

Requisition #:

Practitioner:

Patient Name:

Date of Collection:

Date of Birth:

Patient Age:

Time of Collection:

Patient Sex:

Print Date:

Specimen Id.:



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
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Intestinal Microbial Overgrowth

Yeast and Fungal Markers

1 Citramalic	≤ 3.6	H 3.8	
2 5-Hydroxymethyl-2-furoic (Aspergillus)	≤ 14	H 260	
3 3-Oxoglutaric	≤ 0.33	H 1.7	
4 Furan-2,5-dicarboxylic (Aspergillus)	≤ 16	H 61	
5 Furancarboxylglycine (Aspergillus)	≤ 1.9	0.55	
6 Tartaric (Aspergillus)	≤ 4.5	H 35	
7 Arabinose	≤ 29	H 128	
8 Carboxycitric	≤ 29	1.0	
9 Tricarballic (Fusarium)	≤ 0.44	0.26	

Bacterial Markers

10 Hippuric	≤ 613	H 1,519	
11 2-Hydroxyphenylacetic	0.06 - 0.66	H 1.2	
12 4-Hydroxybenzoic	≤ 1.3	H 4.0	
13 4-Hydroxyhippuric	0.79 - 17	H 59	
14 DHPPA (Beneficial Bacteria)	≤ 0.38	H 0.43	

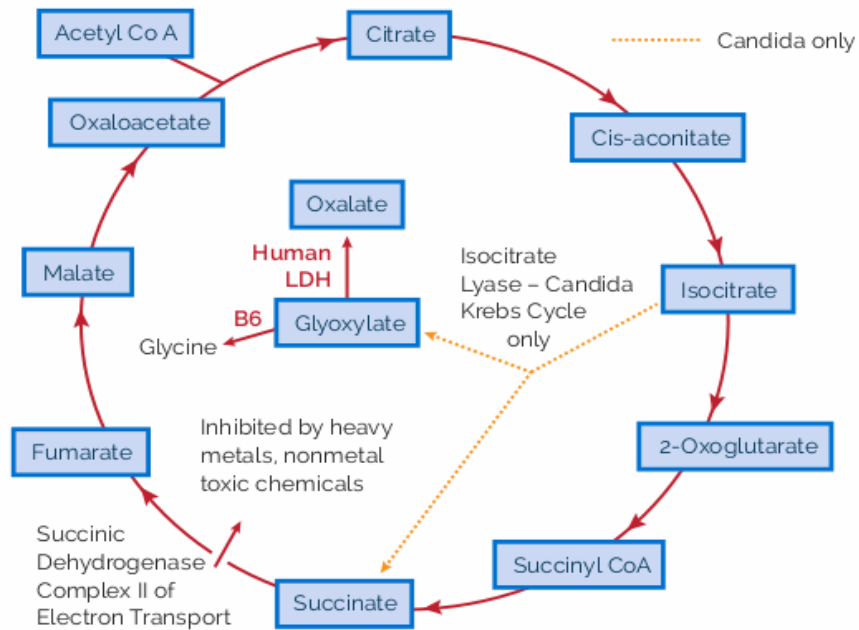
Clostridia Bacterial Markers

15 4-Hydroxyphenylacetic (C. difficile, C. stricklandii, C. lituseburensis & others)	≤ 19	H 23	
16 HPHPA (C. sporogenes, C. caloritolerans, C. botulinum & others)	≤ 208	132	
17 4-Cresol (C. difficile)	≤ 75	1.6	
18 3-Indoleacetic (C. stricklandii, C. lituseburensis, C. subterminale & others)	≤ 11	3.9	

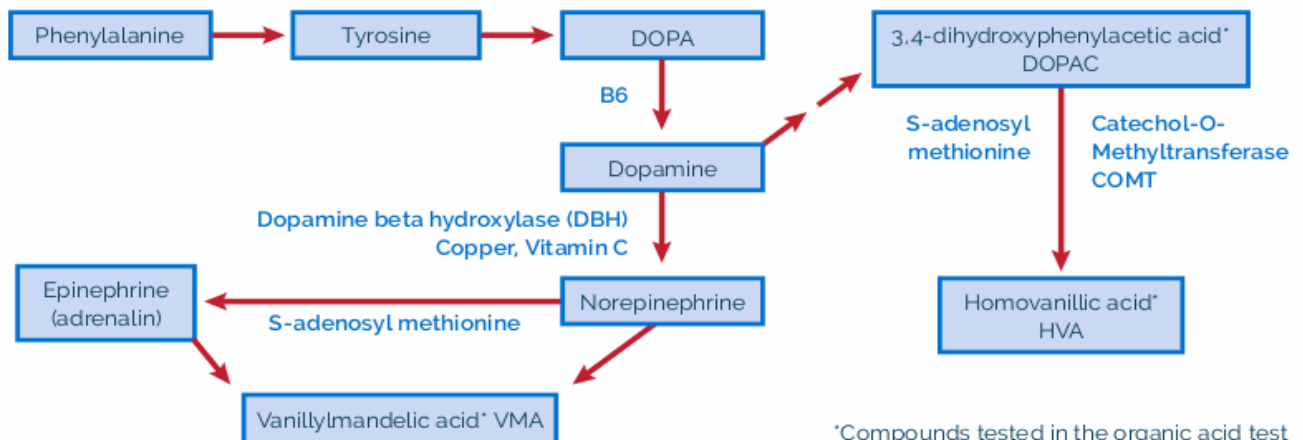
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Human Krebs Cycle showing Candida Krebs Cycle variant that causes excess Oxalate via Glyoxylate



Major pathways in the synthesis and breakdown of catecholamine neurotransmitters in the absence of microbial inhibitors



*Compounds tested in the organic acid test

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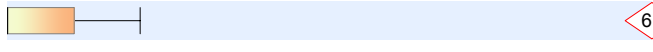
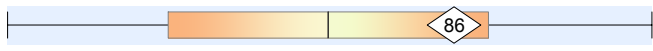
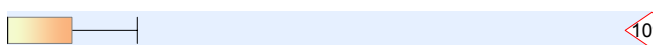
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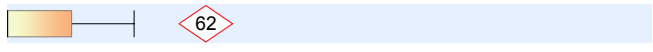
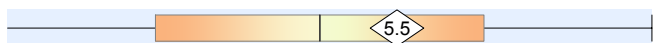
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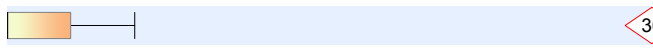
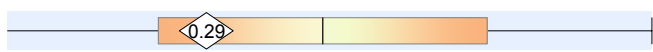
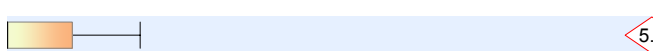
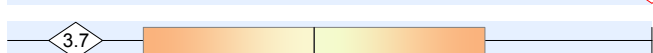
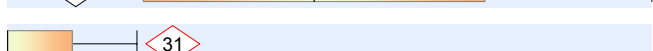
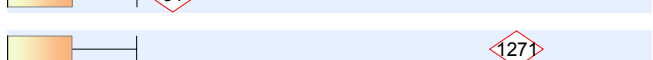
Oxalate Metabolites

19	Glyceric	0.77 - 7.0	H 61	
20	Glycolic	16 - 117	86	
21	Oxalic	6.8 - 101	H 1,093	

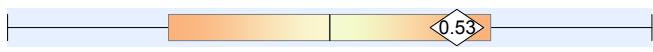
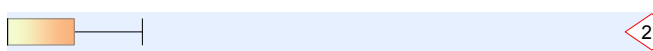
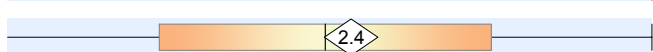
Glycolytic Cycle Metabolites

22	Lactic	≤ 48	H 62	
23	Pyruvic	≤ 9.1	5.5	

Mitochondrial Markers - Krebs Cycle Metabolites

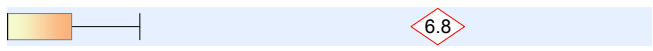
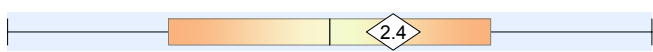

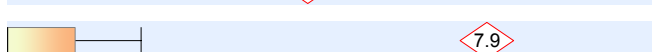
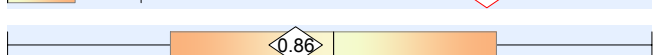
24	Succinic	≤ 9.3	H 36	
25	Fumaric	≤ 0.94	0.29	
26	Malic	0.06 - 1.8	H 5.2	
27	2-Oxoglutaric	≤ 35	3.7	
28	Aconitic	6.8 - 28	H 31	
29	Citric	≤ 507	H 1,271	

Mitochondrial Markers - Amino Acid Metabolites


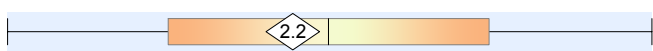
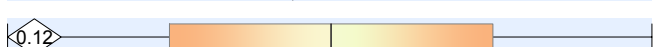
30	3-Methylglutaric	≤ 0.76	0.53	
31	3-Hydroxyglutaric	≤ 6.2	H 21	
32	3-Methylglutaconic	≤ 4.5	2.4	

Neurotransmitter Metabolites

Phenylalanine and Tyrosine Metabolites

33	Homovanillic (HVA) <i>(dopamine)</i>	0.80 - 3.6	H 6.8	
34	Vanillylmandelic (VMA) <i>(norepinephrine, epinephrine)</i>	0.46 - 3.7	2.4	
35	HVA / VMA Ratio	0.16 - 1.8	H 2.9	
36	Dihydroxyphenylacetic (DOPAC) <i>(dopamine)</i>	0.08 - 3.5	H 7.9	
37	HVA/ DOPAC Ratio	0.10 - 1.8	0.86	

Tryptophan Metabolites

38	5-Hydroxyindoleacetic (5-HIAA) <i>(serotonin)</i>	≤ 4.3	1.9	
39	Quinolinic	0.85 - 3.9	2.2	
40	Kynurenic	≤ 2.2	0.12	

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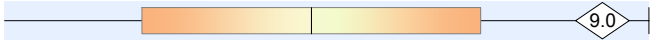
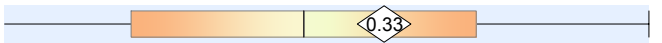
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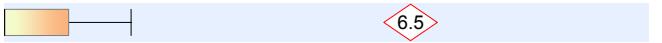
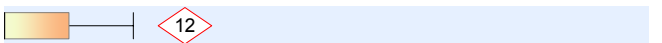
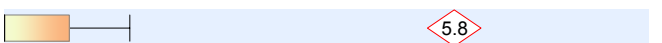
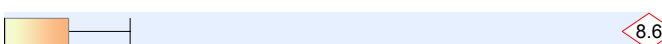
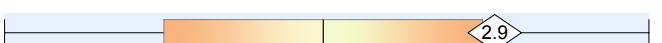
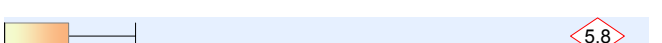
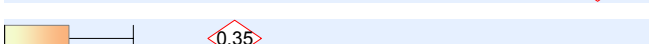
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Pyrimidine Metabolites - Folate Metabolism

41	Uracil	≤ 9.7	9.0	
42	Thyminine	≤ 0.56	0.33	

Ketone and Fatty Acid Oxidation

43	3-Hydroxybutyric	≤ 3.1	H 6.5	
44	Acetoacetic	≤ 10	H 12	
45	Ethylmalonic	0.44 - 2.8	H 5.8	
46	Methylsuccinic	0.10 - 2.2	H 8.6	
47	Adipic	0.04 - 3.8	2.9	
48	Suberic	0.18 - 2.2	H 5.8	
49	Sebacic	≤ 0.24	H 0.35	

Nutritional Markers

Vitamin B12

50	Methylmalonic *	≤ 2.3	1.8	
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Vitamin B6

51	Pyridoxic (B6)	≤ 34	H 35	
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Vitamin B5

52	Pantothenic (B5)	≤ 10	H 72	
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Vitamin B2 (Riboflavin)

53	Glutaric *	0.04 - 0.36	H 1.4	
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Vitamin C

54	Ascorbic	10 - 200	L 5.8	
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Vitamin Q10 (CoQ10)

55	3-Hydroxy-3-methylglutaric *	0.17 - 39	25	
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Glutathione Precursor and Chelating Agent

56	N-Acetylcysteine (NAC)	≤ 0.28	0.22	
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Biotin (Vitamin H)

57	Methylcitric *	0.19 - 2.7	1.5	
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* A high value for this marker may indicate a deficiency of this vitamin.

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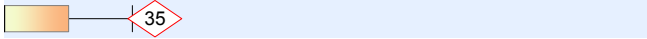
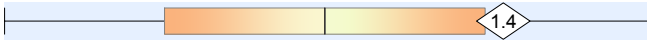
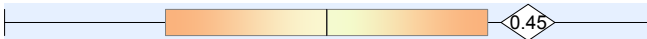

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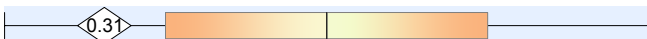
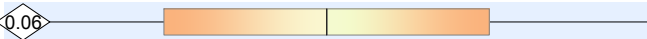
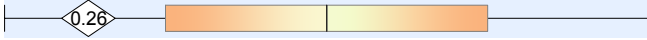
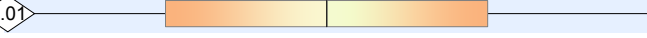

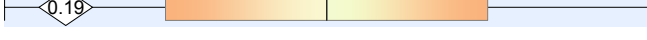
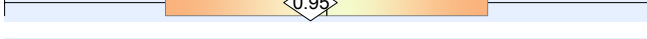
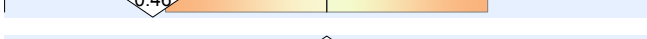
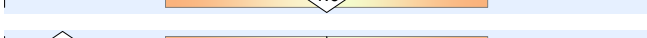
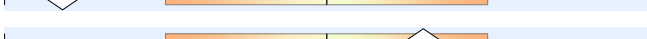
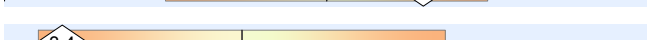
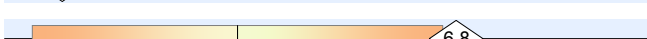
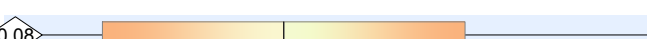

Indicators of Detoxification

Glutathione

58 Pyroglutamic *	10 - 33	H 35	
Methylation, Toxic exposure			
59 2-Hydroxybutyric **	0.03 - 1.8	1.4	
Ammonia Excess			
60 Orotic	0.06 - 0.54	0.45	
Aspartame, salicylates, or GI bacteria			
61 2-Hydroxyhippuric	≤ 1.3	1.3	

* A high value for this marker may indicate a Glutathione deficiency.
 ** High values may indicate methylation defects and/or toxic exposures.

Amino Acid Metabolites

62 2-Hydroxyisovaleric	≤ 2.0	0.31	
63 2-Oxoisovaleric	≤ 2.1	0.06	
64 3-Methyl-2-oxovaleric	≤ 2.0	0.26	
65 2-Hydroxyisocaproic	≤ 2.0	0.01	
66 2-Oxoisocaproic	≤ 2.0	0.10	
67 2-Oxo-4-methylbutyric	≤ 2.0	0.19	
68 Mandelic	≤ 2.0	0.95	
69 Phenyllactic	≤ 2.0	0.46	
70 Phenylpyruvic	≤ 2.0	1.0	
71 Homogentisic	≤ 2.0	0.18	
72 4-Hydroxyphenyllactic	≤ 2.0	1.3	
73 N-Acetylaspartic	≤ 38	3.4	
74 Malonic	≤ 9.7	6.8	
75 4-Hydroxybutyric	≤ 4.8	0.08	

Mineral Metabolism

76 Phosphoric	1,000 - 5,000	L 939	
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