



Requisition #:

Physician:

Patient Name:

Date of Collection: 4/21/2015

Patient Age: 52

Time of Collection: 04:30 AM

Patient Sex: F

Print Date: 04/29/2015



Organic Acids Test - Nutritional and Metabolic Profile

Metabolic Markers in Urine Reference Range (mmol/mol creatinine) Patient Value Reference Population - Females Age 13 and Over

Intestinal Microbial Overgrowth

Yeast and Fungal Markers

Marker	Reference Range	Patient Value	Reference Population
1 Citramalic	≤ 3.6	0.90	0.90
2 5-Hydroxymethyl-2-furoic	≤ 14	5.4	5.4
3 3-Oxoglutaric	≤ 0.33	0	0.00
4 Furan-2,5-dicarboxylic	≤ 16	10	10
5 Furancarboxylglycine	≤ 1.9	0.88	0.88
6 Tartaric	≤ 4.5	1.5	1.5
7 Arabinose	≤ 29	H 88	88
8 Carboxycitric	≤ 29	0.36	0.36
9 Tricarballic	≤ 0.44	0.33	0.33

Bacterial Markers

Marker	Reference Range	Patient Value	Reference Population
10 Hippuric	≤ 613	H 622	622
11 2-Hydroxyphenylacetic	0.06 - 0.66	0.55	0.55
12 4-Hydroxybenzoic	≤ 1.3	1.0	1.0
13 4-Hydroxyhippuric	0.79 - 17	8.2	8.2
14 DHPA (Beneficial Bacteria)	≤ 0.38	0.21	0.21

Clostridia Bacterial Markers

Marker	Reference Range	Patient Value	Reference Population
15 4-Hydroxyphenylacetic (<i>C. difficile</i> , <i>C. stricklandii</i> , <i>C. lituseburense</i> & others)	≤ 19	H 25	25
16 HPPA (<i>C. sporogenes</i> , <i>C. caloritolerans</i> , <i>C. botulinum</i> & others)	≤ 208	H 271	271
17 4-Cresol (<i>C. difficile</i>)	≤ 75	42	42
18 3-Indoleacetic (<i>C. stricklandii</i> , <i>C. lituseburense</i> , <i>C. subterminale</i> & others)	≤ 11	2.8	2.8

Testing performed by The Great Plains Laboratory, Inc., Lenexa, Kansas. The Great Plains Laboratory has developed and determined the performance characteristics of this test. This test has not been evaluated by the U.S. FDA; the FDA does not currently regulate such testing.

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Oxalate Metabolites

19	Glyceric	0.77 - 7.0	4.6	
20	Glycolic	16 - 117	46	
21	Oxalic	6.8 - 101	69	

Glycolytic Cycle Metabolites

22	Lactic	≤ 48	12	
23	Pyruvic	≤ 9.1	4.4	

Mitochondrial Markers - Krebs Cycle Metabolites

24	Succinic	≤ 9.3	5.3	
25	Fumaric	≤ 0.94	0.51	
26	Malic	0.06 - 1.8	0.95	
27	2-Oxoglutaric	≤ 35	H 49	
28	Aconitic	6.8 - 28	18	
29	Citric	≤ 507	H 706	

Mitochondrial Markers - Amino Acid Metabolites

30	3-Methylglutaric	≤ 0.76	0.35	
31	3-Hydroxyglutaric	≤ 6.2	H 8.8	
32	3-Methylglutaconic	≤ 4.5	2.2	

Neurotransmitter Metabolites

Phenylalanine and Tyrosine Metabolites

33	Homovanillic (HVA) (dopamine)	0.80 - 3.6	3.3	
34	Vanillylmandelic (VMA) (norepinephrine, epinephrine)	0.46 - 3.7	2.0	
35	HVA / VMA Ratio	0.16 - 1.8	1.6	

Tryptophan Metabolites

36	5-Hydroxyindoleacetic (5-HIAA) (serotonin)	≤ 4.3	1.5	
37	Quinolinic	0.85 - 3.9	2.4	
38	Kynurenic	0.17 - 2.2	1.4	
39	Quinolinic / 5-HIAA Ratio	0.42 - 2.0	1.6	

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Pyrimidine Metabolites - Folate Metabolism

40	Uracil	≤ 9.7		5.1	
41	Thymine	≤ 0.56		0.22	

Ketone and Fatty Acid Oxidation

42	3-Hydroxybutyric	≤ 3.1	H	19	
43	Acetoacetic	≤ 10		9.5	
44	4-Hydroxybutyric	≤ 4.8		0.34	
45	Ethylmalonic	0.44 - 2.8		1.4	
46	Methylsuccinic	0.10 - 2.2		2.1	
47	Adipic	0.04 - 3.8		2.0	
48	Suberic	0.18 - 2.2		0.80	
49	Sebacic	≤ 0.24		0.19	

Nutritional Markers

Vitamin B12

50	Methylmalonic *	≤ 2.3		2.0	
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Vitamin B6

51	Pyridoxic (B6)	≤ 34		5.1	
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Vitamin B5

52	Pantothenic (B5)	≤ 10		1.3	
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Vitamin B2 (Riboflavin)

53	Glutaric *	0.04 - 0.36		0.29	
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Vitamin C

54	Ascorbic	10 - 200	L	0.44	
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Vitamin Q10 (CoQ10)

55	3-Hydroxy-3-methylglutaric *	0.17 - 39		22	
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Glutathione Precursor and Chelating Agent

56	N-Acetylcysteine (NAC)	≤ 0.28		0.17	
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Biotin (Vitamin H)

57	Methylcitric *	0.19 - 2.7		1.9	
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* A high value for this marker may indicate a deficiency of this vitamin.

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Indicators of Detoxification

Glutathione

58	Pyroglutamic *	10 - 33		23	
59	2-Hydroxybutyric *	0.03 - 1.8	H	3.0	

Ammonia Excess

60	Orotic	0.06 - 0.54		0.33	
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Aspartame, salicylates, or GI bacteria

61	2-Hydroxyhippuric	≤ 1.3	H	1.5	
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* A high value for this marker may indicate a Glutathione deficiency.

Amino Acid Metabolites

62	2-Hydroxyisovaleric	≤ 0.42		0	
63	2-Oxoisovaleric	≤ 2.1		0.40	
64	3-Methyl-2-oxovaleric	≤ 0.87		0.49	
65	2-Hydroxyisocaproic	≤ 0.48		0	
66	2-Oxoisocaproic	≤ 0.37	H	0.47	
67	2-Oxo-4-methylbutyric	≤ 0.16		0.10	
68	Mandelic	≤ 0.21		0.18	
69	Phenyllactic	≤ 0.20		0.17	
70	Phenylpyruvic	0.20 - 1.9		0.48	
71	Homogentisic	≤ 0.36		0.04	
72	4-Hydroxyphenyllactic	≤ 0.80		0.72	
73	N-Acetylaspartic	≤ 3.0		1.5	
74	Malonic	≤ 9.7		3.0	

Mineral Metabolism

75	Phosphoric	1 000 - 5 000		2 638	
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Indicator of Fluid Intake

76 *Creatinine

89 mg/dL

*The creatinine test is performed to adjust metabolic marker results for differences in fluid intake. Urinary creatinine has limited diagnostic value due to variability as a result of recent fluid intake. Samples are rejected if creatinine is below 20 mg/dL unless the client requests results knowing of our rejection criteria.

Explanation of Report Format

The reference ranges for organic acids were established using samples collected from typical individuals of all ages with no known physiological or psychological disorders. The ranges were determined by calculating the mean and standard deviation (SD) and are defined as $\pm 2SD$ of the mean. Reference ranges are age and gender specific, consisting of Male Adult (≥ 13 years), Female Adult (≥ 13 years), Male Child (< 13 years), and Female Child (< 13 years).

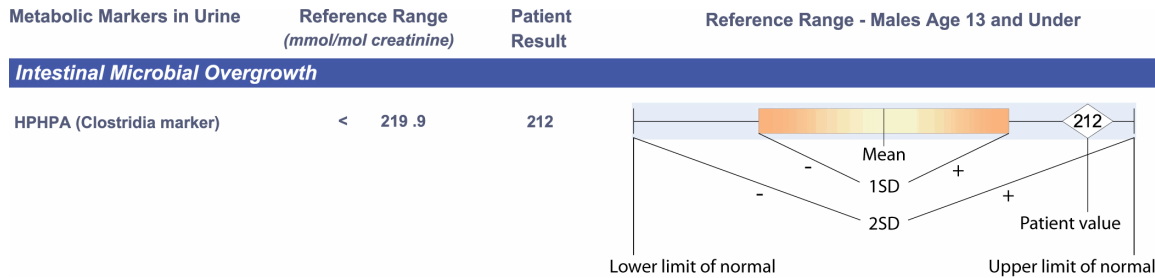
There are two types of graphical representations of patient values found in the new report format of both the standard Organic Acids Test and the Microbial Organic Acids Test.

The first graph will occur when the value of the patient is within the reference (normal) range, defined as the mean plus or minus two standard deviations.

The second graph will occur when the value of the patient exceeds the upper limit of normal. In such cases, the graphical reference range is "shrunk" so that the degree of abnormality can be appreciated at a glance. In this case, the lower limits of normal are not shown, only the upper limit of normal is shown.

In both cases, the value of the patient is given to the left of the graph and is repeated on the graph inside a diamond. If the value is within the normal range, the diamond will be outlined in black. If the value is high or low, the diamond will be outlined in red.

Example of Value Within Reference Range



Example of Elevated Value

