

Clinical Symptom - Test Result Correlation Summary

B-Vitamin Insufficiency

Your test results show indications of less than optimal B-vitamin status. B-vitamins are essential co-factors in a wide spectrum of chemical reactions within the body and are essential for the production of important hormones and neurotransmitters. B-vitamins are the most important vitamin modulators of human biochemistry. Having less than optimal levels for your individual needs may not cause any specific symptoms in some, but may manifest in many people in the following ways:

- Fatigue and lack of vitality
- Exercise intolerance
- Diminished capacity to deal with stress
- Mood imbalances and sleep disturbance
- Lack of concentration and memory
- Blood sugar regulation difficulties
- Dermatitis and skin disorders

Folate and/or B12 Insufficiency

Your test results suggest potential specific B-vitamin (folic acid and/or vitamin B12), that may result in:

- Sub-optimal control of genetic expression and possible increased risk for cardiovascular disease and fetal developmental disorders during early pregnancy
- B-vitamin deficiency anemia
- Depression and mood imbalances
- Fatigue and lack of vitality

Inefficient Fat Metabolism

Your test results show a potential inability to efficiently metabolize and burn fats. This may result in:

- Inability to lose weight
- Low energy
- Cognitive decline

Inefficient Cellular Energy Production

Your test results reveal inefficiency in your cellular energy production. This is a critical process that occurs within all cells and sub-optimal energy production may result in:

- Fatigue and lack of vitality
- Exercise intolerance
- Generalized muscle aches
- Lack of concentration and memory

Chronic Stress

Your test results suggest a chronic high level of stress and a sub-optimal or fatigued stress response, which can result in:

- Fatigue and lack of vitality
- Exercise intolerance
- Diminished capacity to deal with stress
- Mood imbalances and sleep disturbance
- Lack of concentration and memory

Detoxification

Your test results reveal sub-optimal ability to detoxify internal and external chemicals and toxins. Elevated body burden of toxin may result in:

- Fatigue and lack of vitality
- Exercise intolerance
- Lack of concentration and memory
- Increased oxidative stress and risk of chronic diseases

Dysbiosis

Your test results show potential imbalances of gastrointestinal bacterial growth, a condition known as "dysbiosis". Dysbiosis may cause increases in bacterial toxins being absorbed and sent to the liver where the body's detoxification process is required to neutralize these compounds, putting additional stress on the detoxification systems. It commonly can cause vague gastrointestinal symptoms such as:

- Diarrhea and/or constipation (or alternating diarrhea and constipation)
- Gas and bloating
- Intestinal cramping
- Flatulence (excessive gas)
- Increased risk for arthritis and autoimmune diseases

Oxidative Stress

Your test results show an increase in oxidative stress. Increases in oxidative stress suggest the need for more dietary antioxidants (i.e., fresh vegetables and fruits) and antioxidant nutritional supplements. Oxidative stress is a biochemical process which may result in:

- Increased risk for many chronic diseases (i.e., heart disease, stroke, and cancer)
- Premature aging

Summary of Abnormal Results

Summary of abnormal results:

	<u>Findings</u>	<u>Intervention Options</u>	<u>Metabolic Association</u>
B-Vitamin Insufficiency			
a-Ketoglutarate	Very High	CoQ10, Lipoic Acid, B1, B2, B3, B5	Citric acid cycle
a-Ketoisovalerate	High	Lipoic Acid, B1, B2, B3, B5	Impaired Valine metabolism
a-Ketoisocaproate	High	Lipoic Acid, B1, B2, B3, B5	Impaired Leucine metabolism
a-Keto-B-Methylvalerate	High	Lipoic Acid, B1, B2, B3, B5	Impaired Isoleucine metabolism
Xanthurenate	High	B6	Impaired Tryptophan metabolism
b-Hydroxyisovalerate	Very High	Biotin, B2	Impaired Isoleucine metabolism
Methylmalonate	Very High	B12	Adenosylcobalamin insufficiency
Cellular Energy			
Adipate	High	Carnitine, B2	Fatty acid oxidation
Suberate	High	Carnitine, B2	Fatty acid oxidation
b-Hydroxybutyrate	Very High	Cr, V, Lipoic Acid, Mg, Mn	Ketosis
a-Ketoglutarate	Very High	CoQ10, Lipoic Acid, B1, B2, B3, B5	Citric acid cycle
Succinate	High	CoQ10, B-Complex, Calcium, Antioxidants	ATP production
Fumarate	Very High	CoQ10	ATP production
Malate	Very High	CoQ10	ATP production
Neural Function			
Homovanillate	Low	Tyrosine	Dopamine turnover inhibition
Kynurenate	High	B6	Receptor antagonist
Detoxification			
Citrate	High	Arginine, Lipoic Acid	Renal ammonia loading
Cis-Aconitate	High	Arginine, Lipoic Acid	Renal ammonia loading
Isocitrate	High	Arginine, Lipoic Acid	Renal ammonia loading
a-Hydroxybutyrate	High	N-acetylcysteine, other sulfur containing a. a., Lipoic Acid	Glutathione demand
Dysbiosis			
Phenylacetate	High	Probiotics or antibiotics	Bacterial product
Indican	High	Probiotics or antibiotics	Bacterial product
Oxidative Stress			
8-Hydroxy-2-deoxyguanosine	High	Antioxidants	Free radical damage

Testing performed by Metamatrix, Inc., 3425 Corporate Way, Duluth, GA 30096

This report is not intended for the diagnosis of neonatal inborn errors of metabolism.

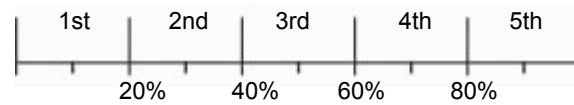
Organix™ Profile

Methodology: LC/Tandem Mass Spectroscopy, Colorimetric

Results are expressed as mcg/mg creatinine.

Ranges are for ages 13 and over

Percentile Ranking by Quintile



**95%
Reference
Interval**

Results

B-Vitamin Insufficiency

Item	Result	Percentile	Reference Interval
1 Pyruvate	<DL*	3.9	<= 6.4
2 a-Ketoglutarate	49.4 H	19.0	<= 35.0
3 a-Ketoisovalerate	0.35 H	0.25	<= 0.49
4 a-Ketoisocaproate	0.44 H	0.34	<= 0.52
5 a-Keto-β-Methylvalerate	0.74 H	0.38	<= 1.10
6 Xanthurenate	0.63 H	0.47	<= 0.74
7 β-Hydroxyisovalerate	12.6 H	7.6	<= 11.5
8 Methylmalonate	2.7 H	1.7	<= 2.3
9 Formiminoglutamate	0.9	1.2	<= 2.2

Cellular Energy

10 Adipate	5.6 H	5.2	<= 8.3
11 Suberate	1.8 H	1.7	<= 3.2
12 Ethylmalonate	2.2	3.6	<= 6.3
13 L-Lactate	4	14	3 - 46
14 β-Hydroxybutyrate	44.1 H	2.1	<= 9.9
15 Succinate	13.6 H	11.6	<= 20.9
16 Fumarate	3.19 H	0.59	<= 1.35
17 Malate	5.9 H	1.4	<= 3.1
18 Hydroxymethylglutarate	2.6	3.6	<= 5.1

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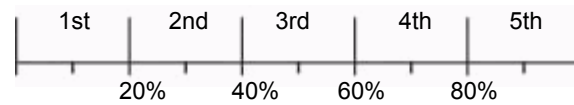
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Neural Function

Item	Result	Percentile	Reference Interval
19 Vanilmandelate	1.8	1.8 (1st)	1.3 - 4.9
20 Homovanillate	1.9 L	2.1 (1st)	1.6 - 10.9
21 5-Hydroxyindoleacetate	2.3	2.1 (1st)	1.6 - 9.8
22 Kynurenate	2.0 H	1.9 (1st)	<= 2.7
23 Quinolinate	3.8	4.0 (1st)	<= 5.8
24 Picolinate	6.9	8.0 (1st)	2.8 - 13.5

Detoxification

Item	Result	Percentile	Reference Interval
25 Citrate	785 H	601 (1st)	56 - 987
26 Cis-Aconitate	58 H	51 (1st)	18 - 78
27 Isocitrate	100 H	98 (1st)	39 - 143
28 2-Methylhippurate	0.021	0.084 (1st)	<= 0.192
29 Orotate	0.37	0.69 (1st)	<= 1.01
30 Glucarate	1.0	6.3 (1st)	<= 10.7
31 a-Hydroxybutyrate	0.9 H	0.3 (1st)	<= 0.9
32 Pyroglutamate	58	59 (1st)	28 - 88
33 Sulfate	1,549	958 (1st) - 2,347 (5th)	690 - 2,988

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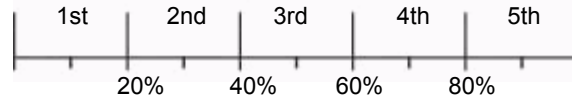
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Percentile Ranking by Quintile



**95%
Reference
Interval**

Compounds of Bacterial Origin

Compound ID	Compound Name	Result	Percentile Ranking	Reference Interval
34	Benzoate	<DL*	0.6	<= 9.3
35	Phenylacetate	0.05 H	0.04	<= 0.15
36	Phenylpropionate	<DL*	0.4	<= 0.4
37	p-Hydroxybenzoate	0.47	0.99	<= 2.08
38	p-Hydroxyphenylacetate	11	19	<= 34
39	Indican	47 H	40	<= 74
40	Tricarballic acid	0.49	0.73	<= 1.41
41	3,4-Dihydroxyphenylpropionate	<DL*	0.12	<= 0.12
42	D-Lactate	0.3	2.3	<= 7.0

Creatinine = 117 mg/dl

* <DL = less than detection limit

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8-Hydroxy-2 deoxyguanosine - Urine

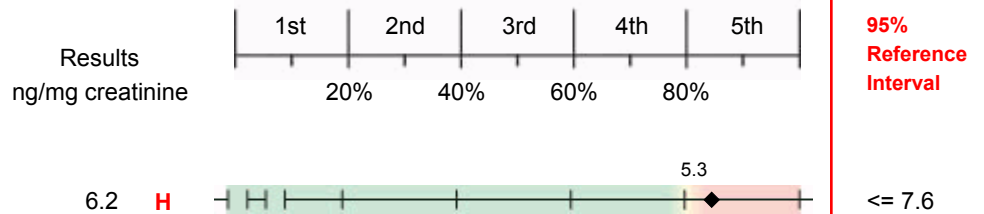
Methodology: LC/Tandem Mass Spectroscopy, Colorimetric

What is 8-Hydroxy-2'-deoxyguanosine (8-OHdG)?

In its efforts to produce the chemical energy to power your cells and fight infection, your body makes harmful chemicals called free radicals. Sustained inflammatory responses cause increased production of these free radicals. When local antioxidant protection fails to keep free radicals in check, there is threat of damage to cell membranes, enzymes, proteins and DNA. 8-OHdG is a product of oxidative damage by free radicals to DNA, and the 8-OHdG test tells you if you have enough antioxidants in your system. High levels of 8-OHdG are sometimes associated with toxic exposure, cancer, heart disease, diabetes, aging, liver disease, Parkinson's disease, and smoking.

Ranges are for ages 13 and over.

Percentile Ranking by Quintile



7 8-Hydroxy-2-deoxyguanosine

6.2

H

5.3

<= 7.6

What does my 8-Hydroxy-2'-deoxyguanosine (8-OHdG) result mean?

If your 8-OHdG is high, your body is failing to control the rate of formation of free radicals. You can increase your protection by taking vitamins E and C, selenium, beta-carotene, and bioflavonoids. Many products are available that offer combinations of these and other antioxidants that may be beneficial.

These test results are not for the diagnosis of disease. They are intended to provide nutritional guidelines to qualified healthcare professionals with full knowledge of patient history and concerns to assist in their design of an appropriate healthcare program.