



Requisition #:

Physician Name:

Patient Name:

Date of Collection:

Patient Age:

Time of Collection:

Sex:

Print Date:



Organic Acids Test - Nutritional and Metabolic Profile

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

Intestinal Microbial Overgrowth

Yeast and Fungal Markers

Marker	Reference Range (mmol/mol creatinine)	Patient Value	Reference Population - Females Under Age 13
1 Citramalic	≤ 5.3	2.9	
2 5-Hydroxymethyl-2-furoic	≤ 30	4.3	
3 3-Oxoglutaric	≤ 0.52	H 1.1	
4 Furan-2,5-dicarboxylic	≤ 22	1.6	
5 Furancarboxylglycine	≤ 3.6	0.74	
6 Tartaric	≤ 3.9	1.4	
7 Arabinose	≤ 56	H 73	
8 Carboxycitric	≤ 34	1.1	

Malabsorption and Bacterial Markers

9 2-Hydroxyphenylacetic	≤ 1.1	0.78	
10 4-Hydroxyphenylacetic	≤ 30	H 35	
11 4-Hydroxybenzoic	0.09 - 2.0	1.5	
12 4-Hydroxyhippuric	≤ 27	H 30	
13 Hippuric	≤ 717	281	
14 3-Indoleacetic	≤ 11	4.1	
15 Succinic	≤ 15	H 105	
16 HPPHA (Clostridia marker)	≤ 227	161	
17 DHPHA (beneficial bacteria)	≤ 0.73	0.39	

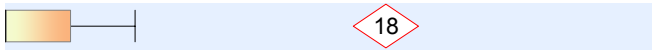
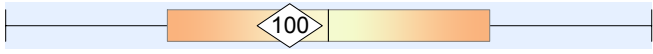
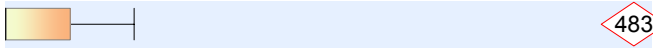
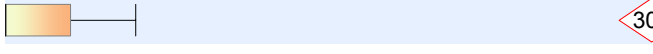
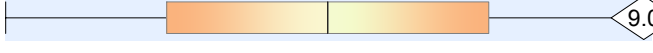
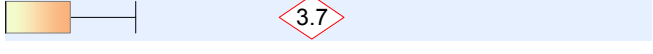
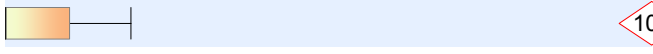
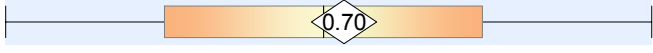
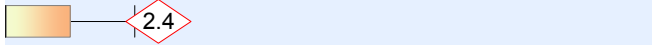
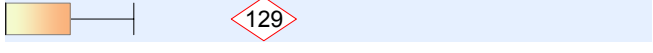
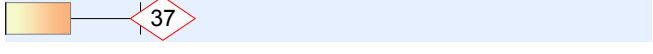
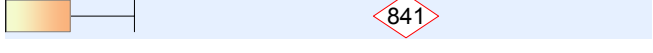
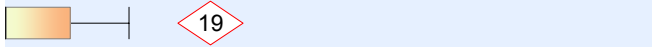
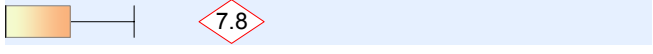
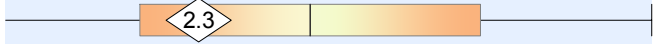

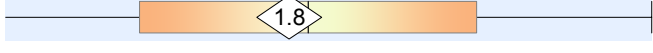
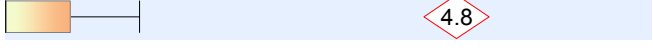

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Metabolic Markers in Urine	Reference Range (mmol/mol creatinine)	Patient Value	Reference Population - Females Under Age 13
Oxalate Metabolites			
18 Glyceric	0.71 - 9.5	H 18	
19 Glycolic	20 - 202	100	
20 Oxalic	15 - 174	H 483	
Glycolytic Cycle Metabolites			
21 Lactic	0.18 - 44	H 301	
22 Pyruvic	0.88 - 9.1	9.0	
23 2-Hydroxybutyric	≤ 2.2	H 3.7	
Krebs Cycle Metabolites			
24 Succinic	≤ 15	H 105	
25 Fumaric	0.04 - 1.3	0.70	
26 Malic	≤ 2.2	H 2.4	
27 2-Oxoglutaric	≤ 81	H 129	
28 Aconitic	11 - 35	H 37	
29 Citric	59 - 440	H 841	
Neurotransmitter Metabolites			
30 Homovanillic (HVA)	≤ 14	H 19	
31 Vanillylmandelic (VMA)	0.87 - 5.9	H 7.8	
32 5-Hydroxyindoleacetic (5-HIAA)	≤ 7.7	2.3	
33 Quinolinic	0.63 - 6.7	H 11	
34 Kynurenic	≤ 4.1	1.8	
35 Quinolinic / 5-HIAA Ratio	0.04 - 2.2	H 4.8	
36 Quinolinic / Kynurenic Ratio	0.36 - 3.8	H 6.2	

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Pyrimidine Metabolites

37	Uracil	≤ 19		16	
38	Thymine	0.02 - 0.88		0.44	

Ketone and Fatty Acid Oxidation

39	3-Hydroxybutyric	≤ 4.1	H	26	
40	Acetoacetic	≤ 10	H	38	
41	4-Hydroxybutyric	≤ 3.4		0.44	
42	Ethylmalonic	≤ 4.6		4.1	
43	Methylsuccinic	≤ 4.3		2.4	
44	Adipic	≤ 9.7		2.8	
45	Suberic	≤ 9.5		6.5	
46	Sebacic	≤ 0.37	H	0.46	

Nutritional Markers

Vitamin B12					
47	Methylmalonic	≤ 6.2		5.2	
Vitamin B6					
48	Pyridoxic	≤ 59		8.0	
Vitamin B5					
49	Pantothenic	≤ 26	H	43	
Vitamin B2 (Riboflavin)					
50	Glutaric	≤ 1.1	H	3.2	
Vitamin C					
51	Ascorbic	10 - 200	L	2.6	
Vitamin Q10 (CoQ10)					
52	3-Hydroxy-3-methylglutaric	≤ 101		47	
Glutathione Precursor and Chelating Agent					
53	N-Acetylcysteine	≤ 0.41		0.23	

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Nutritional Markers

Biotin (Vitamin H)

54	Methylcitric	≤ 5.5	1.4	
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Indicators of Detoxification

55	Pyroglutamic	7.0 - 63	56	
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56	Orotic	≤ 0.88	0.81	
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57	2-Hydroxyhippuric	≤ 1.2	H 1.6	
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Amino Acid Metabolites

58	2-Hydroxyisovaleric	≤ 1.2	0.85	
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59	2-Oxoisovaleric	0.03 - 2.4	0.76	
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60	3-Methyl-2-oxovaleric	≤ 1.1	0.10	
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61	2-Hydroxyisocaproic	≤ 0.70	0.20	
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62	2-Oxoisocaproic	≤ 0.54	0.09	
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63	2-Oxo-4-methylbutyric	≤ 0.30	0.11	
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64	Mandelic	≤ 0.28	0.17	
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65	Phenyllactic	≤ 0.27	0.02	
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66	Phenylpyruvic	0.45 - 2.3	0.62	
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67	Homogentisic	≤ 0.51	0.09	
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68	4-Hydroxyphenyllactic	0.04 - 1.1	0.74	
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69	N-Acetylaspartic	≤ 8.1	2.3	
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70	Malonic	≤ 12	3.5	
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71	3-Methylglutaric	0.07 - 0.95	H 1.8	
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Bone Metabolites

72	Phosphoric	≤ 10769	8450	
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Indicator of Fluid Intake

73 *Creatinine

31 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).

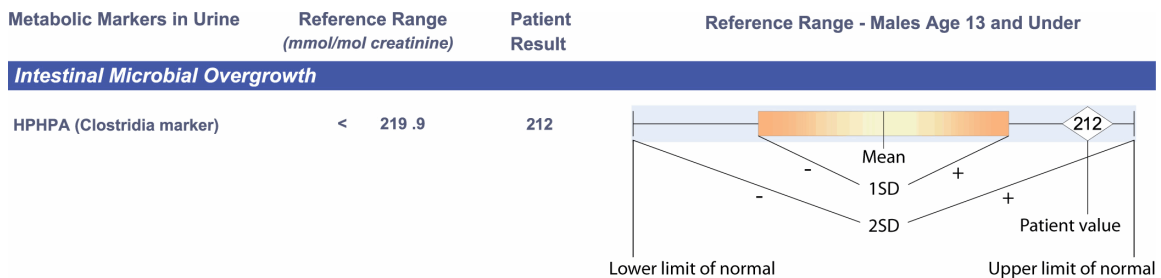
There are two types of graphical representations of patient values found in the new report format of both the standard Organic Acids Test and the Microbial Organic Acids Test.

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

