

ORGANIC ACIDS DEMO

Name: ORGANIC ACIDS DEMO
Date of Birth: 01-01-1111
Gender: Male
Age: 01
Height: 72 inches
Weight: 170 lbs
Fasting: FASTING

Telephone: 000-000-0000
Street Address:
Email:

FINAL REPORT

Accession ID: 2309010035

Provider Information

Practice Name: DEMO CLIENT, MD Telephone: 000-000-0000
Provider Name: DEMO CLIENT, MD Address: 3521 Leonard Ct, Santa Clara, CA 95054
Phlebotomist: 0

Report Information

Current Result Previous Result In Control Moderate Risk

Specimen Information

Sample Type	Collection Time	Received Time	Report	Final Report Date
Metal Free Urine	2023-09-11 16:45 (PDT)	2023-09-13 15:40 (PDT)	Organic Acids - P2	2023-09-27 11:19 (PDT)

SAMPLE



3521 Leonard Ct, Santa Clara, CA 95054
1-866-364-0963 | support@vibrant-america.com | www.vibrant-america.com

TNP Test not performed

R&L Refer to risks and limitations at the end of report

Notes Refer to Lab notes at the end of the table

INTRODUCTION

Vibrant Wellness is pleased to present to you, 'Organic acids', to help you make healthy lifestyle, dietary and treatment choices in consultation with your healthcare provider. It is intended to be used as a tool to encourage a general state of health and well-being. Vibrant Organic acids is a test to identify and quantify the level of a large set of organic acids from urine. This panel is designed to provide a comprehensive assessment of metabolism products including evaluation of intestinal microbial overgrowth, detoxification, mitochondrial markers, neurotransmitter metabolism, glutathione status, fatty acid metabolism, inborn errors of metabolism.

Methodology:

The Vibrant Organic Acids panel uses Gas Chromatography Tandem Mass Spectrometry (GC-MS/MS) for quantitative detection of organic acids in urine samples. Additionally, catecholamine metabolites and serotonin & kynurenine metabolites are measured using tandem mass spectrometry methodology (LC-MS/MS). Urine creatinine is measured using a kinetic colorimetric assay based on the Jaffé method. All Organic acids are reported as the quantitative result normalized to urine creatinine to account for urine dilution variations.

Interpretation of Report:




The report begins with the summary page which lists only the organic acids whose levels are outside the normal reference range. Reference ranges have been established using a cohort of 1000 apparently healthy individuals. Following this section is a graphical representation of the AXON terminal and a summary of Krebs cycle including the results for the relevant analytes. This is followed by a complete list of the organic acids which are represented normalized to urinary creatinine, in a bar graph form to enable a full overview along with the reference ranges. The level of the organic acid has a green (normal) or red (high/low) highlight around the cell indicating the corresponding result based on the reference range of each organic acid. Additionally, the previous value (if available) is also indicated to help check for improvements every time the test is ordered.

The Vibrant Wellness platform provides tools for you to track and analyze your general wellness profile. Testing for the Organic acids panel is performed by Vibrant America, a CLIA certified lab CLIA#:05D2078809. Vibrant Wellness provides and makes available this report and any related services pursuant to the Terms of Use Agreement (the "Terms") on its website at www.vibrant-wellness.com. By accessing, browsing, or otherwise using the report or website or any services, you acknowledge that you have read, understood, and agree to be bound by these terms. If you do not agree to these terms, you shall not access, browse, or use the report or website. The statements in this report have not been evaluated by the Food and Drug Administration and are only meant to be lifestyle choices for potential risk mitigation. Please consult your physician/dietitian for medication, treatment, or lifestyle management. This product is not intended to diagnose, treat, or cure any disease.

Please note:

Pediatric ranges have not been established for this test. It is important that you discuss any modifications to your diet, exercise, and nutritional supplementation with your physician before making any changes. To schedule an appointment with Vibrant Clinical Dietitians please call: Toll-Free 866-364-0963.


Amino Acid Metabolites

Amino Acid Metabolites	Current	Previous	Result	Reference
2-Hydroxyisovaleric acid (mmol/mol)	1.55			≤0.4
<p>The metabolite 2-hydroxyisovaleric acid is mainly formed from ketogenesis and metabolism of valine, leucine, and isoleucine[vi]. Urinary 2-hydroxyisovaleric acid is associated with lactic acidosis and ketoacidosis. Additionally, chronically high levels of 2-hydroxyisovaleric acid are found in the urine of patients with phenylketonuria, methylmalonic acidemia, propionic acidemia, 3-ketothiolase deficiency, isovaleric acidemia, 3-hydroxy-3-methylglutaric acidemia, multiple carboxylase deficiency, glutaric aciduria, ornithine transcarbamylase deficiency, glyceroluria, tyrosinemia type I, galactosemia, and maple syrup urine disease.</p>				
Homogentisic acid (mmol/mol)	1.09			≤0.35
<p>Homogentisic acid is an intermediate in the breakdown or catabolism of tyrosine and phenylalanine. Chronically high levels of homogentisic acid are associated with alkaptonuria, a rare inborn error of metabolism in which the body cannot process the amino acids phenylalanine and tyrosine. Slight increases may indicate the heterozygous genetic carrier state of the disease. The accumulating homogentisic acid may cause damage to cartilage and heart valves as well as precipitate kidney stones and stones in other organs. Vitamin C may exacerbate Alkaptonuria[ix]</p>				
N-Acetylaspartic acid (mmol/mol)	10.21			≤3.9
<p>N-Acetylcysteine acid is the N-acetyl derivative of the amino acid L-cysteine. N-Acetylcysteine acid is the rate-limiting precursor for glutathione synthesis, which is the master antioxidant, that's also important for immune defense and detoxification in the body. N-acetylcysteine acid is a pharmacological agent used in the management of paracetamol (acetaminophen) overdoses. In this treatment, N-acetylcysteine aids in maintaining or replenishing depleted glutathione reserves in the liver, thus enhancing the non-toxic metabolism of acetaminophen. High levels can be due to supplementation and can be associated with symptoms such as nausea, vomiting, diarrhea, and dry mouth. Low levels may require NAC supplementation or increased food sources of cysteine.</p>				


Detoxification & Oxidative Stress

No markers are outside the normal reference range

Metabolism & Mitochondrial Function


Amino Acid Metabolites	Current	Previous	Result	Reference
4-Hydroxybutyric acid (mmol/mol)	17.16			≤4.57
<p>4-Hydroxyhippuric acid is a glycine conjugate of 4-hydroxybenzoic acid. 4-hydroxybenzoic acid is a microbial end-product derived from unabsorbed dietary tyrosine, polyphenol metabolism by intestinal microflora, and is a paraben preservative found in products such as deodorants, shampoos, toothpaste, moisturizers, foods (pie fillings, jams, pickles) drinks-beer. Elevated levels can be a result of exposure to paraben preservatives or intake of fruits containing polyphenols rich in anthocyanins, flavonols, and hydroxycinnamates. Consider a Gut zoomer test in order to determine if this is due to normal flora or imbalanced flora, and environmental toxins to determine paraben exposures. Avoiding paraben-containing foods and personal care products may be advised.</p>				

Microbial Metabolites


Fungal Metabolites	Current	Previous	Result	Reference
Arabinose (mmol/mol)	112.99			≤30.0

Arabinose is produced by the action of *Candida* hyaluronidase on the intercellular cement hyaluronic acid. The oxidative products of hyaluronic acid breakdown include arabinose as well as tartaric acid. Arabinose has been found elevated in urine of autistic males and reduced after nystatin therapy. Arabinose is also a major sugar in apples, grapes, and pears, therefore, it's recommended to avoid these foods prior to collecting a sample for the organic acids test. Correlation of candida with clinical symptoms can vary depending on individual sensitivity, total microbial burden, function of glutathione system, acetaldehyde dehydrogenase, general nutritional status and functional health of the individual. Follow-up testing with gut zoomer and fungal antibodies can help further determine root cause. Comprehensive gastrointestinal protocols may be recommended, to include anti-fungals (herbal or prescription), high potency probiotics, detox support and intestinal lining support.

Neurotransmitters & Stress Hormones

Catecholamine Metabolites & Ratios	Current	Previous	Result	Reference
HVA/DOPAC Ratio	8.47			2.6-8.3

A low ratio indicates a higher level of DOPAC compared to HVA. Factors that contribute to a low ratio include slowed COMT activity, impaired methylation, magnesium deficiency and heavy metal toxicity. A high ratio indicates a higher level of HVA compared to DOPAC. Factors that contribute to a high ratio include increased methylation and any other factors that may induce COMT activity, such as genetic SNPs, medications, supplements, can also result in a higher ratio.


Serotonin & Kynurenine Metabolites & Ratios	Current	Previous	Result	Reference
Quinolinic acid/5-HIAA Ratio	0.12			0.32-1.1

Quinolinic acid is a neuroactive product of the kynurenine pathway. Quinolinic acid acts as an NMDA receptor agonist and effectively inhibits reuptake of glutamate by astrocytes, contributing to excitotoxicity. Quinolinic acid has multiple neurotoxic impacts on the body, including production of reactive oxygen species, disruption of the blood brain barrier, destabilization of the cellular cytoskeleton, promotion of tau phosphorylation, impaired autophagy and enhanced inflammatory response from proinflammatory mediators in astrocytes. Under certain conditions such as stress or inflammation, L-tryptophan is shunted way from the serotonin pathway and towards the kynurenine pathway, which forms quinolinic acid and then synthesizes NAD+ as the end product.

Nutrition & Oxalates

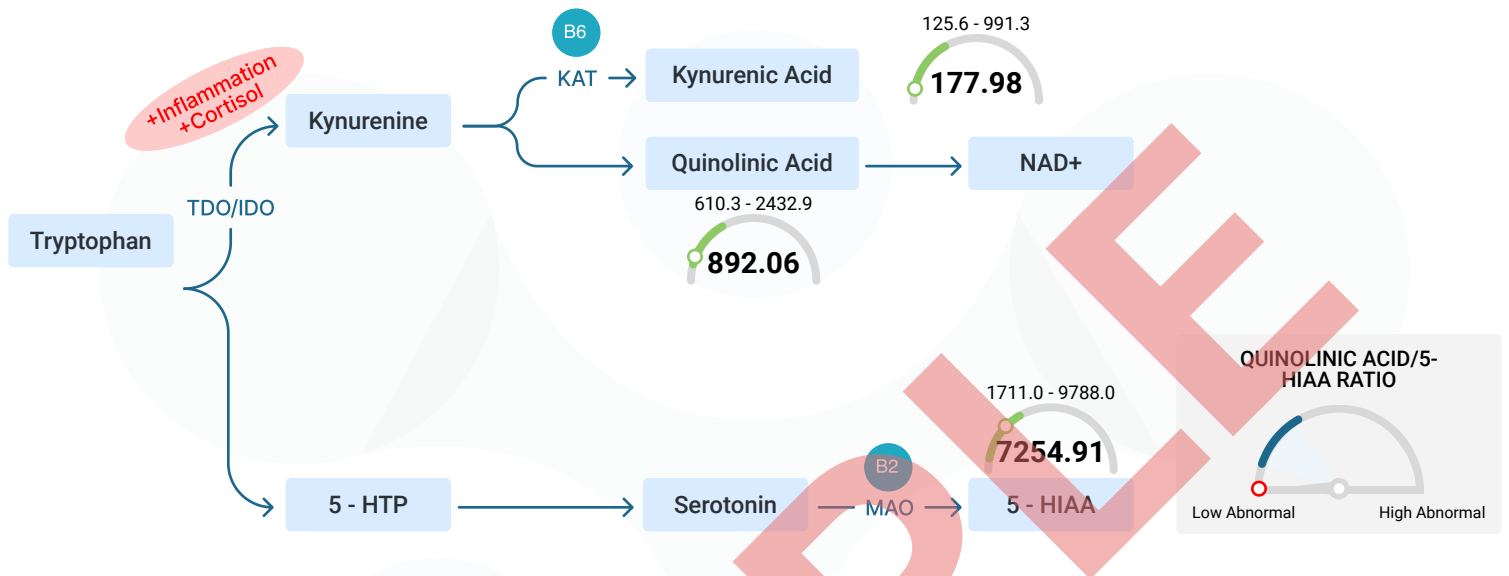
No markers are outside the normal reference range

Creatinine

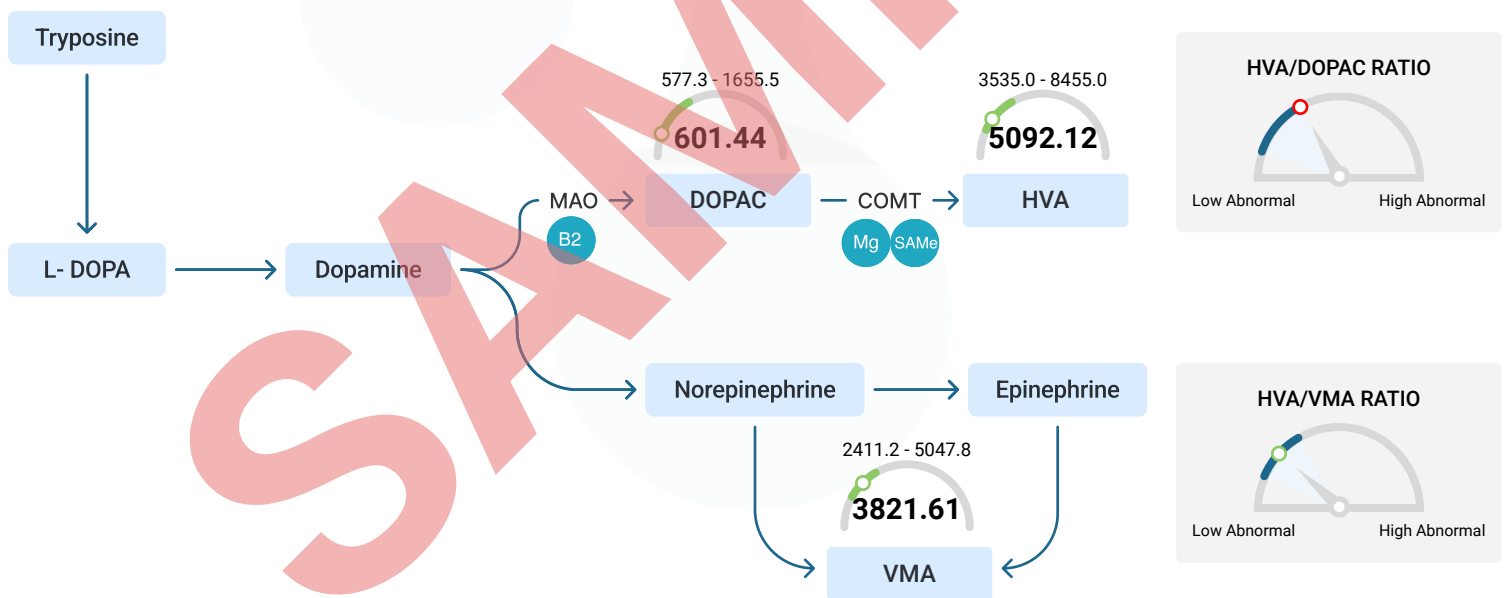
Urine Creatinine	Current	Previous	Result	Reference
Urine Creatinine (mg/ml)	1.87			0.25-2.16

AXON Terminal

Tryptophan metabolites & ratios



Catecholamine Metabolites & Ratios



Legend

High/Low (Red), Moderate (Yellow), In control (Green), Current Value (Black circle)

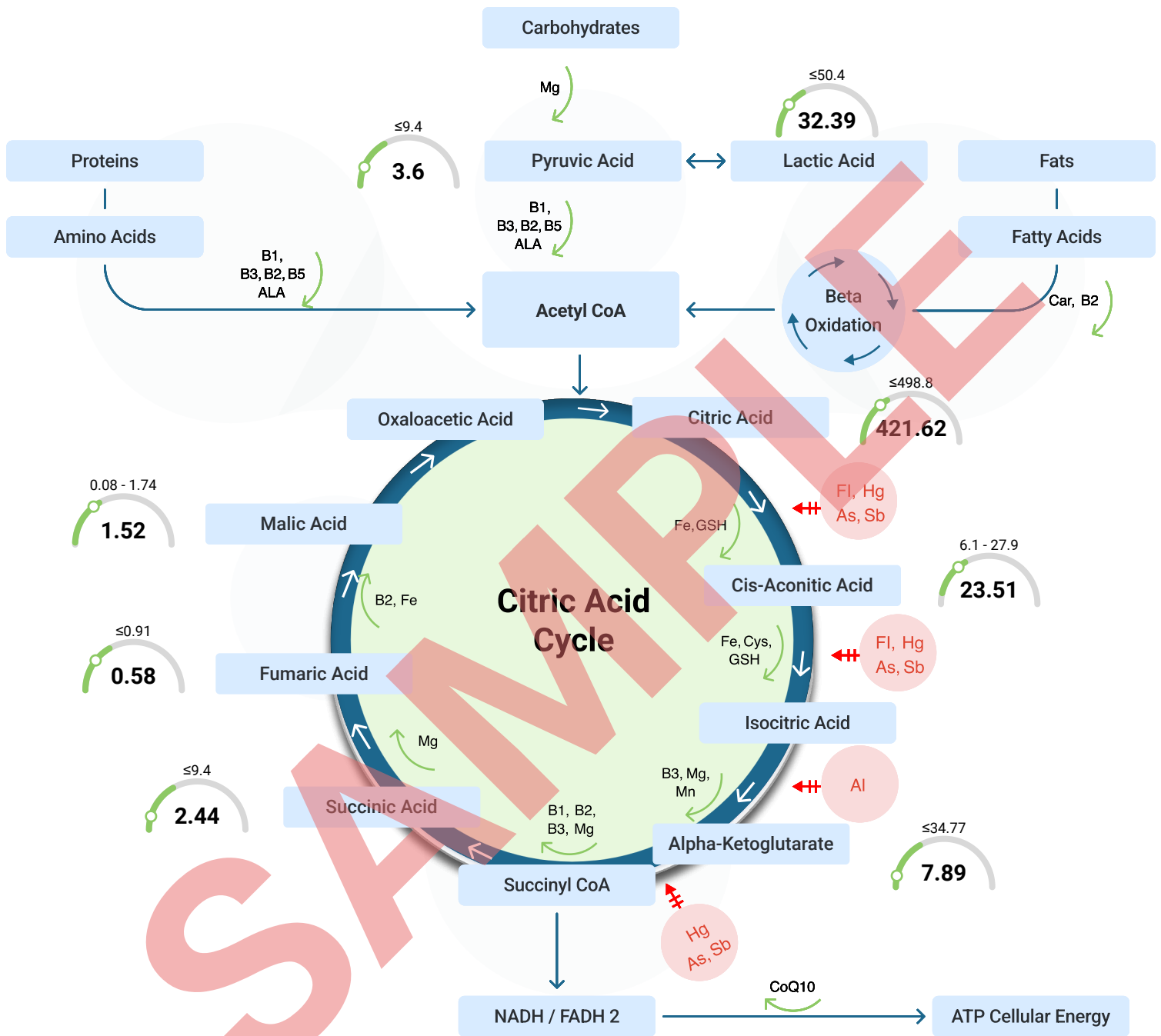
NOTE

Inflammation and cortisol are inducers of the kynurenine pathway

ABBREVIATION KEY

5-HTP	5-hydroxytryptophan	HVA	Homovanillic acid	MAO	Monoamine oxidase
5-HIAA	5-hydroxyindoleacetic acid	IDO	Indoleamine 2,3-dioxygenase	TDO	Tryptophan-2,3-dioxygenase
COMT	Catechol-O-methyltransferase	KAT	Kynurenine aminotransferase	VMA	Vanillylmandelic acid
DOPAC	3,4-dihydroxyphenylacetic acid	L-DOPA	L-3,4-dihydroxyphenylalanine	DBH	Dopamine Beta Hydroxylase

Krebs Cycle At-A-Glance





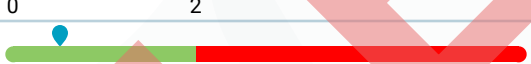


Legend

High/Low Moderate In control Current Value Main Pathway Cofactors Inhibitors

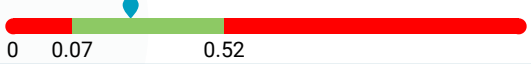

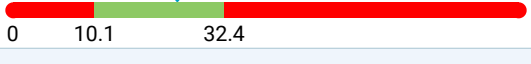
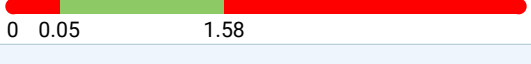

ABBREVIATION KEY

Al	Aluminum	B2	Riboflavin	GSH	Glutathione
As	Arsenic	B3	Niacin	Hg	Mercury
ALA	Alpha lipoic acid	B5	Pantothenic acid	Mg	Magnesium
Car	Carnitine	FAD	Flavin adenine dinucleotide	Mn	Manganese
CoQ10	Co Enzyme Q10	FADH2	Flavin adenine dinucleotide	NADH	Nicotinamide adenine dinucleotide
Cys	Cysteine	FI	Fluoride	Sb	Antimony
B1	Thiamine				

Amino Acid Metabolites

Amino Acid Metabolites	Current	Previous	Result	Reference
2-Hydroxyisocaproic acid (mmol/mol)	0.77			≤0.88
2-Hydroxyisovaleric acid (mmol/mol)	1.55			≤0.4
2-Oxo-4-methiolbutyric acid (mmol/mol)	0.06			≤0.18
2-Oxoisocaproic acid (mmol/mol)	0.30			≤0.41
2-Oxoisovaleric (mmol/mol)	1.89			≤2.0
3-Methyl-2-oxovaleric acid (mmol/mol)	0.47			≤2.6
4-Hydroxyphenyllactic acid (mmol/mol)	0.29			≤0.84
Homogentisic acid (mmol/mol)	1.09			≤0.35
Malonic acid (mmol/mol)	0.91			≤9.8
N-Acetylaspartic acid (mmol/mol)	10.21			≤3.9
Phenyllactic acid (mmol/mol)	0.16			≤0.21
Phenylpyruvic acid (mmol/mol)	1.98			0.23-2.2






Detoxification & Oxidative Stress




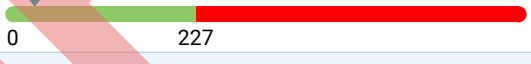
Ammonia	Current	Previous	Result	Reference
Orotic acid (mmol/mol)	0.22			0.08-0.52
Glutathione	Current	Previous	Result	Reference
N-Acetylcysteine acid (mmol/mol)	0.18			≤0.26
Pyroglutamic acid (mmol/mol)	25.98			10.14-32.45
Oxidative Stress	Current	Previous	Result	Reference
2-Hydroxybutyric acid (mmol/mol)	1.13			0.06-1.58
Toxins	Current	Previous	Result	Reference
Mandelic acid (mmol/mol)	0.16			≤0.24










Metabolism & Mitochondrial Function

Amino Acid Metabolites	Current	Previous	Result	Reference
4-Hydroxybutyric acid (mmol/mol)	17.16			≤4.57
Fat & Ketones	Current	Previous	Result	Reference
3-Hydroxybutyric acid (mmol/mol)	2.01			≤3.5
Acetoacetic acid (mmol/mol)	7.00			≤9.6
Adipic acid (mmol/mol)	3.16			0.04-3.9
Ethylmalonic acid (mmol/mol)	2.09			0.47-2.74
Methylsuccinic acid (mmol/mol)	0.33			0.13-2.14
Sebacic acid (mmol/mol)	0.10			≤0.23
Suberic acid (mmol/mol)	0.68			0.16-2.18
Glycolysis	Current	Previous	Result	Reference
Lactic acid (mmol/mol)	32.39			≤50.4
Pyruvic acid (mmol/mol)	3.60			≤9.4
Kreb's Cycle	Current	Previous	Result	Reference
Citric acid (mmol/mol)	421.62			≤498.8
Cis-aconitic acid (mmol/mol)	23.51			6.1-27.9
Alpha-ketoglutarate (mmol/mol)	7.89			≤34.77
Succinic acid (mmol/mol)	2.44			≤9.4
Fumaric acid (mmol/mol)	0.58			≤0.91
Malic acid (mmol/mol)	1.52			0.08-1.74
Mitochondrial Function	Current	Previous	Result	Reference
3-Hydroxyglutaric acid (mmol/mol)	0.82			≤4.9
3-Methylglutaconic (mmol/mol)	2.31			≤6.2
3-Methylglutaric acid (mmol/mol)	0.42			≤0.75

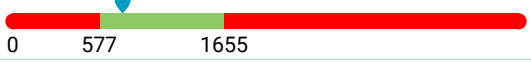
Microbial Metabolites

Bacterial Metabolites	Current	Previous	Result	Reference
2-Hydroxyphenylacetic acid (mmol/mol)	0.62			0.05-0.69
4-Hydroxybenzoic acid (mmol/mol)	0.77			≤1.3
4-Hydroxyhippuric acid (mmol/mol)	3.15			0.74-16.98
Dihydroxyphenylpropionic acid(DHPPA) (mmol/mol)	0.20			≤0.44
Hippuric acid (mmol/mol)	4.81			≤607.0

Clostridia Metabolites	Current	Previous	Result	Reference
3-Indoleacetic acid (IAA) (mmol/mol)	10.41			≤12.67
4-Cresol (mmol/mol)	23.50			≤74.88
4-Hydroxyphenylacetic acid (mmol/mol)	12.78			≤20.1
3-(3-hydroxyphenyl)-3-hydroxypropionic acid(HPHPA) (mmol/mol)	0.74			≤227.0

Fungal Metabolites	Current	Previous	Result	Reference
3-Oxoglutaric acid (mmol/mol)	0.21			≤0.31
Arabinose (mmol/mol)	112.99			≤30.0
Carboxycitric acid (mmol/mol)	16.07			≤30.0
Citramalic acid (mmol/mol)	2.63			≤3.8
Tartaric acid (mmol/mol)	0.51			≤4.47
5-Hydroxymethyl-furoic acid (mmol/mol)	8.90			≤13.4
Furan-2,5-dicarboxylic acid (mmol/mol)	5.46			≤16.7
Furancarboxylglycine (mmol/mol)	0.89			≤1.82
Tricarballic acid (mmol/mol)	0.33			≤0.5

Neurotransmitters & Stress Hormones

Catecholamine Metabolites & Ratios	Current	Previous	Result	Reference
Dihydroxyphenylacetic acid (DOPAC) (mcg/g)	601.44			577.3-1655.5


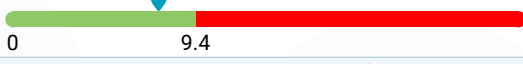

Neurotransmitters & Stress Hormones

Catecholamine Metabolites & Ratios	Current	Previous	Result	Reference
Homovanillic acid (HVA) (mcg/g)	5092.12			3535.0-8455.0
Vanillylmandelic acid (VMA) (mcg/g)	3821.61			2411.2-5047.8
HVA/DOPAC Ratio	8.47			2.6-8.3
HVA/VMA Ratio	1.33			0.74-1.88
Serotonin & Kynurenine Metabolites & Ratios	Current	Previous	Result	Reference
5-Hydroxyindoleacetic acid (5-HIAA) (mcg/g)	7254.91			1711.0-9788.0
Kynurenic acid (mcg/g)	177.98			125.6-991.3
Quinolinic acid (mcg/g)	892.06			610.3-2432.9
Quinolinic acid/5-HIAA Ratio	0.12			0.32-1.1

Nutrition & Oxalates

Nutrients	Current	Previous	Result	Reference
3-Hydroxy-3-methylglutaric (mmol/mol)	23.21			0.14-38.95
Ascorbic acid (Vitamin C) (mmol/mol)	156.96			12.2-179.25
Glutaric acid (Vitamin B2) (mmol/mol)	0.16			0.03-0.38
Methylcitric acid (Biotin) (mmol/mol)	0.83			0.15-2.96
Methylmalonic acid (Vitamin B12) (mmol/mol)	1.51			≤2.21
Pantothenic acid (Vitamin B5) (mmol/mol)	4.72			≤9.91
Pyridoxic acid (Vitamin B6) (mmol/mol)	23.04			≤34.0
Phosphoric acid (mmol/mol)	2732			1000.0-5000.0
Oxalates	Current	Previous	Result	Reference
Glyceric acid (mmol/mol)	5.93			0.74-7.4
Glycolic acid (mmol/mol)	72.50			12.6-128.7
Oxalic acid (mmol/mol)	26.84			6.17-110.52

Nutrition & Oxalates

Pyrimidines	Current	Previous	Result	Reference
Thymine (mmol/mol)	0.33			≤0.63
Uracil (mmol/mol)	8.35			≤9.4
Salicylates	Current	Previous	Result	Reference
2-Hydroxyhippuric acid (mmol/mol)	1.20			≤1.42

SAMPLE

Risk and Limitations

This test has been developed and its performance characteristics determined and validated by Vibrant America LLC., a CLIA certified lab. These assays have not been cleared or approved by the U.S. Food and Drug Administration. Vibrant Wellness provides additional contextual information on these tests and provides the report in more descriptive fashion.

Organic acids panel does not demonstrate absolute positive and negative predictive values for any condition. Its clinical utility has not been fully established. Clinical history and current symptoms of the individual must be considered by the healthcare provider prior to any interventions. Test results should be used as one component of a physician's clinical assessment.

Organic acids panel testing is performed at Vibrant America, a CLIA certified laboratory. Vibrant America has effective procedures in place to protect against technical and operational problems. However, such problems may still occur. Examples include failure to obtain the result for a specific test due to circumstances beyond Vibrant's control. Vibrant may re-test a sample to obtain these results but upon re-testing the results may still not be obtained. As with all medical laboratory testing, there is a small chance that the laboratory could report incorrect results. A tested individual may wish to pursue further testing to verify any results.

The information in this report is intended for educational purposes only. While every attempt has been made to provide current and accurate information, neither the author nor the publisher can be held accountable for any errors or omissions. Tested individuals may find their experience is not consistent with Vibrant's selected peer reviewed scientific research findings of relative improvement for study groups. The science in this area is still developing and many personal health factors affect diet and health. Since subjects in the scientific studies referenced in this report may have had personal health and other factors different from those of tested individuals, results from these studies may not be representative of the results experienced by tested individuals. Further, some recommendations may or may not be attainable, depending on the tested individual's physical ability or other personal health factors. A limitation of this testing is that many of these scientific studies may have been performed in selected populations only. The interpretations and recommendations are done in the context of these studies, but the results may or may not be relevant to tested individuals of different or mixed ethnicities.

Vibrant Wellness makes no claims as to the diagnostic or therapeutic use of its tests or other informational materials. Vibrant Wellness reports and other information do not constitute medical advice and are not a substitute for professional medical advice. Please consult your healthcare practitioner for questions regarding test results, or before beginning any course of medication, supplementation, or dietary changes.

SAMPLE