



סיכום תוצאות OAT

סיכום התוצאות:

- **Arabinose** גבוה - מדד המקושר לשגשוג פטריות/שמרים במעי
- **Aconitic** נמוך – תוצר פירוק של מעגל קרבס המקושר לתפקוד מיטוכונדריאלי
- **3-Methylglutaric** גבוה – תוצר פירוק של חומצות אמינו המקושר לתפקוד מיטוכונדריאלי
- **Homovanillic acid (HVA)** נוטה לנמוך – תוצר פירוק של מוליך עצבי דופמין
- **Vanillylmandelic acid (VMA)** נוטה לנמוך – תוצר פירוק של מוליכים עצבים אפינפרין ונוראפינפרין
- **5-hydroxyindoleacetic acid (5HIAA)** נוטה לנמוך – תוצר פירוק של מוליך עצבי סרוטונין
- **Pyridoxic acid (B6)** נוטה לנמוך – תוצר פירוק של ויטמין B6
- **Pantothenic acid (B5)** נוטה לנמוך – תוצר פירוק של ויטמין B5
- **Ascorbic** נמוך – תוצר פירוק של ויטמין C

לשיחה עם נציג: lab-it@ecosupp.co.il 1801-226-226



William Shaw, Ph.D., Director

11813 West 77th Street, Lenexa, KS 66214

(913) 341-8949

Fax (913) 341-6207

Requisition #: 757917

Physician: LAB-IT BY ECOSUPP

Patient Name:

Date of Collection: 11/26/2019

Patient Age:

Time of Collection: 07:30 AM

Patient Sex: M

Print Date: 12/18/2019

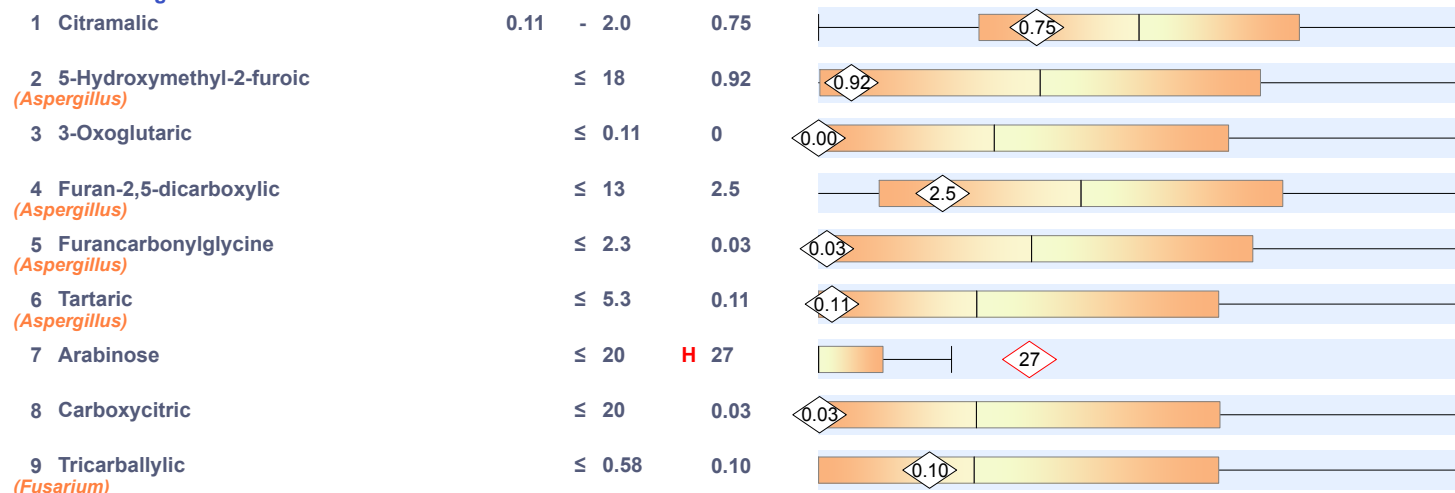


Organic Acids Test - Nutritional and Metabolic Profile

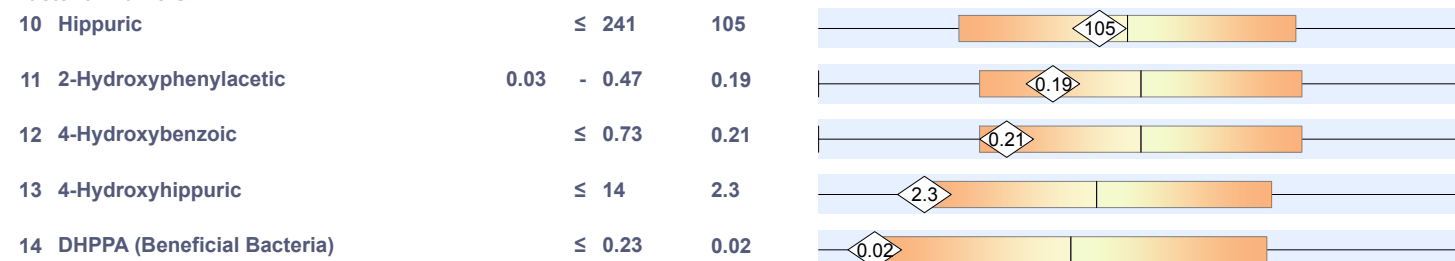
Metabolic Markers in Urine	Reference Range (mmol/mol creatinine)	Patient Value	Reference Population - Males Age 13 and Over
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Intestinal Microbial Overgrowth

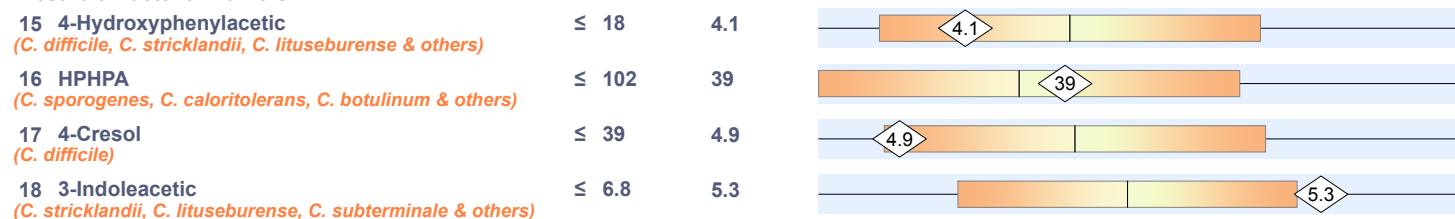
Yeast and Fungal Markers



Bacterial Markers



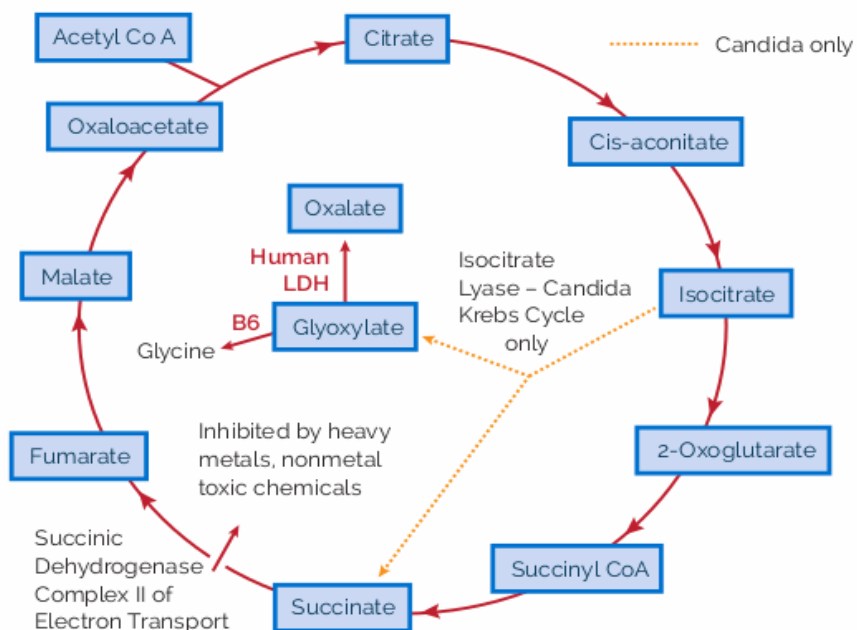
Clostridia Bacterial Markers



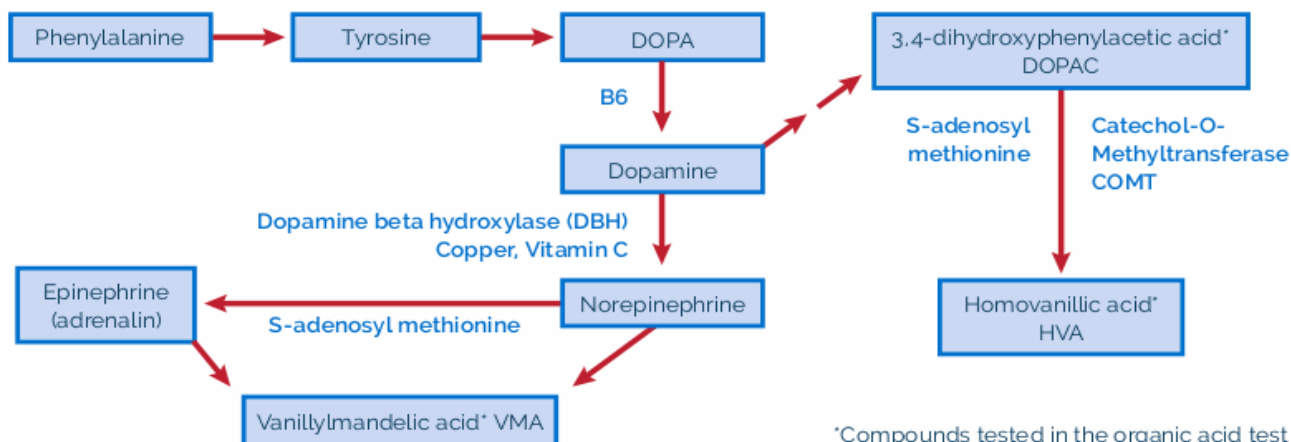


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Human Krebs Cycle showing Candida Krebs Cycle variant that causes excess Oxalate via Glyoxylate



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



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Oxalate Metabolites

19 Glyceric	0.21 - 4.9	1.7	
20 Glycolic	18 - 81	39	
21 Oxalic	8.9 - 67	56	

Glycolytic Cycle Metabolites

22 Lactic	0.74 - 19	7.8	
23 Pyruvic	0.28 - 6.7	6.5	

Mitochondrial Markers - Krebs Cycle Metabolites

24 Succinic	≤ 5.3	0.94	
25 Fumaric	≤ 0.49	0.08	
26 Malic	≤ 1.1	0.14	
27 2-Oxoglutaric	≤ 18	11	
28 Aconitic	4.1 - 23	L 3.8	
29 Citric	2.2 - 260	86	

Mitochondrial Markers - Amino Acid Metabolites

30 3-Methylglutaric	0.02 - 0.38	H 0.58	
31 3-Hydroxyglutaric	≤ 4.6	2.5	
32 3-Methylglutaconic	0.38 - 2.0	0.63	

Neurotransmitter Metabolites

Phenylalanine and Tyrosine Metabolites

33 Homovanillic (HVA) (dopamine)	0.39 - 2.2	1.2	
34 Vanillylmandelic (VMA) (norepinephrine, epinephrine)	0.53 - 2.2	0.98	
35 HVA / VMA Ratio	0.32 - 1.4	1.2	
36 Dihydroxyphenylacetic (DOPAC) (dopamine)	0.27 - 1.9	1.0	
37 HVA / DOPAC Ratio	0.17 - 1.6	1.1	

Tryptophan Metabolites

38 5-Hydroxyindoleacetic (5-HIAA) (serotonin)	≤ 2.9	0.44	
39 Quinolinic	0.52 - 2.4	0.98	
40 Kynurenic	0.12 - 1.8	0.57	

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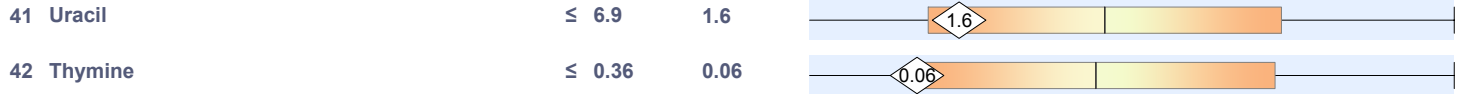
Physician:

Patient Name:

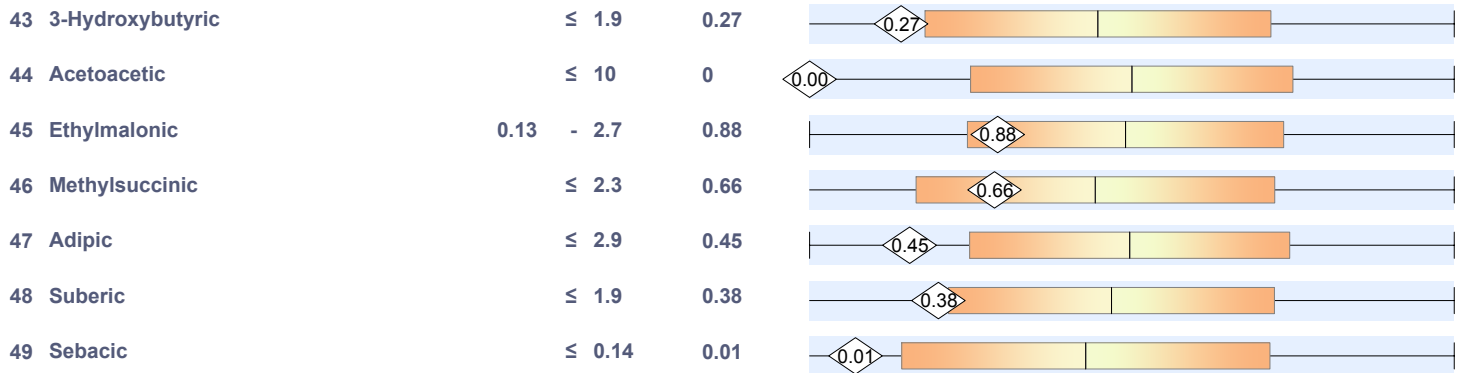
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Pyrimidine Metabolites - Folate Metabolism



Ketone and Fatty Acid Oxidation



Nutritional Markers

Vitamin B12



Vitamin B6



Vitamin B5



Vitamin B2 (Riboflavin)



Vitamin C



Vitamin Q10 (CoQ10)



Glutathione Precursor and Chelating Agent



Biotin (Vitamin H)



* A high value for this marker may indicate a deficiency of this vitamin.

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Metabolic Markers in Urine Reference Range (mmol/mol creatinine) Patient Value Reference Population - Males Age 13 and Over

Indicators of Detoxification

Glutathione

58 Pyroglutamic * 5.7 - 25 10 

Methylation, Toxic exposure

59 2-Hydroxybutyric ** ≤ 1.2 0.69 

Ammonia Excess

60 Orotic ≤ 0.46 0.09 

Aspartame, salicylates, or GI bacteria

61 2-Hydroxyhippuric ≤ 0.86 0.28 

- * 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 ≤ 0.41 0 

63 2-Oxoisovaleric ≤ 1.5 0 

64 3-Methyl-2-oxovaleric ≤ 0.56 0 

65 2-Hydroxyisocaproic ≤ 0.39 0 

66 2-Oxoisocaproic ≤ 0.34 0.14 

67 2-Oxo-4-methiolbutyric ≤ 0.14 0 

68 Mandelic ≤ 0.09 0.03 

69 Phenyllactic ≤ 0.10 0 

70 Phenylpyruvic 0.02 - 1.4 0.09 

71 Homogentisic ≤ 0.23 0 

72 4-Hydroxyphenyllactic ≤ 0.62 0.14 

73 N-Acetylaspartic ≤ 2.5 0.36 

74 Malonic ≤ 9.9 1.5 

75 4-Hydroxybutyric ≤ 4.3 0.68 

Mineral Metabolism

76 Phosphoric 1,000 - 4,900 1,806 

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Indicator of Fluid Intake

77 *Creatinine 134 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).

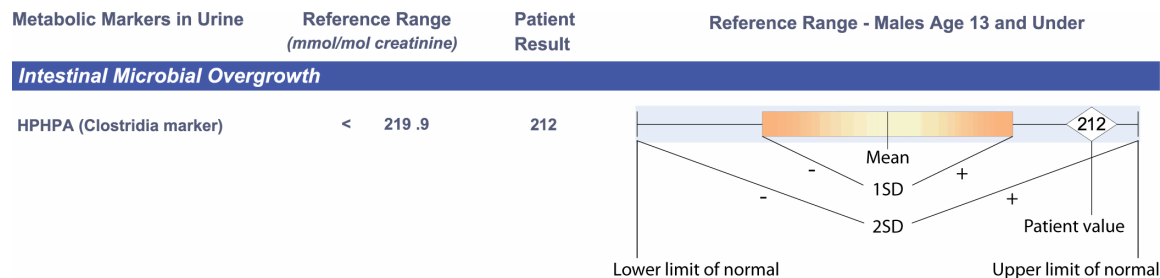
There are two types of graphical representations of patient values found in the new report format of both the standard Organic Acids Test and the Microbial Organic Acids Test.

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.

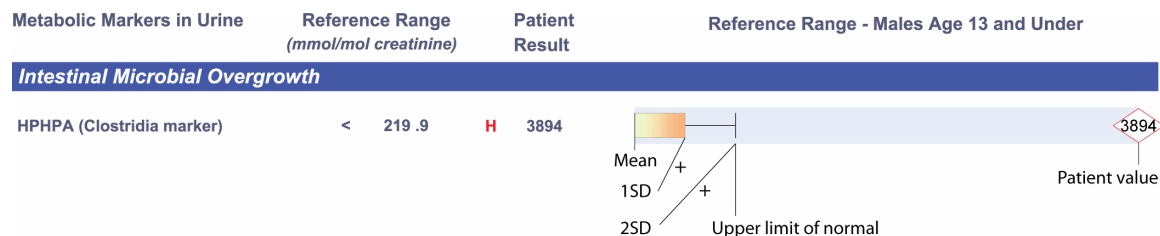
The second graph will occur when the value of the patient exceeds the upper limit of normal. In such cases, the graphical reference range is "shrunk" so that the degree of abnormality can be appreciated at a glance. In this case, the lower limits of normal are not shown, only the upper limit of normal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



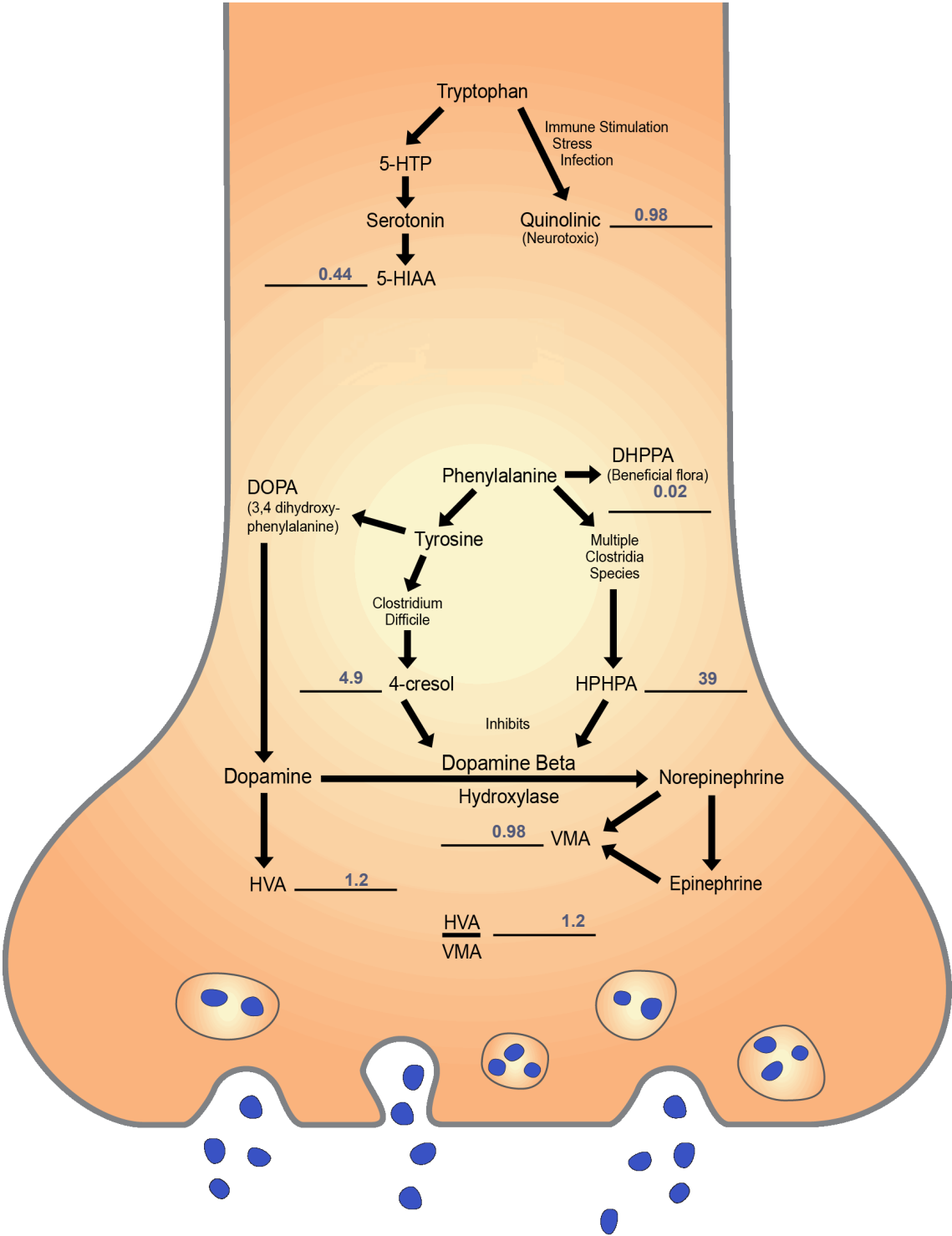
Example of Elevated Value



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Neurotransmitter Metabolism Markers



The diagram contains the patient's test results for neurotransmitter metabolites and shows their relationship with key biochemical pathways within the axon terminal of nerve cells. The effect of microbial byproducts on the blockage of the conversion of dopamine to norepinephrine is also indicated.

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Interpretation

High yeast/fungal metabolites (1-8) Elevations of one or more metabolites indicate a yeast/fungal overgrowth of the gastrointestinal (GI) tract. Prescription or natural (botanical) anti-fungals, along with supplementation of high potency multi-strain probiotics, may reduce yeast/fungal levels.

High 3-methylglutaric and/or high 3-methylglutaconic acids (30, 32) may be due to reduced capacity to metabolize the amino acid leucine. This abnormality is found in the genetic disease methylglutaconic aciduria and in mitochondrial disorders in which there are severe deficiencies of the respiratory complexes (Complex I, NADH ubiquinone oxidoreductase and complex IV, cytochrome c oxidase.). Small elevations may be due to impairment of mitochondrial function and may respond to the recommended supplements below. Typical results found in genetic defects are above 10 mmol/mol creatinine. A few non-genetic conditions including pregnancy and kidney failure may also produce elevation of these organic acids in urine. Confirmation of the genetic disease requires enzymes and/or DNA testing. Multiple genetic defects can cause the biochemical abnormality. Confirmation of mitochondrial disorder usually requires tissue biopsy for mitochondria testing. Symptoms differ within different types of genetic disorders, but in severe cases may include speech delay, delayed development of both mental and motor skills (psychomotor delay), metabolic acidosis, abnormal muscle tone (dystonia), and spasms and weakness affecting the arms and legs (spastic quadriparesis). Recommendations include supplementation with coenzyme Q-10, L-carnitine and acetyl-L-carnitine, riboflavin, nicotinamide, and vitamin E.

Homovanillic acid (HVA) levels (33) below the mean indicate low production and/or decreased metabolism of the neurotransmitter dopamine. Homovanillic acid is a metabolite of the neurotransmitter dopamine. Low production of HVA can be due to decreased intake or absorption of dopamine's precursor amino acids such as phenylalanine and/or tyrosine, decreased quantities of cofactors needed for biosynthesis of dopamine such as tetrahydrobiopterin and vitamin B6 coenzyme or decreased amounts of cofactors such as S-adenosylmethionine (Sam-e) needed to convert dopamine to HVA. In addition, a number of genetic variations such as single nucleotide polymorphisms (SNPs) or mutations can cause reduced production of HVA due to enzymes with decreased function. HVA values below the mean but which are much higher than VMA values are usually due to impairment of dopamine beta hydroxylase due to excessive Clostridia metabolites, the mold metabolite fusaric acid, pharmaceuticals such as disulfiram, or food additives like aspartame or deficiencies of cofactors such as vitamin C or copper. Values may also be decreased in patients on monoamine oxidase (MAO) inhibitors. In addition, a number of genetic variations such as single nucleotide polymorphisms (SNPs) or mutations in MAO or COMT genes can cause reduced production of HVA. Such SNPs are available on **The Great Plains DNA methylation pathway test** which can be performed on a cheek swab.

Vanillylmandelic acid (VMA) levels (34) below the mean indicate low production and/or decreased metabolism of the neurotransmitters norepinephrine and epinephrine. Vanillylmandelic acid is a metabolite of the neurotransmitters norepinephrine and epinephrine. Low production of VMA can be due to decreased intake or absorption of norepinephrine's and epinephrine's precursor amino acids such as phenylalanine and/or tyrosine, decreased quantities of cofactors needed for biosynthesis of norepinephrine and epinephrine such as tetrahydrobiopterin and vitamin B6 coenzyme or decreased amounts of cofactors such as S-adenosylmethionine (Sam-e) needed to convert norepinephrine and epinephrine to VMA. In addition, a number of genetic variations such as single nucleotide polymorphisms (SNPs) or mutations in MAO or COMT genes can cause reduced production of VMA. Such SNPs are available on **The Great Plains DNA methylation pathway test** which can be performed on a cheek swab. VMA values below the mean but which are much lower than HVA values are usually due to impairment of dopamine beta hydroxylase due to Clostridia metabolites, the mold metabolite fusaric acid, pharmaceuticals such as disulfiram, or food additives like aspartame or deficiencies of cofactors such as vitamin C or copper. Values may be decreased in patients on monoamine oxidase (MAO) inhibitors. Another cause for a low VMA value is a genetic variation (single nucleotide polymorphism or SNP) of the DBH enzyme. This DBH test is now available at The Great Plains Laboratory on blood serum. Patients with low VMA due to Clostridia metabolites or genetic DBH deficiency should not be supplemented with phenylalanine, tyrosine, or L-DOPA.

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5-hydroxyindoleacetic acid (5HIAA) (38) levels below the mean may indicate lower production and/or decreased metabolism of the neurotransmitter serotonin. 5-hydroxy-indoleacetic acid is a metabolite of serotonin. Low values have been correlated with symptoms of depression. Low production of 5HIAA can be due to decreased intake or absorption of serotonin's precursor amino acid tryptophan, decreased quantities of cofactors needed for biosynthesis of serotonin such as tetrahydrobiopterin and vitamin B6 coenzyme. In addition, a number of genetic variations such as single nucleotide polymorphisms (SNPs) or mutations can cause reduced production of 5HIAA. Such SNPs are available on **The Great Plains DNA methylation pathway test** which can be performed on a cheek swab. Values may be decreased in patients on monoamine oxidase (MAO) inhibitors that are drugs or foods that contain tyramine such as Chianti wine and vermouth, fermented foods such as cheeses, fish, bean curd, sausage, bologna, pepperoni, sauerkraut, and salami.

Pyridoxic acid (B6) levels below the mean (51) may be associated with less than optimum health conditions (low intake, malabsorption, or dysbiosis). Supplementation with B6 or a multivitamin may be beneficial.

Pantothenic acid (B5) levels below the mean (52) may be associated with less than optimum health conditions. Supplementation with B5 or a multivitamin may be beneficial.

Ascorbic acid (vitamin C) levels below the mean (54) may indicate a less than optimum level of the antioxidant vitamin C. Individuals who consume large amounts of vitamin C can still have low values if the sample is taken 12 or more hours after intake. Supplementation with buffered vitamin C taken 2 or 3 times a day is suggested.

Low citramalic, 2-hydroxyphenylacetic, 4-hydroxyphenylacetic, 4-hydroxybenzoic, 4-hydroxyhippuric, 3-indoleacetic, glyceric, glycolic, oxalic, lactic, pyruvic, 3-Methylglutaric, 3-methylglutaconic, 2-hydroxybutyric, fumaric, malic, aconitic, quinolinic, kynurenic, thymine, ethylmalonic, methylsuccinic, adipic, suberic, glutaric, 3-hydroxy-3-methylglutaric, methylcitric, or orotic values have no known clinical significance.

High quality nutritional supplements can be purchased through your practitioner or at New Beginnings Nutritionals, www.NBNUS.com <<http://www.NBNUS.com>> , or call 877-575-2467.