ZUMIN
Personalized Nutrition Coaching

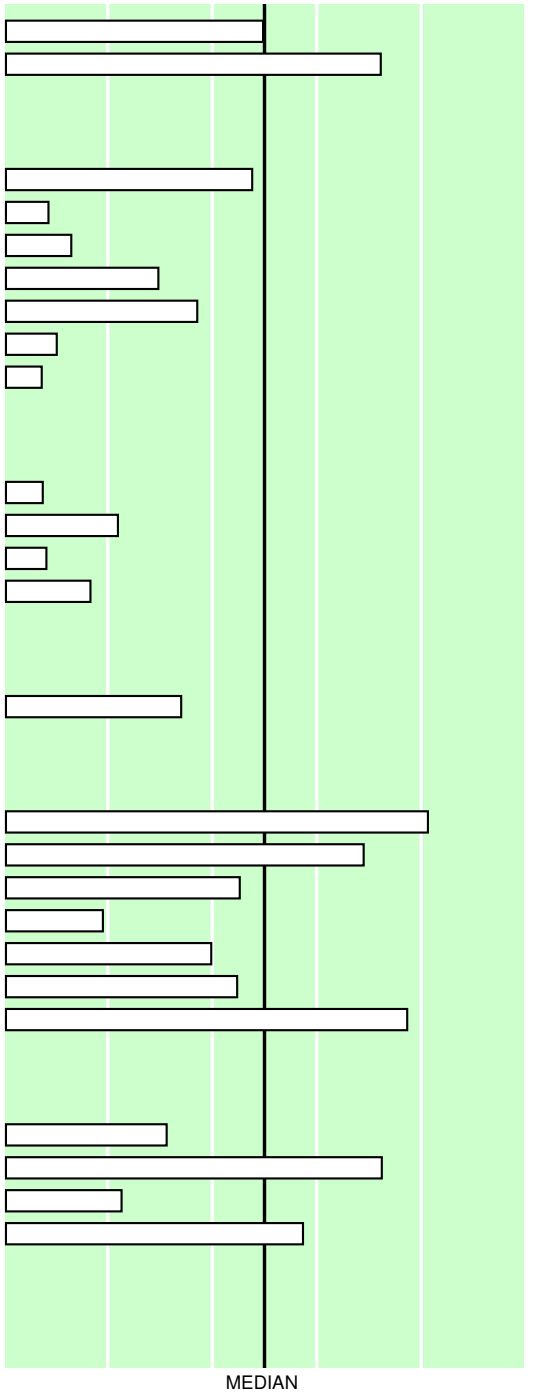
Organic Acids Profile

Provider:
Patient:
Accession:

Sex:
Age:
Sample Type: Urine Card

Collected:
Received:
Completed:

	Analyte	Result (μg/mg creatinine)	Reference Range
	Glycolysis Metabolites		
1	Pyruvate	0.88	< 2.10
2	Lactate	11.03	< 23.10
	Citric Acid Cycle Metabolites		
3	Citrate	288.78	34.30 - 751.30
4	Cis-Aconitate	16.55	< 65.00
5	Isocitrate	36.31	28.00 - 70.00
6	Alpha-Ketoglutarate	5.01	< 26.00
7	Succinate	5.11	< 22.50
8	Fumarate	0.23	< 1.90
9	Malate	0.45	< 4.00
	Fatty Acid Oxidation		
10	Adipate	0.82	< 4.40
11	Suberate	0.42	< 2.80
12	Ethylmalonate	1.25	< 5.50
13	Methylsuccinate	1.12	< 3.10
	Ketone Metabolites		
14	Beta-Hydroxybutyrate	0.58	< 7.20
	Markers for Cofactor Need		
15	Alpha-Ketoisovalerate	0.19	< 0.40
16	Alpha-Ketoisocaproate	0.27	< 0.50
17	Alpha-Keto-Beta-Methylvalerate	0.49	< 2.10
18	Beta-Hydroxyisovalerate	3.51	< 11.20
19	Methylmalonate	0.70	< 1.60
20	Kynurenate	1.54	< 3.00
21	Hydroxymethylglutarate	3.22	< 5.90
	Markers of Neurotransmitter Metabolism		
22	Vanilmandelate	2.44	< 4.70
23	Homovanillate	4.19	< 6.80
24	5-Hydroxyindoleacetate	2.25	1.30 - 13.50
25	Quinolinate	4.09	< 7.20



Reference range updated 6/17/2019. Reference range is not gender adjusted. Reference range is age adjusted for children.
Method: LC/MS/MS
This test is not intended to diagnose, treat, cure, or prevent any disease or replace the medical advice and/or treatment obtained from a qualified healthcare practitioner. US BioTek Laboratories, LLC. has developed and determined the performance characteristic of this test under the Clinical Laboratory Improvement Amendments (CLIA). This test has not been evaluated by the U.S. Food and Drug Administration and is considered for investigational and research purposes only. This test does not assess for neonatal inborn errors of metabolism and is based on stable renal function and normal renal clearance.
The analytes on the panel are subject to change without prior notice.
Lactate is reported as D- and L-Lactate combined on UMP.

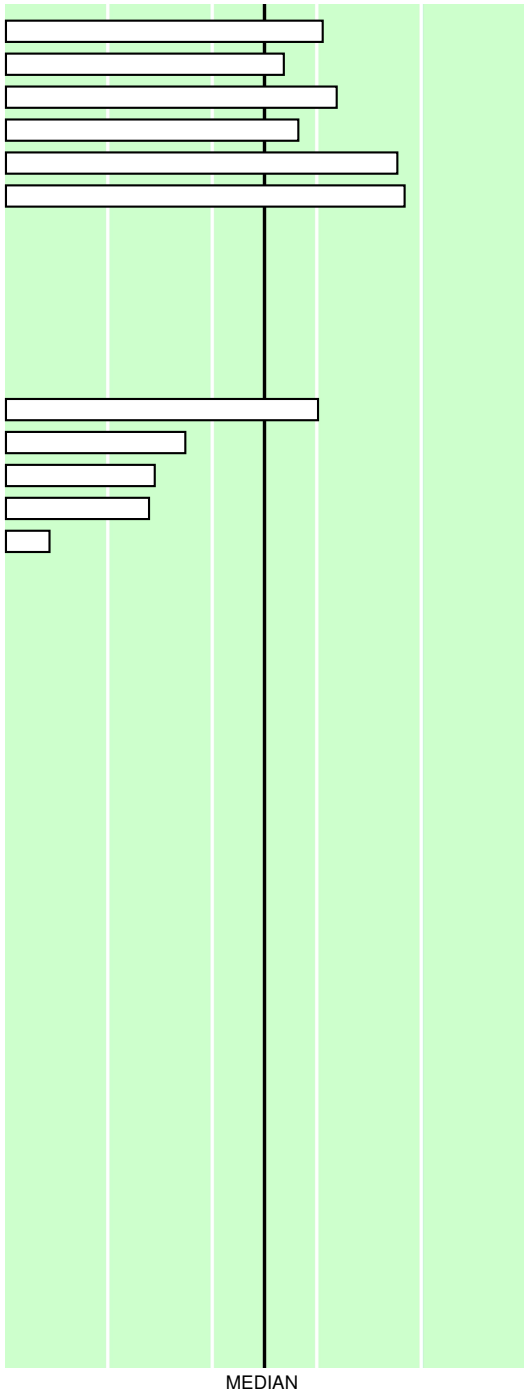
ZUMIN
Personalized Nutrition Coaching

Provider:
Patient:
Accession:

Sex: F
Age: 64
Sample Type: Urine Card

Collected: 08/07/2020
Received: 08/25/2020
Completed: 08/28/2020

	Analyte	Result	Reference Range
		(μg/mg creatinine)	
	Markers of Detoxification		
26	Para-Hydroxyphenyllactate	0.38	< 2.60
27	Orotate	0.58	< 1.10
28	Alpha-Hydroxybutyrate	0.69	< 1.50
29	Pyroglutamate	21.89	11.00 - 43.00
30	Benzoate	4.03	< 7.00
31	Hippurate	296.97	8.00 - 672.00
	Markers of Bacterial Metabolism		
32	Para-Hydroxybenzoate	0.41	< 1.40
33	Para-Hydroxyphenylacetate	7.65	< 20.00
34	2-Hydroxyphenylacetate	0.61	< 1.40
35	3-Indoleacetate	1.70	0.60 - 10.50
36	Tricarballylate	0.15	< 1.50



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Lab Interpretation, LLC
18124 Wedge Pkwy, Ste 432
Reno, NV 89511

(775) 851-3337
(775) 851-3363 Fax
www.labinterpretation.com

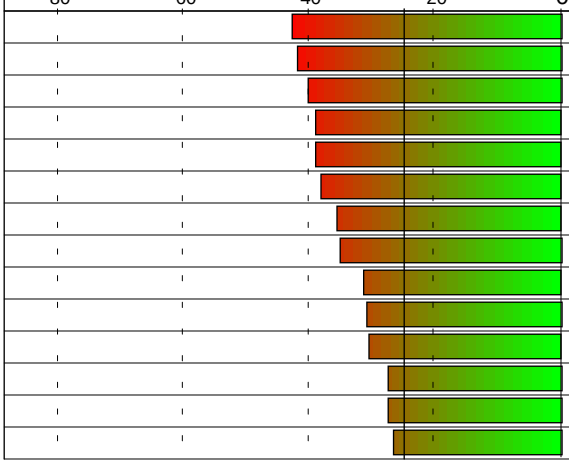
LabAssist™ Urine Organic Acids Report

Practitioner

Basic Status High/Low

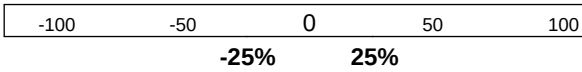
The % Status is the weighted deviation of the laboratory result.

Low Results



	% Status		Result	*Low*	*High*
5-Hydroxyindoleacetate	-42.62	**L**	**2.20**	1.30	13.50
b-Hydroxybutyrate	-41.94	**L**	**0.58**	0.00	7.20
Tricarballylate	-40.00	**L**	**0.15**	0.00	1.50
3-Indoleacetate	-38.89	**L**	**1.70**	0.60	10.50
Malate	-38.75	**L**	**0.45**	0.00	4.00
Fumarate	-37.89	**L**	**0.23**	0.00	1.90
p-Hydroxyphenyllactate	-35.38	**L**	**0.38**	0.00	2.60
Suberate	-35.00	**L**	**0.42**	0.00	2.80
Adipate	-31.36	**L**	**0.82**	0.00	4.40
a-Ketoglutarate	-30.73	**L**	**5.01**	0.00	26.00
Isocitrate	-30.24	**L**	**36.30**	28.00	70.00
Succinate	-27.29	**L**	**5.11**	0.00	22.50
Ethylmalonate	-27.27	**L**	**1.25**	0.00	5.50
a-Keto-b-methylvalerate	-26.67	**L**	**0.49**	0.00	2.10

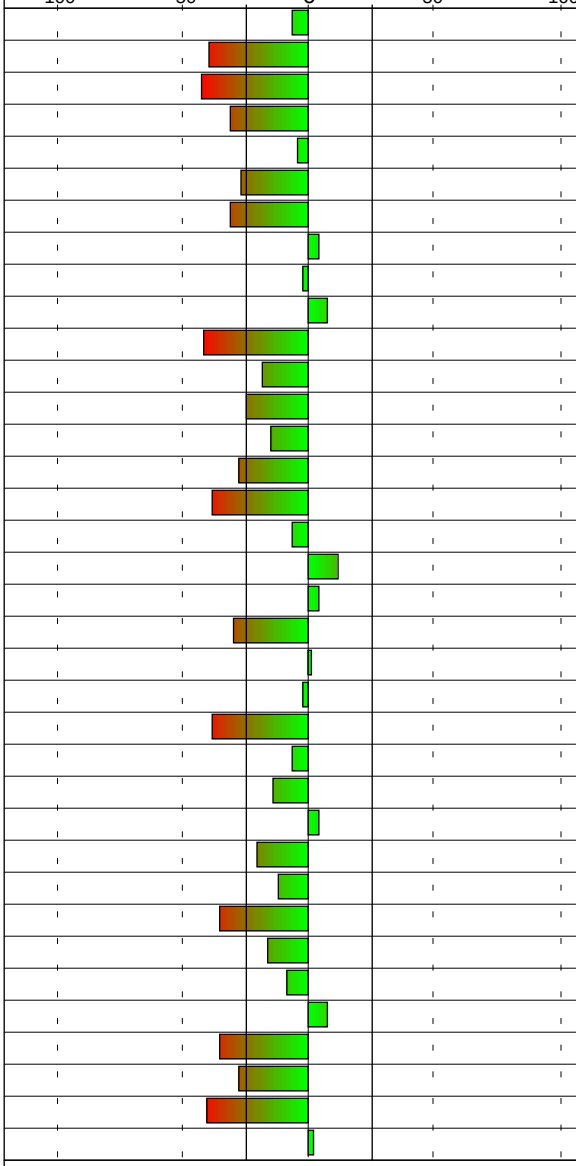
High Results



	% Status	Result	*Low*	*High*

Basic Status Alphabetic

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



	% Status		Result	Low	High
2-Hydroxyphenylacetate	-6.43		0.61	0.00	1.40
3-Indoleacetate	**-38.89**	**L**	**1.70**	0.60	10.50
5-Hydroxyindoleacetate	**-42.62**	**L**	**2.20**	1.30	13.50
Adipate	**-31.36**	**L**	**0.82**	0.00	4.40
a-Hydroxybutyrate	-4.00		0.69	0.00	1.50
a-Keto-b-methylvalerate	**-26.67**	**L**	**0.49**	0.00	2.10
a-Ketoglutarate	**-30.73**	**L**	**5.01**	0.00	26.00
a-Ketoisocaproate	4.00		0.27	0.00	0.50
a-Ketoisovalerate	-2.50		0.19	0.00	0.40
Benzoate	7.57		4.03	0.00	7.00
b-Hydroxybutyrate	**-41.94**	**L**	**0.58**	0.00	7.20
b-Hydroxyisovalerate	-18.66		3.51	0.00	11.20
cis-Aconitate	-24.46		16.60	0.00	65.00
Citrate	-14.50		288.80	34.30	751.30
Ethylmalonate	**-27.27**	**L**	**1.25**	0.00	5.50
Fumarate	**-37.89**	**L**	**0.23**	0.00	1.90
Hippurate	-6.48		297.00	8.00	672.00
Homovanillate	11.62		4.19	0.00	6.80
Hydroxymethylglutarate	4.58		3.22	0.00	5.90
Isocitrate	**-30.24**	**L**	**36.30**	28.00	70.00
Kynurenate	1.33		1.54	0.00	3.00
Lactate	-2.25		11.03	0.00	23.10
Malate	**-38.75**	**L**	**0.45**	0.00	4.00
Methylmalonate	-6.25		0.70	0.00	1.60
Methylsuccinate	-13.87		1.12	0.00	3.10
Orotate	3.64		0.59	0.00	1.10
p-Hydroxybenzoate	-20.71		0.41	0.00	1.40
P-Hydroxyphenylacetate	-11.75		7.65	0.00	20.00
p-Hydroxyphenyllactate	**-35.38**	**L**	**0.38**	0.00	2.60
Pyroglutamate	-15.97		21.89	11.00	43.00
Pyruvate	-8.10		0.88	0.00	2.10
Quinolinate	6.94		4.10	0.00	7.20
Suberate	**-35.00**	**L**	**0.42**	0.00	2.80
Succinate	**-27.29**	**L**	**5.11**	0.00	22.50
Tricarballylate	**-40.00**	**L**	**0.15**	0.00	1.50
Vanilmandelate	1.91		2.44	0.00	4.70
Total Status Deviation	**26.44**				
Total Status Skew	**-7.52**				

Nutritional Support

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

- ☐ **1-Amino Acid Complex**
  8-10 grams daily
- ☐ **2-5-Hydroxytryptophan**
  100 mg

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
CAC Cycle Ratios	65.04%	39.27%
Intestinal Dysbiosis	32.03%	-32.03%
Fatty Acid Metabolism	31.21%	-31.21%
Energy Production	26.06%	-24.91%

Lab Reported out-of-range Values

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

CA Cycle Return (195.89%)

As the citric acid returns to the beginning through the conversion of Malate to Citrate through Oxalacetate, a high result may be due to low amino acid reserves especially aspartic acid.

CA Cycle Phase 1 (123.98%)

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.

CA Cycle Phase 6 (-60.13%)

The last phase of the citric acid cycle, this stage marks the conversion of Fumarate into Malate. When the ratio is low, this may signify that the body is not refilling its losses along the entire cycle. Supplementing with a broad spectrum amino acid along with niacin may help restore balance.

Nutrition - Detail

Sarah Ben Moshe
Female / Age: 64

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-Amino Acid Complex 8-10 grams daily

Rationale

A pattern suggesting amino acid insufficiency may be due to inadequate protein intake, chronic illness or malabsorption. Review dietary intake, assess bacterial flora for adequate balance and the presence of pathogens, and evaluate digestive/pancreatic function. Intake of an individualized free-form amino acid supplement with appropriate nutrient cofactors is advised.

Decreased	Normal	Increased
		CA Cycle Return

2-5-Hydroxytryptophan 100 mg

Serotonin is an important neurotransmitter made from the amino acid Tryptophan. 5-Hydroxyindolacetate is a metabolite of serotonin so a low result of this organic acid may indicate a tryptophan deficiency.

Decreased	Normal	Increased
5-Hydroxyindoleacetate		

Drug Interactions

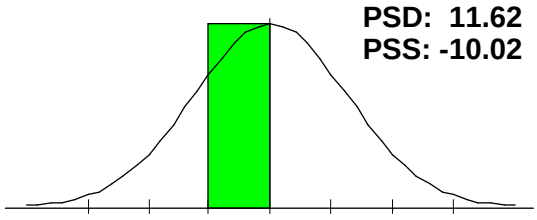
Drugs listed below tend to further aggravate elements of blood chemistry that are out of range (H or L). The (#) after each drug denotes the number of times that drug is flagged as being potentially harmful.

Imipramine	Lithium Carbonate	MAO Inhibitors	Methyldopa

B-Complex Markers

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

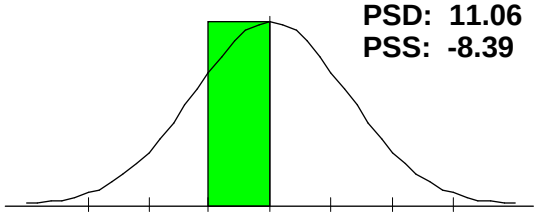
This panel assesses adequate intake of B-complex vitamins. This profile shows a percent imbalance below 25%, so no abnormalities were found.



BCAA Catabolism

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

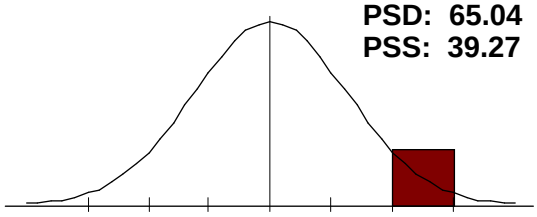
BCAA's are essential in building muscle and you can only get them from your diet or supplements. This panel assess your BCAA levels and how they're being used. This profile shows a percent imbalance below 25%, so no abnormalities were found.



CAC Cycle Ratios

CA Cycle Phase 1[H], CA Cycle Phase 2, CA Cycle Phase 3[H], CA Cycle Phase 4, CA Cycle Phase 5, CA Cycle Phase 6[L], CA Cycle Return[H].

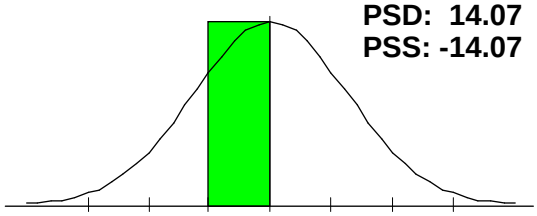
This panel reviews cellular energy producing cycles to maintain health and weight. This profile may indicate a heavy toxin load. Consider running additional environmental toxicity tests.



Carbohydrate Metabolism

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

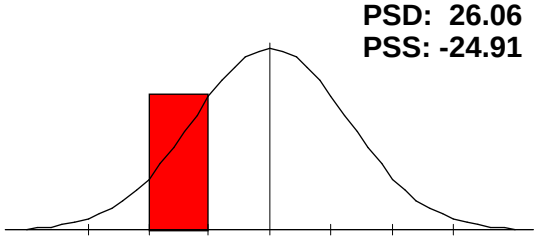
This panel assesses your body's ability to metabolize dietary carbohydrates. This profile shows a percent imbalance below 25%, so no abnormalities were found.



Energy Production

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

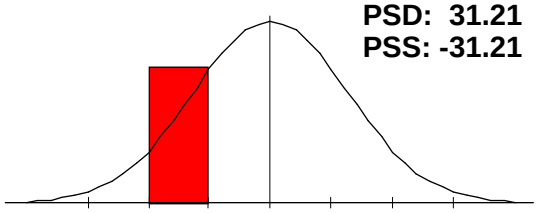
This panel reviews cellular energy producing cycles to maintain health and weight. This profile may indicate an amino acid deficiency. Low readings are typically desirable, but if the CAC Cycle Ratios are abnormal, consider adding a broad spectrum amino acid supplement.



Fatty Acid Metabolism

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

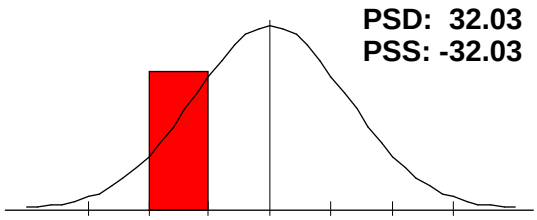
This panel assesses how fats are being broken down and utilized by the body. This profile may indicate you're metabolizing fats efficiently.



Intestinal Dysbiosis

p-Hydroxyphenyllactate[L], Tricarballylate[L], p-Hydroxybenzoate.

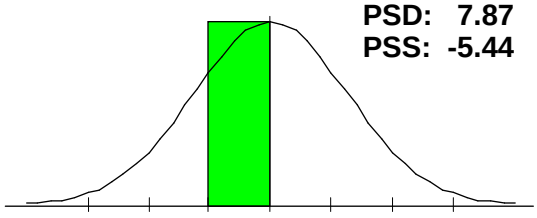
Dysbyosis is an overgrowth of bad bacteria in the gut. It is indicative of gut health. This profile suggests you have good gut health



Liver Detox Indicators

Orotate, Pyroglutamate, a-Hydroxybutyrate.

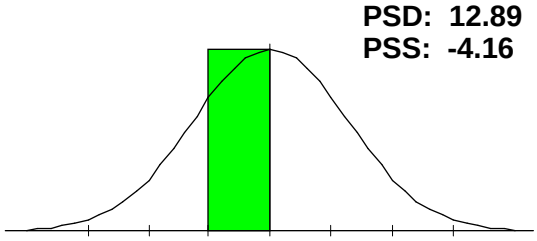
This panel assesses how well your liver removes toxins from your system. This profile shows a percent imbalance below 25%, so no abnormalities were found.



Neurotransmitters

Vanilmandelate, Homovanillate, 5-Hydroxyindoleacetate[L], Kynurenate, 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 shows a percent imbalance below 25%, so no abnormalities were found.



Clinical Correlation

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.

No disease pattern matches > 66.0%