



Requisition #:

Physician Name:

Patient Name:

Date of Collection:

Patient Age:

Time of Collection:

Sex:

Print Date:

Microbial Organic Acids Test

Metabolic Markers in Urine	Reference Range (mmol/mol creatinine)	Patient Value	Reference Population - Males Under Age 13
Yeast / Fungal Metabolites			
1 Citramalic	≤ 5.0	2.0	
2 5-Hydroxymethyl-2-furoic	≤ 28	14	
3 3-Oxoglutaric	≤ 0.46	H 0.64	
4 Furan-2,5-dicarboxylic	≤ 18	H 21	
5 Furancarboxylglycine	≤ 3.1	2.0	
6 Tartaric	≤ 6.5	1.7	
7 Arabinose	≤ 50	H 51	
8 Carboxycitric	≤ 25	H 29	
Bacterial Metabolites			
9 2-Hydroxyphenylacetic	≤ 0.86	0.43	
10 4-Hydroxyphenylacetic	2.0 - 32	7.7	
11 4-Hydroxybenzoic	≤ 3.0	H 3.6	
12 4-Hydroxyhippuric	≤ 30	H 40	
13 HPPA (Clostridia marker)	≤ 220	66	
14 DHPPA (beneficial bacteria)	≤ 0.59	0.33	
Additional Indicators			
15 Hippuric	≤ 680	530	
16 3-Indoleacetic	0.60 - 14	L 0.15	

The Great Plains Laboratory, Inc.

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Additional Indicators

17 Glyceric	0.74 - 13	9.4	
18 Glycolic	27 - 221	90	
19 3-Hydroxy-3-methylglutaric	≤ 88	12	
20 2-Hydroxyhippuric	≤ 1.2	H 2.0	

Indicator of Fluid Intake

21 Creatinine 70 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

Metabolic Markers in Urine	Reference Range (mmol/mol creatinine)	Patient Result	Reference Range - Males Age 13 and Under
Bacterial Metabolites			
HPHPA (Clostridia marker)	< 219.9	212	

Example of Elevated Value

Metabolic Markers in Urine	Reference Range (mmol/mol creatinine)	Patient Result	Reference Range - Males Age 13 and Under
Bacterial Metabolites			
HPHPA (Clostridia marker)	< 219.9	H 3894	