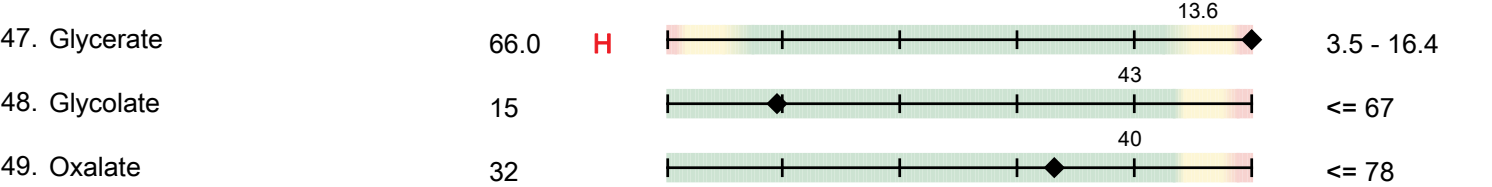


Yeast / Fungal

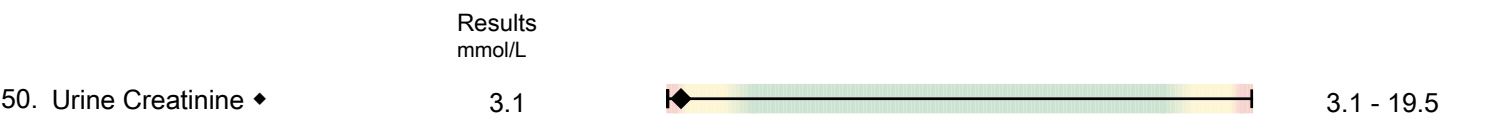


Oxalate Markers

Oxalates



Creatinine



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

**3102 ION ® Profile** - Blood/Urine**Commentary***Lab Comments*

Glucose is measured in part of this analysis. Urine sample was found to contain 355.59 mg/dl glucose. 05/01/2025 JP

The creatinine value is too low for accurate analysis of the following marker(s): Lipid Peroxides. 05/01/2025 JP

Vitamin A (Retinol):

Reference intervals for vitamin A determined from LabCorp internal studies. Individuals with vitamin A less than 20 ug/dL are considered vitamin A deficient and those with serum concentrations less than 10 ug/dL are considered severely deficient. This test was developed and its performance characteristics determined by LabCorp. It has not been cleared or approved by the Food and Drug Administration.

alpha-Tocopherol:

This test was developed and its performance characteristics determined by Labcorp. It has not been cleared or approved by the Food and Drug Administration.

gamma-Tocopherol:

This test was developed and its performance characteristics determined by Labcorp. It has not been cleared or approved by the Food and Drug Administration. Reference intervals for alpha and gamma- tocopherol determined from National Health and Nutrition Examination Survey, 2005-2006. Individuals with alpha-tocopherol levels less than 5.0 mg/L are considered vitamin E deficient. Performed at: BN - Labcorp Burlington 1447 York Court, Burlington, NC 272153361 Lab Director: Sanjai Nagendra MD, Phone: 8007624344

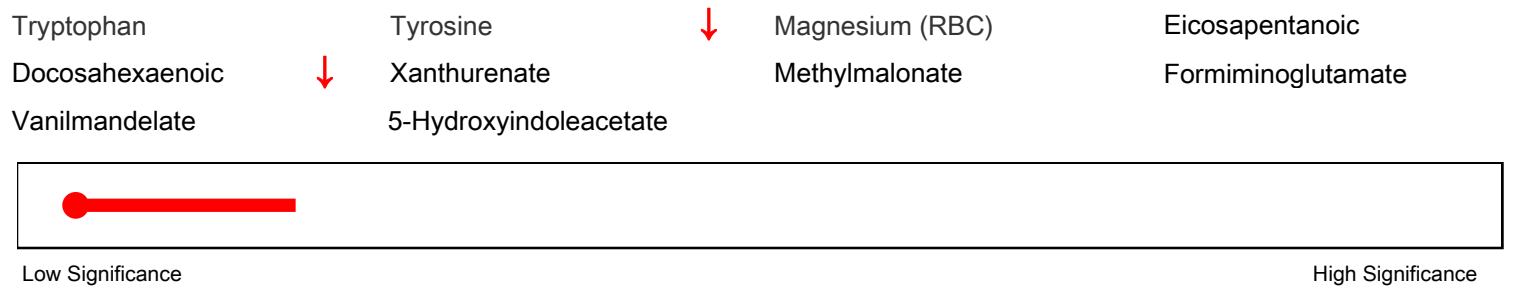
The performance characteristics of all assays have been verified by Genova Diagnostics, Inc. Unless otherwise noted with ♦, the assay has not been cleared by the U.S. Food and Drug Administration.

Homocysteine: The reference range for the biomarker Homocysteine is based on the sex-specific 5th to 95th percentile values for men and women (20 to 39 years of age) in the NHANES nutritionally replete cohort. Annals of Internal Medicine 1999; 141 (331-338).

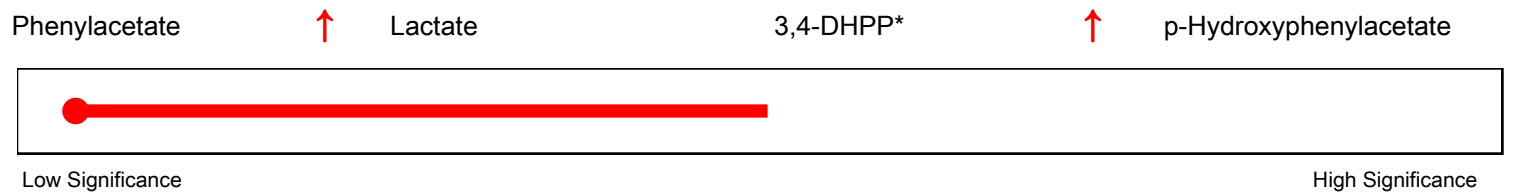
3102 ION ® Profile - Blood/Urine



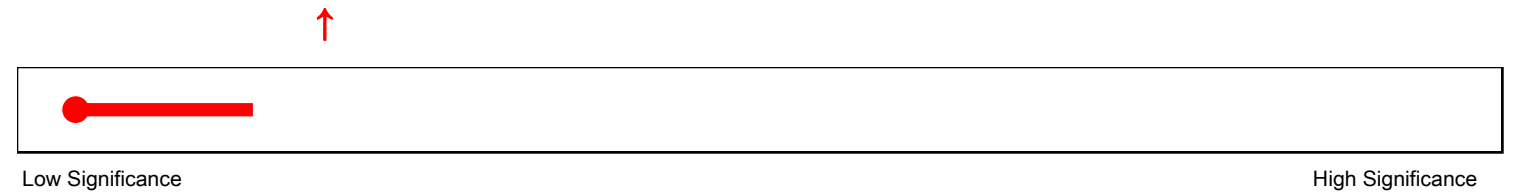
Mental/Emotional



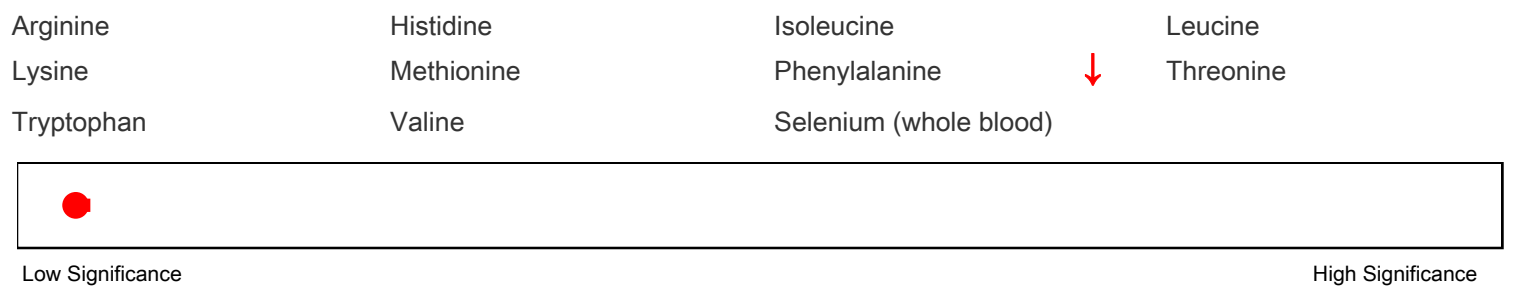
Intestinal/Bacterial Metabolites



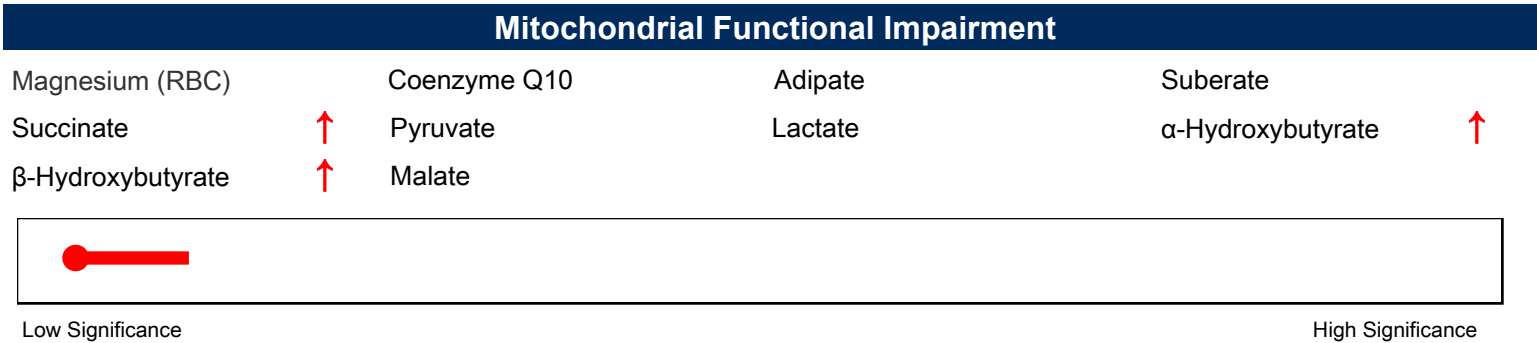
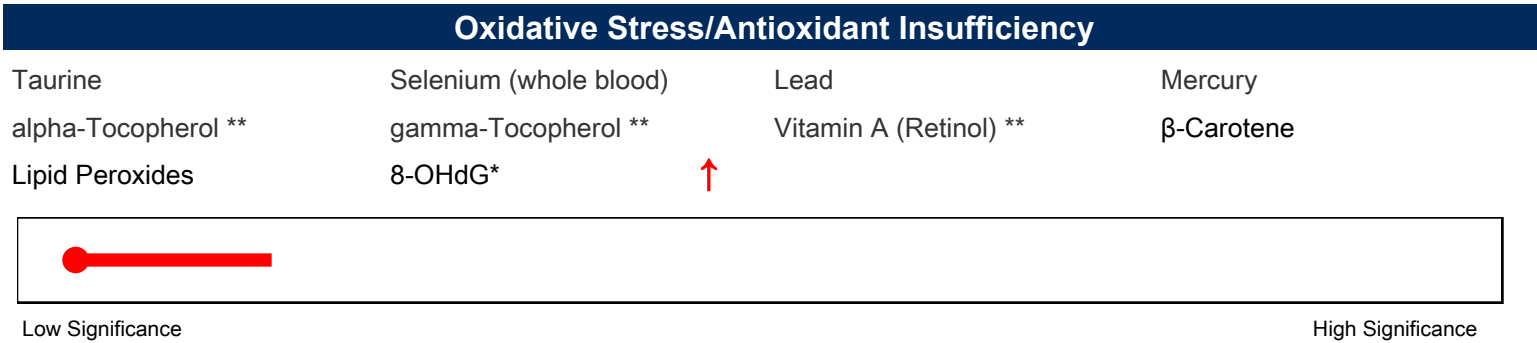
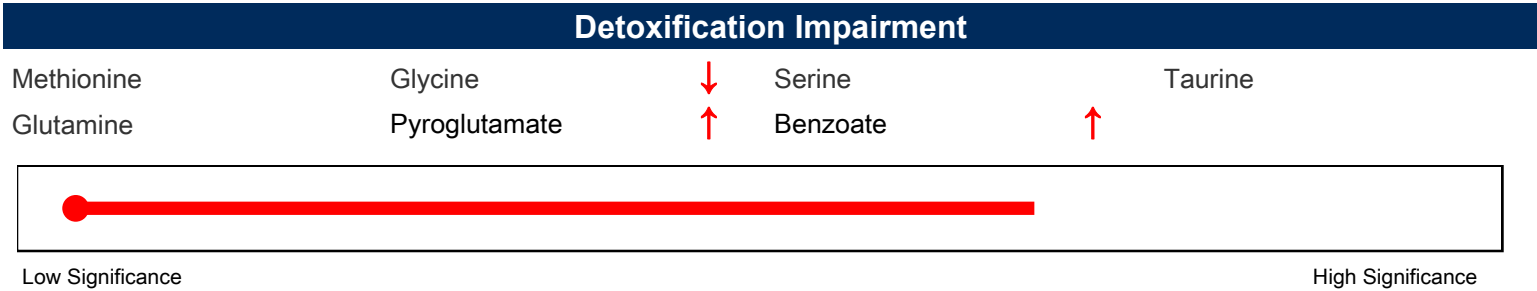
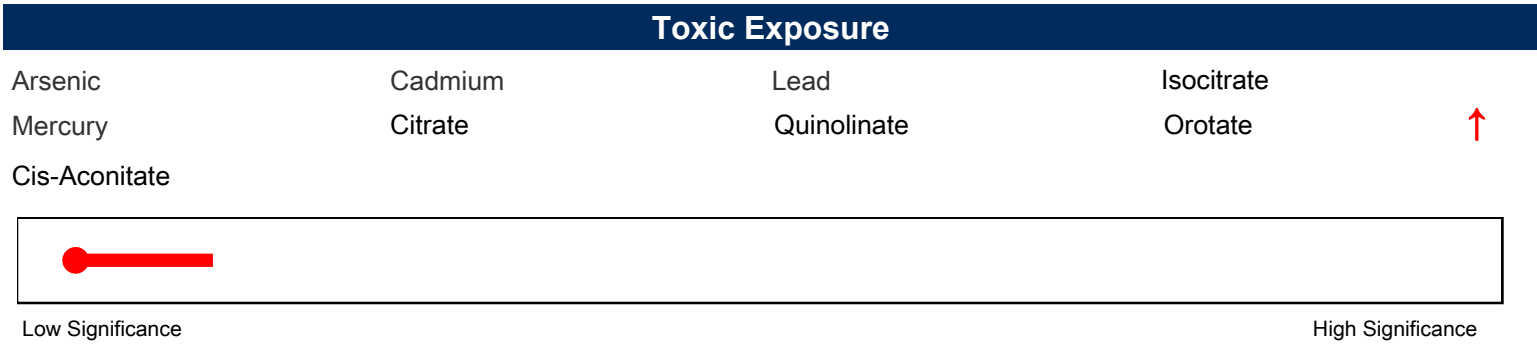
Intestinal Yeasts/Fungal Metabolites



Digestion/Absorption



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



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

**Indicates testing performed at Labcorp Burlington 1447 York Court, Burlington, NC 27215-3361 Lab Director = Sanjai Nagendra, MD CLIA # 34D0655059

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Additional Considerations

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. Final recommendations should be based on consideration of the patient’s medical history and current clinical condition.

Nutrient	Nutrient Need	Clinician Recommendations
Vitamin A	Optional: 0-4000 IU	
Vitamin C	Low: 250-500 mg	
Vitamin D	High: 2000-5000 IU	
Vitamin E (mixed tocopherols)	Moderate: 100-200 IU	
Vitamin B-1 (Thiamin)	Optional: 0-10 mg	
Vitamin B-2 (Riboflavin)	Low: 10-25 mg	
Vitamin B-3 (Niacin)	Optional: 0-50 mg	
Vitamin B-5 (Pantothenic Acid)	Optional: 0-10 mg	
Vitamin B-6 (Pyridoxine)	Moderate: 25-50 mg	
Vitamin B-12 (Cobalamin)	Moderate: 250-500 mcg	
Folic Acid	Low: 250-500 mcg	
Biotin	Moderate: 200-500 mcg	
Magnesium	Moderate: 200-300 mg	
Zinc	Optional: 0-10 mg	
Selenium	Optional: 0-100 mcg	
Carnitine	Optional: 0-250 mg	
Coenzyme Q10	Optional: 0-100 mg	
Lipoic Acid	Moderate: 100-200 mg	
N-Acetylcysteine	Moderate: 200-500 mg	
Need for other antioxidants	Optional	
Glycine	Low: 500-1000 mg	
L-Phenylalanine	Low: 250-500 mg	
L-Tyrosine	Moderate: 500-1000 mg	

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