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**Anna Salanti**

Date: 9/24/2018

Next Test Due: 9/24/2019

***LabAssist™ Urine Organic Acids Report***  
***Practitioner***

*Printed on Wednesday, October 10, 2018 for:*

**Anna Salanti**  
7619 SW 26th Ave.  
Portland, OR 97219  
503-977-2660  
503-244-9946 (fax)

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## Basic Status High/Low

**Anna Salanti**

Female / Age: 66

Client ID:555986644 (8322)

**Urine Organic Acids Date: 9/24/2018**

Anna Salanti (2718)

503-977-2660

The % Status is the weighted deviation of the laboratory result.

### Low Results

-80	-60	-40	-20	0		% Status	Result	Low	High
					a-Hydroxybutyrate	-50.00 L	0.00	0.00	0.30
					a-Keto-b-methylvalerate	-50.00 L	0.00	0.00	0.38
					a-Ketoglutarate	-50.00 L	0.00	0.00	19.00
					a-Ketoisocaproate	-50.00 L	0.00	0.00	0.34
					a-Ketisovalerate	-50.00 L	0.00	0.00	0.25
					b-Hydroxybutyrate	-50.00 L	0.00	0.00	2.10
					DHPP	-50.00 L	0.00	0.00	0.05
					Phenylpropionate	-50.00 L	0.00	0.00	0.40
					Pyruvate	-50.00 L	0.00	0.00	3.90
					Adipate	-43.55 L	0.40	0.00	6.20
					Glucarate	-34.13 L	1.00	0.00	6.30

-25%

### High Results

-50	0	50	100	150		% Status	Result	Low	High
					Benzoate	12650.00 H	76.20	0.00	0.60
					5-Hydroxyindoleacetate	444.29 H	19.40	2.10	5.60
					Lactate	310.00 H	22.80	3.00	8.50
					Fumarate	287.29 H	1.99	0.00	0.59
					Succinate	267.24 H	36.80	0.00	11.60
					Kynurenate	260.00 H	3.10	0.00	1.00
					Hippurate	252.37 H	1657.00	0.00	548.00
					Orotate	210.87 H	1.80	0.00	0.69
					Indican	165.00 H	86.00	0.00	40.00
					Phenylacetate	159.09 H	0.23	0.00	0.11
					Homovanillate	131.58 H	8.80	1.90	5.70
					Sulfate	104.43 H	3103.00	958.00	2347.00
					Tricarballylate	100.68 H	1.10	0.00	0.73
					Vanilmandelate	93.48 H	4.90	1.60	3.90
					Citrate	86.15 H	798.00	56.00	601.00
					p-Hydroxyphenyllactate	80.77 H	0.51	0.00	0.39
					Formiminoglutamic Acid	75.00 H	1.50	0.00	1.20
					P-Hydroxyphenylacetate	71.05 H	23.00	0.00	19.00
					Ethylmalonate	52.78 H	3.70	0.00	3.60
					Malate	50.00 H	1.40	0.00	1.40
					p-Hydroxybenzoate	50.00 H	1.10	0.00	1.10
					Pyroglutamate	43.22 H	55.00	0.00	59.00
					Hydroxymethylglutarate	36.11 H	3.10	0.00	3.60
					Isocitrate	34.75 H	89.00	39.00	98.00
					Methylmalonate	32.35 H	1.40	0.00	1.70
					b-Hydroxyisovalerate	28.95 H	6.00	0.00	7.60
					D-Arabinitol	27.78 H	28.00	0.00	36.00
					Xanthurenate	26.47 H	0.26	0.00	0.34

-25%      25%

## Basic Status Alabetic

**Anna Salanti**  
Female / Age: 66

**Urine Organic Acids Date: 9/24/2018**  
Anna Salanti (2718)

The % Status is the weighted deviation of the laboratory result relative to the range.

	-100	-50	0	50	100	<b>% Status</b>	<b>Result</b>	<i>Low</i>	<i>High</i>
						3.57	0.05	0.00	0.08
						<b>444.29 H</b>	<b>19.40</b>	2.10	5.60
						-0.94	2.60	0.00	5.30
						<b>-43.55 L</b>	<b>0.40</b>	0.00	6.20
						<b>-50.00 L</b>	<b>0.00</b>	0.00	0.30
						<b>-50.00 L</b>	<b>0.00</b>	0.00	0.38
						<b>-50.00 L</b>	<b>0.00</b>	0.00	19.00
						<b>-50.00 L</b>	<b>0.00</b>	0.00	0.34
						<b>-50.00 L</b>	<b>0.00</b>	0.00	0.25
						<b>12650.00 H</b>	<b>76.20</b>	0.00	0.60
						<b>-50.00 L</b>	<b>0.00</b>	0.00	2.10
						28.95 H	6.00	0.00	7.60
						4.55	36.00	18.00	51.00
						86.15 H	<b>798.00</b>	56.00	601.00
						27.78 H	28.00	0.00	36.00
						<b>-50.00 L</b>	<b>0.00</b>	0.00	0.05
						0.00	1.00	0.00	2.00
						52.78 H	3.70	0.00	3.60
						75.00 H	1.50	0.00	1.20
						287.29 H	1.99	0.00	0.59
						<b>-34.13 L</b>	1.00	0.00	6.30
						252.37 H	<b>1657.00</b>	0.00	548.00
						131.58 H	8.80	1.90	5.70
						36.11 H	3.10	0.00	3.60
						165.00 H	86.00	0.00	40.00
						34.75 H	89.00	39.00	98.00
						260.00 H	3.10	0.00	1.00
						310.00 H	22.80	3.00	8.50
						50.00 H	1.40	0.00	1.40
						32.35 H	1.40	0.00	1.70
						210.87 H	1.80	0.00	0.69
						159.09 H	0.23	0.00	0.11
						<b>-50.00 L</b>	<b>0.00</b>	0.00	0.40
						50.00 H	1.10	0.00	1.10
						71.05 H	23.00	0.00	19.00
						80.77 H	0.51	0.00	0.39
						43.22 H	55.00	0.00	59.00
						<b>-50.00 L</b>	<b>0.00</b>	0.00	3.90
						22.50	2.90	0.00	4.00
						-2.38	1.00	0.00	2.10
						267.24 H	36.80	0.00	11.60
						104.43 H	<b>3103.00</b>	958.00	2347.00
						100.68 H	1.10	0.00	0.73
						93.48 H	4.90	1.60	3.90
						26.47 H	0.26	0.00	0.34
	-25%		25%			<b>Total Status Deviation</b>	<b>326.83</b>		
						<b>Total Status Skew</b>	<b>301.85</b>		

## Client Summary Review

**Anna Salanti**  
Female / Age: 66

**Urine Organic Acids Date: 9/24/2018**  
Anna Salanti (2718)

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### Nutritional Support

The following supplements may help to balance your biochemistry. Consult your practitioner.

- |                                                                                    |                                                                        |
|------------------------------------------------------------------------------------|------------------------------------------------------------------------|
| <input type="checkbox"/> <b>1-5-HTP</b><br>3x daily 100 mg                         | <input type="checkbox"/> <b>1-CoEnzyme Q10</b><br>2x daily 100 mg      |
| <input type="checkbox"/> <b>1-Folic Acid</b><br>2x daily 800 mcg                   | <input type="checkbox"/> <b>1-Oral Electrolytes</b><br>2x daily        |
| <input type="checkbox"/> <b>1-Probiotics</b><br>3x daily                           | <input type="checkbox"/> <b>1-Tyrosine</b><br>2x daily 500 mg          |
| <input type="checkbox"/> <b>1-Vitamin B12</b><br>2x daily 1000 mcg                 | <input type="checkbox"/> <b>1-Whey Protein</b><br>See Nutrition Detail |
| <input type="checkbox"/> <b>1-Yeast Reduction Protocol</b><br>See Nutrition Detail |                                                                        |

### Foods to AVOID

The following foods may aggravate already out-of-balance biochemistry.

Green Tea

**Out-Of-Balance Panel Values**

The following panels have a PSD of greater than 25% indicating need for further review. PSD is the Panel Status Deviation, or the average imbalance of that subset of results. The PSS is the Panel Status Skew, or the direction, negative (deficiency) or positive (excess), of that subset of results.

Panel Name	PSD	PSS
Neurotransmitters	190.37%	190.37%
Carbohydrate Metabolism	115.00%	40.00%
Energy Production	102.01%	89.51%
Intestinal Dysbiosis	75.92%	53.70%
Liver Detox Indicators	74.37%	46.33%
BCAA Catabolism	50.00%	-50.00%
B-Complex Markers	44.68%	1.82%
CAC Cycle Ratios	42.59%	30.80%
Fatty Acid Metabolism	32.90%	2.28%

**Lab Reported out-of-range Values**

The following results are out-of-range (as reported by the lab), and should be carefully reviewed.

**Benzoate (12650.00%)**

An elevated reading of this organic acid may mean an overgrowth of certain intestinal microbiota, ingestions of excessive benzoic acid in the diet (preserved foods, pickles, lunch meats, cranberries), or poor Phase II detoxification capabilities as the conjugation of benzoate with glycine is very efficient. The presence of this compound may be due to the action of the bacteria on phenylalanine. Assessment of amino acid competency may be helpful especially plasma glycine.

**5-Hydroxyindoleacetate ( 444.29%)**

An elevation of this metabolite of the breakdown of serotonin may be due to the use of serotonin-specific re-uptake inhibitor (SSRI) drugs or the release of serotonin from the central nervous system, intestinal argentaffin cells or platelets.

**Drugs which may have an adverse affect:**

Acetaminophen, Prozac, Reserpine

**Lactate ( 310.00%)**

This metabolic precursor to the citric acid cycle, high lactate (lactic acid) may indicate a block in the production of energy, a Coenzyme Q10, biotin, thiamine or lipoic acid deficiency, an on-going infectious state, use of some recreational and/or pharmaceutical drugs, alcohol over consumption, poor blood sugar control (especially with diabetics), and a number of inborn errors of metabolism.

**Fumarate ( 287.29%)**

Elevated fumarate may be indicative of a Coenzyme Q10 deficiency or if citrate, malate, and a-ketoglutarate are also elevated then suspect a cytochrome C oxidase deficiency.

**Drugs which may have an adverse affect:**

Lithium Carbonate

**Succinate ( 267.24%)**

A high reading of this organic acid may be indicative of poor amino acid metabolism and could indicate a need for additional magnesium, riboflavin and Coenzyme Q10. It is also suggestive of mitochondrial dysfunction leading to symptoms of fatigue and possibly myocardial and/or neurological degeneration.

**Drugs which may have an adverse affect:**

Lithium Carbonate

**Kynurenate ( 260.00%)**

A high reading of this by-product of the breakdown of the amino acid tryptophan is consistent with a vitamin B6 deficiency, possible inflammatory processes, interferon-gamma stimulated macrophages or excessive tryptophan supplementation (not 5-HTP). Abnormally high levels can cause an increase in pain sensations and may, in multiple sclerosis patients, be a marker for an exacerbation period.

**Hippurate ( 252.37%)**

A high reading of this organic acid may be indicative of an overgrowth of intestinal microbiota due to the action of bacteria on phenylalanine, elevated levels of environmental toxins (typically solvents) or elevated ingestion of benzoic acid.

**Drugs which may have an adverse affect:**

Aspirin

**Orotate ( 210.87%)**

An elevated reading of this organic acid may be due to an arginine deficiency, ammonia intoxication, and by excessive lysine intake as well as an intracellular magnesium deficiency. Arginine, aspartic acid, alpha ketoglutarate, and magnesium may be helpful.

**CA Cycle Phase 1 ( 171.67%)**

This is the first phase of the citric acid cycle moving from Citrate to cis-Aconitate. A high reading may indicate a disruption in the efficiency of energy production. It can also be due to a problem clearing ammonia due to an arginase enzyme deficiency.

**Indican ( 165.00%)**

High readings of this organic acid are consistent with upper bowel dysbiosis. Impaired amino acid absorption may also cause elevations in indican.

**Phenylacetate ( 159.09%)**

A high reading of this organic acid may be indicative of an overgrowth of intestinal microbiota or protozoa. The presence of this acid may be due to the action of bacteria on phenylalanine and should not appear in anything more than background amounts.

**Homovanillate ( 131.58%)**

Elevated levels of homovanillate may be due to amino acid deficiencies, the use of L-Dopa as a treatment for Parkinson's disease, copper deficiency, cocaine or amphetamine use or chronic depletion of tyrosine. In a recently published article in EHP, heavy metals such as cadmium, lead, mercury and arsenic may also cause elevations of homovanillate.

**Drugs which may have an adverse affect:**

Aspirin

**Sulfate ( 104.43%)**

High levels of sulfate in the urine may be indicative of a number of problems related to glutathione use and depletion. If urinary pyroglutamate and a-hydroxybutyrate are also elevated, this indicates an early stage of glutathione depletion as it suggests that the system is increasing the flow of sulfur compounds into the liver to meet a growing need for the antioxidant tri-peptide. If those two markers are not elevated, suspect a high intake of sulfur bearing foods or amino acids such as NAC (N-Acetyl-Cysteine), methionine or taurine.

**Tricarballic acid ( 100.68%)**

Elevated levels may be due to an overgrowth of intestinal bacteria. This organic acid binds very tightly to magnesium, possibly zinc and calcium and may induce a deficiency in these important minerals. The bacterium that produces this element is also very fast growing and may cause numerous vitamin and mineral deficiencies. As it may interfere with carbohydrate absorption, a diet low in carbohydrates is suggested.

**Vanilmandelate ( 93.48%)**

This result is seen with chronic stress, increased catecholamine synthesis, elevated caffeine ingestion, as well as the use of ephedra, and pseudoephedrine found in decongestants. High levels of this organic acid should be correlated with homovanillic acid (HVA) for potential abnormal cell growth.

**Drugs which may have an adverse affect:**

Insulin, Reserpine

**Citrate ( 86.15%)**

A high reading of this organic acid may be indicative of an amino acid deficiency or a problem with metabolism.

**p-Hydroxyphenyllactate ( 80.77%)**

High levels of this organic acid are indicative of an ongoing pro-oxidative response. Increased tissue growth, oxidative challenges due to toxicity, inborn errors of metabolism and low levels of vitamin C may be reasons for high results.

**Formiminoglutamic Acid ( 75.00%)**

A high reading of this organic acid is suggestive of a folic acid deficiency. FIGLU is a compound derived from histidine and an insufficiency of folic acid leads to a high result.

**Drugs which may have an adverse affect:**

Ampicillin, Aspirin, Colchicine

**Foods which may have an adverse affect:**

Green Tea

**P-Hydroxyphenylacetate ( 71.05%)**

Elevated levels may be indicative of overgrowth of intestinal bacterial or protozoa especially Giardia lamblia, Clostridium difficile, Proteus vulgaris ileal resection with blind loop, and other small intestine infestations of anaerobic bacteria. Other possibilities is that these results are due to malabsorption of tyrosine due to HCL deficiency, overuse of antibiotics, or lactose intolerance.

**Ethylmalonate ( 52.78%)**

Elevated in carnitine and riboflavin deficiency which may lead to the inability to oxidize long-chain fatty acids and amino acids. If adipate is also elevated may indicate severe fatty acid oxidation impairment.

**a-Hydroxybutyrate (-50.00%)**

This organic acid is the last step of glutathione synthesis from methionine through cysteine. Low levels are desirable but not indicative of any positive or negative health issues.

**a-Keto-b-methylvalerate (-50.00%)**

No known health issues are related to low levels of a-keto-β-methylvalerate.

**a-Ketoglutarate (-50.00%)**

Low levels of this organic acid may be indicative of poor amino acid metabolism, decreased fatty acid synthesis, an increase of palmitic acid in plasma and possibly in red blood cell membranes. Elevated levels of serum triglycerides would help to verify the fatty acid synthesis problem.

**Drugs which may have an adverse affect:**

Lithium Carbonate

**a-Ketoisocaproate (-50.00%)**

No known health issues are related to low levels of a-ketoisocaproate.

**a-Ketoisovalerate (-50.00%)**

No known health issues are related to low levels of a-ketoisovalerate.

**b-Hydroxybutyrate (-50.00%)**

No known health issues are related to low levels of β-hydroxybutyrate.

**DHPP (-50.00%)**

No known health issues are related to low levels of DHPP.

**Malate ( 50.00%)**

A high level of this organic acid may be indicative of a need for certain nutrients such as niacin and Coenzyme Q10. If citrate, fumarate, and a-ketoglutarate are high as well, it may be due to a cytochrome C oxidase deficiency. Elevations of malate are also seen in individuals with Syndrome X. Tartaric acid has also been implicated, although theoretically, to block malate within the citric acid cycle.

**Drugs which may have an adverse affect:**

Lithium Carbonate

**Phenylpropionate ( -50.00%)**

No known health issues are related to low levels of phenylpropionate.

**p-Hydroxybenzoate ( 50.00%)**

Elevated levels may be indicative of exposure to paraben's found in many cosmetics and to a lesser degree of overgrowth of intestinal bacterial or protozoa. This organic acid when high may be indicative of a tyrosine deficiency. A comprehensive amino acid test may be helpful.

**Pyruvate ( -50.00%)**

No known health issues are related to low levels of pyruvate.

**Pyruvate to Lactate ( -50.00%)**

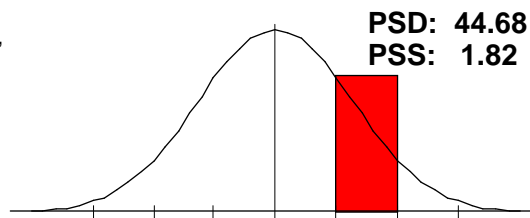
A low reading may be indicative of a blockade in the entry point of the citric acid cycle thereby impacting the ability of the body to derive energy from carbohydrates.



**B-Complex Markers**

b-Hydroxyisovalerate[H], a-Ketoisovalerate[L], a-Ketoisocaproate[L], a-Keto-b-methylvalerate[L], Methylmalonate[H], Formiminoglutamic Acid[H].

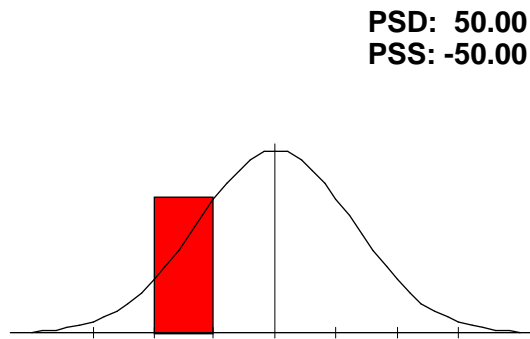
This panel assesses adequate intake of B-complex vitamins. This profile may indicate a need for certain B-complex vitamins. Review your Supplement List Explanation.



**BCAA Catabolism**

a-Ketoisovalerate[L], a-Ketoisocaproate[L], a-Keto-b-methylvalerate[L].

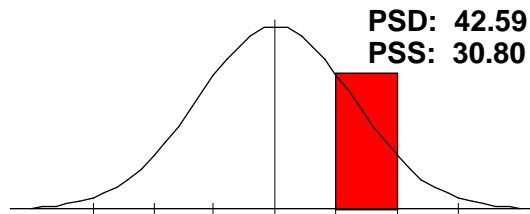
BCAA's are essential in building muscle and you can only get them from your diet or supplements. This panel assess your BCAA levels and how they're being used. This profile may indicate an inadequate supply of BCAAs. Consider supplementation. Note: supplementing with single branch chain amino acids is highly not recommended. All 3 branch chain amino acids (Isoleucine, Leucine and Valine) must be taken together.



**CAC Cycle Ratios**

CA Cycle Phase 1[H], CA Cycle Phase 2, CA Cycle Phase 5, CA Cycle Phase 6, CA Cycle Return.

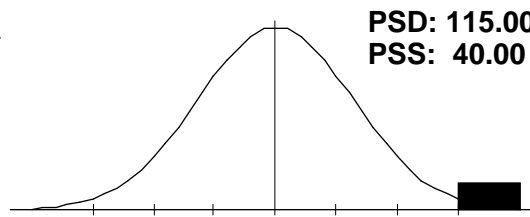
This panel reviews cellular energy producing cycles to maintain health and weight. This profile may indicate a heavy toxin load. Consider running additional environmental toxicity tests.



**Carbohydrate Metabolism**

Lactate[H], Pyruvate[L], a-Hydroxybutyrate[L], b-Hydroxybutyrate[L].

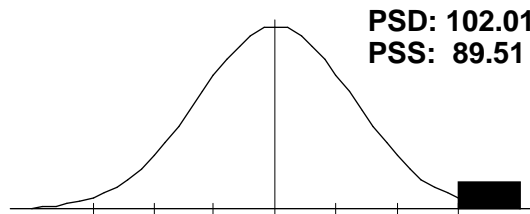
This panel assesses your body's ability to metabolize dietary carbohydrates. This profile suggests impaired carbohydrate metabolism. Symptoms include: brain function disorders, fatigue, weight gain, and chronic diseases. Review your Supplement List Explanation.



**Energy Production**

Citrate[H], cis-Aconitate, Isocitrate[H], a-Ketoglutarate[L], Succinate[H], Fumarate[H], Malate[H], Hydroxymethylglutarate[H].

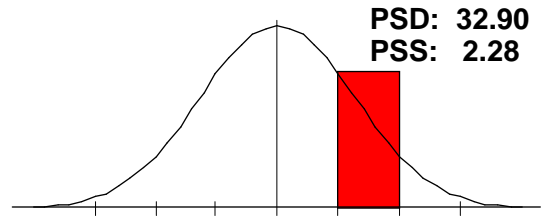
This panel reviews cellular energy producing cycles to maintain health and weight. This profile may indicate a breakdown in the Citric Acid Cycle. Review your Supplement List Explanation.



**Fatty Acid Metabolism**

Adipate[L], Suberate, Ethylmalonate[H].

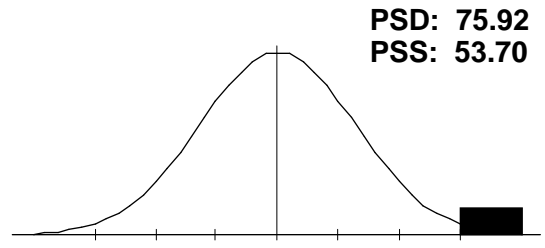
This panel assesses how fats are being broken down and utilized by the body. This profile may indicate a need for additional carnitine and riboflavin (B2) supplementation. Review your Supplement List Explanation.



**Intestinal Dysbiosis**

p-Hydroxyphenyllactate[H], Phenylacetate[H], Phenylpropionate[L], Tricarballylate[H], DHPP[L], Indican[H], p-Hydroxybenzoate[H], D-Lactate,.

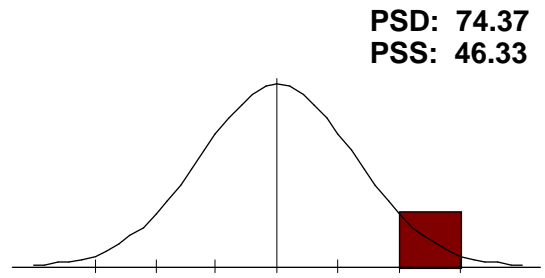
Dysbiosis is an overgrowth of bad bacteria in the gut. It is indicative of gut health. This profile suggest you may have overgrowths of bad bacteria in the gut. Review Clostridium panel. Consider running a stool analysis to confirm.



**Liver Detox Indicators**

2-Methylhippurate, Glucarate[L], Orotate[H], Pyroglutamate[H], Sulfate[H], a-Hydroxybutyrate[L].

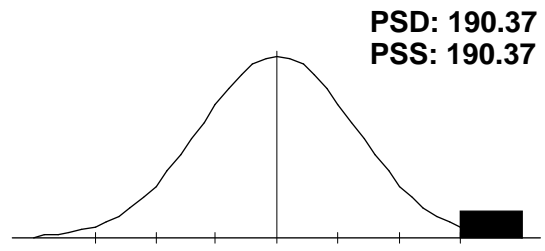
This panel assesses how well your liver removes toxins from your system. This profile may indicate: high environmental toxins, improper regulation of cell growth, hereditary deficiencies, and a depressed ability of the liver to detoxify itself. Consider a detoxification protocol. Review your Supplement List Explanation..



**Neurotransmitters**

Vanilmandelate[H], Homovanillate[H], 5-Hydroxyindoleacetate[H], Kynurenate[H], Quinolinate.

Neurotransmitters are chemicals the brain uses to make the entire neurological system function - including all body functions. This panel assesses neurotransmitter production. This profile may be caused by the use of SSRI's. This may lead to fatigue, depression, or anxiety.



## Drug Interactions

**Anna Salanti**

**Urine Organic Acids Date: 9/24/2018**

Female / Age: 66

Anna Salanti (2718)

Drugs listed below tend to further aggravate elements of blood chemistry that are out of range (H or L). The (#) after each drug denotes the number of times that drug is flagged as being potentially harmful.

Acetaminophen(2)

Insulin

Reserpine(2)

Ampicillin

Lithium Carbonate(4)

Aspirin(3)

Methotrexate

Colchicine(2)

Prozac

## Nutrition - Detail

**Anna Salanti**  
Female / Age: 66

**Urine Organic Acids Date: 9/24/2018**  
Anna Salanti (2718)

Nutritional and herbal information contained in this report is based upon research related to imbalances in your chemistry. The recommendations are based upon the information provided, without interpretation. This must be done with the help of your qualified health care professional.

**1-5-HTP** 3x daily 100 mg

5-Hydroxytryptophan is indicated due to the high level of 5-HIAA in urine which suggests serotonin catabolism and a possible loss of tryptophan reserves.

<u>Decreased</u>	<u><b>Rationale</b></u> <u>Normal</u>	<u>Increased</u> 5-Hydroxyindoleacetate
------------------	------------------------------------------	--------------------------------------------

**1-CoEnzyme Q10** 2x daily 100 mg

CoEnzyme Q10 is an essential component of the mitochondria of the energy producing unit of the cell. Its beneficial effects include increased energy, as well as prevention of cardiovascular disease and cancer. Clinical responses may take up to 8 weeks according to some research so patience is necessary during supplementation.

<u>Decreased</u> Hydroxymethylglutarate	<u>Normal</u>	<u>Increased</u> Succinate Malate
--------------------------------------------	---------------	-----------------------------------------

**1-Folic Acid** 2x daily 800 mcg

Adult: 800 mcg 2x daily Children 800 mcg 1x daily  
A folic acid deficiency may lead to a buildup of this organic acid which is created through the metabolism of histidine.

<u>Decreased</u>	<u>Normal</u>	<u>Increased</u> Formiminoglutamic Acid
------------------	---------------	--------------------------------------------

**1-Oral Electrolytes** 2x daily

The main electrolytes in the human body are sodium, potassium, phosphorus, calcium, chloride, magnesium and bicarbonate. During illness, the equilibrium present in healthy individuals, is disturbed. A well balanced formula is helpful in restoring a state of equilibrium. In many cases of intestinal dysbiosis, alkalizing the system with electrolytes may aid in dislodging the microbiota from the gut wall.

<u>Decreased</u>	<u>Normal</u>	<u>Increased</u> Tricarballylate
------------------	---------------	-------------------------------------

**1-Probiotics** 3x daily

A comprehensive probiotic protocol has shown promise in relieving intestinal bacteria and parasitic infections. It is important to use a broad spectrum of probiotic organisms with a high concentration, preferably 20-25 billion of live organisms per capsule.

<u>Decreased</u>	<u>Normal</u>	<u>Increased</u> Tricarballylate
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**1-Tyrosine** 2x daily 500 mg

Tyrosine is an amino acid which is essential to the synthesis of protein, catecholamines, melanin, and thyroid hormones. Vitamin C and folic acid are essential to its metabolism. The formation of thyroid hormone is dependent upon the absorption and sequestering of iodine which then attaches to tyrosine to form thyroxine.

<u>Decreased</u>	<u>Normal</u>	<u>Increased</u> Vanilmandelate Homovanillate
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**1-Vitamin B12** 2x daily 1000 mcg

The only vitamin containing essential mineral elements, B12 is important in metabolism of nerve tissue, protein, fat and carbohydrate metabolism and the actions of a number of amino acids. It also is involved in the production of DNA and RNA. The organic acid Methymalonate when high, is a good indicator of a B12 deficiency.

<u>Decreased</u>	<u>Normal</u>	<u>Increased</u> Methylmalonate
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**1-Whey Protein** See Nutrition Detail

High quality whey protein is one of the most effective means of boosting glutathione levels which seem to be deficient in this case. The whey should also contain an array of vitamins (especially vitamin C) and minerals along with immunoglobulins, glycine and N-acetyl cysteine. For adults, at least one serving full serving and for children one-half a serving per day is recommended.

<u>Decreased</u> a-Hydroxybutyrate	<u>Normal</u>	<u>Increased</u> Pyroglutamate
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## Nutrition - Detail

**Anna Salanti**  
Female / Age: 66

**Urine Organic Acids Date: 9/24/2018**  
Anna Salanti (2718)

Nutritional and herbal information contained in this report is based upon research related to imbalances in your chemistry. The recommendations are based upon the information provided, without interpretation. This must be done with the help of your qualified health care professional.

### **1-Yeast Reduction Protocol** See Nutrition Detail

Because of the relative increase in the marker for yeast and fungi D-Arabinitol, it may be helpful to begin a yeast reduction protocol. Avoiding refined carbohydrates such as sugar, alcohol and other yeast-containing products is recommended. The introduction of probiotics such as Lactobacilli should also be started. Probiotics - 3 times daily if D-Lactate is normal or low  
Olive leaf extract - 2 times daily  
Grapefruit seed extract - 2 times daily

Decreased

### ***Rationale***

Normal

Increased  
D-Arabinitol

## Clinical Correlation

Anna Salanti

Urine Organic Acids Date: 9/24/2018

Female / Age: 66

Anna Salanti (2718)

This report "MATCHES" clinical observations with the lab test. Elements shown, normal and abnormal, tend to characterize the observation. Highlighted elements are those reported to "MATCH" the characteristics of the clinical observation. Others are NOT matches but are elements in the observation.

### Chronic Stress Disorder ()

100.00% (3 of 3)

Decreased

Normal

Increased

93.48 Vanilmandelate  
131.58 Homovanillate  
444.29 5-Hydroxyindoleacetate

### Catecholamine Dysfunction ()

66.67% (2 of 3)

Decreased

Normal

Increased

287.29 Fumarate

93.48 Vanilmandelate  
131.58 Homovanillate

### Mitochondrial Inefficiencies ()

66.67% (2 of 3)

Decreased

Normal

Increased

34.75 Isocitrate  
86.15 Citrate  
4.55 cis-Aconitate

When this pattern shows up, suspect mitochondrial inefficiencies which may be due to toxicity issues.

### Potential CoEnzyme Q10 Deficiency ()

66.67% (4 of 6)

Decreased

Normal

Increased

310.00 Lactate  
-43.55 Adipate  
52.78 Ethylmalonate  
-2.38 Suberate  
267.24 Succinate  
36.11 Hydroxymethylglutarate

This pattern is consistent with a CoEnzyme Q10 deficiency or the use of statin drugs.

## Comparison Progress Report

**Anna Salanti**  
Female / Age: 66

**Urine Organic Acids Date: 9/24/2018**  
Anna Salanti (2718)

A "+" change is toward optimal % Status of zero. A "-" change is away from optimal % Status of zero.

	Status % on: 10/26/2017		9/24/2018		+/- change
CA Cycle Phase 5	<b>84.14</b>	<b>H</b>	-13.02		+ 71.12
CA Cycle Phase 6	<b>-59.83</b>	<b>L</b>	-3.10		+ 56.73
Isocitrate	<b>62.38</b>	<b>H</b>	<b>34.75</b>	<b>H</b>	<b>+ 27.64</b>
Quinolate	<b>50.00</b>	<b>H</b>	22.50		+ 27.50
Benzoate	-16.86		<b>12650.00</b>	<b>H</b>	<b>-12633.14</b>
5-Hydroxyindoleacetate	-21.31		<b>444.29</b>	<b>H</b>	<b>- 422.97</b>
Fumarate	<b>-27.37</b>	<b>L</b>	<b>287.29</b>	<b>H</b>	<b>- 259.92</b>
Lactate	<b>65.22</b>	<b>H</b>	<b>310.00</b>	<b>H</b>	<b>- 244.78</b>
Kynurenate	23.67		<b>260.00</b>	<b>H</b>	<b>- 236.33</b>
Hippurate	<b>-27.26</b>	<b>L</b>	<b>252.37</b>	<b>H</b>	<b>- 225.12</b>
Succinate	<b>78.18</b>	<b>H</b>	<b>267.24</b>	<b>H</b>	<b>- 189.06</b>
Orotate	<b>75.45</b>	<b>H</b>	<b>210.87</b>	<b>H</b>	<b>- 135.42</b>
Homovanillate	6.03		<b>131.58</b>	<b>H</b>	<b>- 125.55</b>
Vanilmandelate	-10.00		<b>93.48</b>	<b>H</b>	<b>- 83.48</b>
P-Hydroxyphenylacetate	-1.35		<b>71.05</b>	<b>H</b>	<b>- 69.70</b>
Tricarallylate	<b>-36.67</b>	<b>L</b>	<b>100.68</b>	<b>H</b>	<b>- 64.02</b>
p-Hydroxyphenyllactate	<b>-27.69</b>	<b>L</b>	<b>80.77</b>	<b>H</b>	<b>- 53.08</b>
Citrate	<b>36.37</b>	<b>H</b>	<b>86.15</b>	<b>H</b>	<b>- 49.78</b>
a-Ketoisocaproate	-2.00		<b>-50.00</b>	<b>L</b>	<b>- 48.00</b>
Pyruvate	5.24		<b>-50.00</b>	<b>L</b>	<b>- 44.76</b>
Ethylmalonate	-10.55		<b>52.78</b>	<b>H</b>	<b>- 42.23</b>
Malate	9.50		<b>50.00</b>	<b>H</b>	<b>- 40.50</b>
a-Hydroxybutyrate	17.02		<b>-50.00</b>	<b>L</b>	<b>- 32.98</b>
a-Ketoisovalerate	17.50		<b>-50.00</b>	<b>L</b>	<b>- 32.50</b>
Hydroxymethylglutarate	-3.90		<b>36.11</b>	<b>H</b>	<b>- 32.21</b>
CA Cycle Phase 1	<b>141.12</b>	<b>H</b>	<b>171.67</b>	<b>H</b>	<b>- 30.54</b>
Methylmalonate	2.50		<b>32.35</b>	<b>H</b>	<b>- 29.85</b>
Pyroglutamate	-17.55		<b>43.22</b>	<b>H</b>	<b>- 25.67</b>

## Comparison Report

**Anna Salanti**  
Female / Age: 66

**Urine Organic Acids Date: 9/24/2018**  
Anna Salanti (2718)

The arrow's length is proportional to change. Left to right is increase. Right to left is decrease.  
Green is improvement. Red is decline.

		+/-	Status	% on:	10/26/2017	9/24/2018		
-21.31		444.29	-		-21.31	444.29	H	
	-43.55  -31.36		-		-31.36	-43.55	L	
	-50.00  17.02		-		17.02	-50.00	L	
	-50.00  -30.00		-		-30.00	-50.00	L	
	-50.00  -37.65		-		-37.65	-50.00	L	
	-50.00  -2.00		-		-2.00	-50.00	L	
	-50.00  17.50		-		17.50	-50.00	L	
-16.86		12650.00	-		-16.86	12650.00	H	
	-50.00  -41.94		-		-41.94	-50.00	L	
	28.95  45.75		+		45.75	28.95	H	
					cis-Aconitate	-3.38	4.55	
	36.37  86.15		-		36.37	86.15	H	
	-10.55  52.78		-		-10.55	52.78	H	
-27.37		287.29	-		-27.37	287.29	H	
-27.26		252.37	-		-27.26	252.37	H	
6.03		131.58	-		6.03	131.58	H	
	-3.90  36.11		-		-3.90	36.11	H	
	34.75  62.38		+		62.38	34.75	H	
23.67		260.00	-		23.67	260.00	H	
65.22		310.00	-		65.22	310.00	H	
	9.50  50.00		-		9.50	50.00	H	
	2.50  32.35		-		2.50	32.35	H	
75.45		210.87	-		75.45	210.87	H	
	-30.00  50.00		-		-30.00	50.00	H	
-1.35		71.05	-		-1.35	71.05	H	
-27.69		80.77	-		-27.69	80.77	H	
	-17.55  43.22		-		-17.55	43.22	H	
	-50.00  5.24		-		5.24	-50.00	L	
	22.50  50.00		+		50.00	22.50	H	
	-2.38  10.00		+		10.00	-2.38		
78.18		267.24	-		78.18	267.24	H	
-36.67		100.68	-		-36.67	100.68	H	
-10.00		93.48	-		-10.00	93.48	H	
<b>Total Status Deviation</b>					<b>38.77</b>	<b>326.83</b>		
<b>Total Status Skew</b>					<b>16.42</b>	<b>301.85</b>		



## Panel/Subset Comparison Report

Anna Salanti  
Female / Age: 66

Urine Organic Acids Date: 9/24/2018  
Anna Salanti (2718)

<b>B-Complex Markers</b>	<b>10/26/2017</b>	<b>9/24/2018</b>	<b>+/-</b>	
b-Hydroxyisovalerate	45.75 H	28.95 H	+	28.95 ← 45.75
a-Ketoisovalerate	17.50	-50.00 L	-	-50.00 ← 17.50
a-Ketoisocaproate	-2.00	-50.00 L	-	-50.00 ← -2.00
a-Keto-b-methylvalerate	-30.00 L	-50.00 L	-	-50.00 ← -30.00
Methylmalonate	2.50	32.35 H	-	2.50 → 32.35
<b>PSS / PSD</b>	6.75 / 19.55	1.82 / 44.68		

<b>BCAA Catabolism</b>	<b>10/26/2017</b>	<b>9/24/2018</b>	<b>+/-</b>	
a-Ketoisovalerate	17.50	-50.00 L	-	-50.00 ← 17.50
a-Ketoisocaproate	-2.00	-50.00 L	-	-50.00 ← -2.00
a-Keto-b-methylvalerate	-30.00 L	-50.00 L	-	-50.00 ← -30.00
<b>PSS / PSD</b>	-4.83 / 16.50	-50.00 / 50.00		

<b>CAC Cycle Ratios</b>	<b>10/26/2017</b>	<b>9/24/2018</b>	<b>+/-</b>	
CA Cycle Phase 1	141.12 H	171.67 H	-	141.12 → 171.67
CA Cycle Phase 2	12.05	11.81		
CA Cycle Phase 5	84.14 H	-13.02	+	-13.02 ← 84.14
CA Cycle Phase 6	-59.83 L	-3.10	+	-59.83 → -3.10
CA Cycle Return	-3.34	-13.37	-	-13.37 ← -3.34
<b>PSS / PSD</b>	84.51 / 102.56	30.80 / 42.59		

<b>Carbohydrate Metabolism</b>	<b>10/26/2017</b>	<b>9/24/2018</b>	<b>+/-</b>	
Lactate	65.22 H	310.00 H	-	65.22 → 310.00
Pyruvate	5.24	-50.00 L	-	-50.00 ← 5.24
a-Hydroxybutyrate	17.02	-50.00 L	-	-50.00 ← 17.02
b-Hydroxybutyrate	-41.94 L	-50.00 L	-	-50.00 ← -41.94
<b>PSS / PSD</b>	11.38 / 32.36	40.00 / 115.00		

<b>Energy Production</b>	<b>10/26/2017</b>	<b>9/24/2018</b>	<b>+/-</b>	
Citrate	36.37 H	86.15 H	-	36.37 → 86.15
cis-Aconitate	-3.38	4.55		
Isocitrate	62.38 H	34.75 H	+	34.75 ← 62.38
a-Ketoglutarate	-37.65 L	-50.00 L	-	-50.00 ← -37.65
Succinate	78.18 H	267.24 H	-	78.18 → 267.24
Fumarate	-27.37 L	287.29 H	-	-27.37 → 287.29
Malate	9.50	50.00 H	-	9.50 → 50.00
Hydroxymethylglutarate	-3.90	36.11 H	-	-3.90 → 36.11
<b>PSS / PSD</b>	14.26 / 32.34	89.51 / 102.01		

<b>Fatty Acid Metabolism</b>	<b>10/26/2017</b>	<b>9/24/2018</b>	<b>+/-</b>	
Adipate	-31.36 L	-43.55 L	-	-43.55 ← -31.36
Suberate	10.00	-2.38	+	-2.38 ← 10.00
Ethylmalonate	-10.55	52.78 H	-	-10.55 → 52.78
<b>PSS / PSD</b>	-10.64 / 17.30	2.28 / 32.90		

## Panel/Subset Comparison Report

**Anna Salanti**  
Female / Age: 66

**Urine Organic Acids Date: 9/24/2018**  
Anna Salanti (2718)

<b>Intestinal Dysbiosis</b>	<b>10/26/2017</b>	<b>9/24/2018</b>	<b>+/-</b>	
p-Hydroxyphenyllactate	-27.69 L	80.77 H	-	-27.69  80.77
Tricarballic acid	-36.67 L	100.68 H	-	-36.67  100.68
p-Hydroxybenzoate	-30.00 L	50.00 H	-	-30.00  50.00
<b>PSS / PSD</b>	-31.45 / 31.45	53.70 / 75.92		

<b>Liver Detox Indicators</b>	<b>10/26/2017</b>	<b>9/24/2018</b>	<b>+/-</b>	
Orotate	75.45 H	210.87 H	-	75.45  210.87
Pyroglutamate	-17.55	43.22 H	-	-17.55  43.22
a-Hydroxybutyrate	17.02	-50.00 L	-	-50.00  17.02
<b>PSS / PSD</b>	24.98 / 36.67	46.33 / 74.37		

<b>Neurotransmitters</b>	<b>10/26/2017</b>	<b>9/24/2018</b>	<b>+/-</b>	
Vanilmandelate	-10.00	93.48 H	-	-10.00  93.48
Homovanillate	6.03	131.58 H	-	6.03  131.58
5-Hydroxyindoleacetate	-21.31	444.29 H	-	-21.31  444.29
Kynurenate	23.67	260.00 H	-	23.67  260.00
Quinolate	50.00 H	22.50	+	22.50  50.00
<b>PSS / PSD</b>	9.68 / 22.20	190.37 / 190.37		