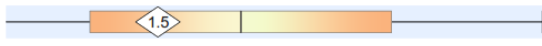

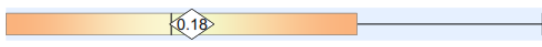



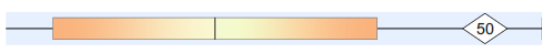
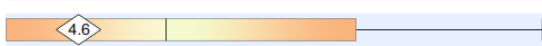
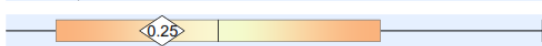
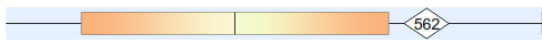



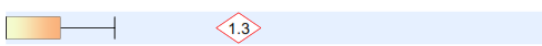
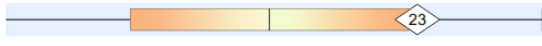
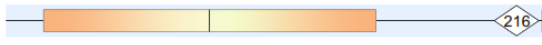
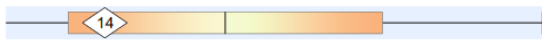
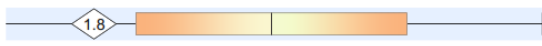
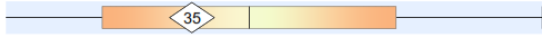



**TEST NAME: Microbial Organic Acids Test (MOAT)**



**Microbial Organic Acids Test**

Metabolic Markers in Urine	Reference Range (mmol/mol creatinine)	Patient Value	Reference Population - Females Under Age 13
<b>Intestinal Microbial Overgrowth</b>			
<b>Yeast and Fungal Markers</b>			
1 Citramalic	≤ 5.3	1.5	
2 5-Hydroxymethyl-2-furoic	≤ 30	8.2	
3 3-Oxoglutaric	≤ 0.52	0.18	
4 Furan-2,5-dicarboxylic	≤ 22	6.1	
5 Furancarboxylglycine	≤ 3.6	0.15	
6 Tartaric	≤ 3.9	0.61	
7 Arabinose	≤ 56	50	
8 Carboxycitric	≤ 34	4.6	
9 Tricarballic	≤ 0.86	0.25	
<b>Bacterial Markers</b>			
10 Hippuric	≤ 717	562	
11 2-Hydroxyphenylacetic	≤ 1.1	0.43	
12 4-Hydroxybenzoic	0.09 - 2.0	1.1	
13 4-Hydroxyhippuric	≤ 27	15	
14 DHPPA (Beneficial Bacteria)	≤ 0.73	<b>H</b> 1.3	
<b>Clostridia Bacterial Markers</b>			
15 4-Hydroxyphenylacetic <i>(C. difficile, C. stricklandii, C. lituseburense &amp; others)</i>	≤ 30	23	
16 HPHPA <i>(C. sporogenes, C. caloritolerans, C. botulinum &amp; others)</i>	≤ 227	216	
17 4-Cresol <i>(C. difficile)</i>	≤ 76	14	
18 3-Indoleacetic <i>(C. stricklandii, C. lituseburense, C. subterminale &amp; others)</i>	≤ 11	1.8	
<b>Additional Indicators</b>			
19 3-Hydroxy-3-methylglutaric	≤ 101	35	
20 2-Hydroxyhippuric	≤ 1.2	<b>H</b> 2.2	

This test was developed, and its performance characteristics determined by Mosaic Diagnostics Laboratory. It has not been cleared or approved by the US Food and Drug Administration.

**TEST NAME: Microbial Organic Acids Test (MOAT)**

**Indicator of Fluid Intake**

21 \*Creatinine 143 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 ( $\geq 13$  years), Female Adult ( $\geq 13$  years), Male Child ( $< 13$  years), and Female Child ( $< 13$  years).

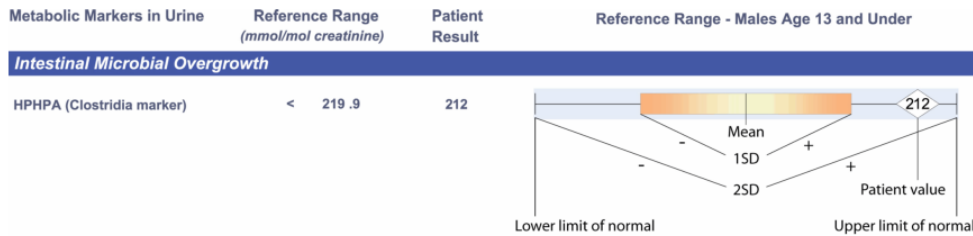
There are two types of graphical representations of patient values found in the new report format of both the standard Organic Acids Test and the Microbial Organic Acids Test.

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.

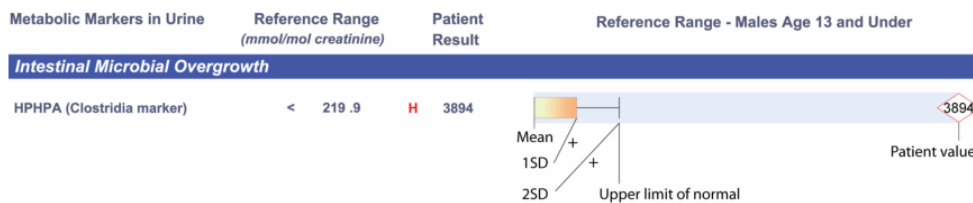
The second graph will occur when the value of the patient exceeds the upper limit of normal. In such cases, the graphical reference range is "shrunk" so that the degree of abnormality can be appreciated at a glance. In this case, the lower limits of normal are not shown, only the upper limit of normal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



PATIENT: <b>Sample Report</b>		TEST REF: <b>TST-NL-XXXXXX</b>
TEST NUMBER: T-NL-XXXXXX	COLLECTED: DD-MM-YYYY	PRACTITIONER:
GENDER: M/F	TESTED: DD-MM-YYYY	<b>Nordic Laboratories ApS</b>
AGE: XX		

**TEST NAME: Microbial Organic Acids Test (MOAT)**

**Interpretation**

**High DHPPA (3,4 dihydroxyphenylpropionic acid) (Marker 14)** indicates excessive intake of chlorogenic acid, a common substance found in beverages and in many fruits and vegetables, including apples, pears, tea, coffee, sunflower seeds, carrots, blueberries, cherries, potatoes, tomatoes, eggplant, sweet potatoes, and peaches. Harmless or beneficial bacteria such as Lactobacilli, Bifidobacteria, and E. coli mediate the breakdown of chlorogenic acid to 3,4-dihydroxyphenylpropionic acid (DHPPA), and high values may indicate increased amounts of these species in the GI tract. In addition, one *Clostridia* species, *C. orbiscindens*, can convert the flavanoids luteolin and eriodictyol, occurring only in a relatively small food group that includes parsley, thyme, celery, and sweet red pepper to 3,4-dihydroxyphenylpropionic acid. The quantity of *Clostridia orbiscindens* in the GI tract is negligible (approximately 0.1% of the total bacteria) compared to the predominant flora of *Lactobacilli*, *Bifidobacteria*, and *E. coli*. Consequently, this marker is essentially useless as a general *Clostridia* marker but may be a good indicator of the presence of beneficial flora.

**High 2-hydroxyhippuric acid (Marker 20)** may result after ingestion of aspartame (Nutrasweet®) or salicylates (aspirin), or from GI bacteria converting tyrosine or phenylalanine to salicylic acid. 2-Hydroxyhippuric acid is a conjugate of hydroxybenzoic acid (salicylic acid) and glycine.

*The nutritional recommendations in this test are not approved by the US FDA. Supplement recommendations are not intended to treat, cure, or prevent any disease and do not take the place of medical advice or treatment from a healthcare professional.*