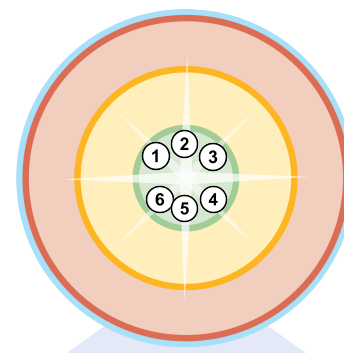
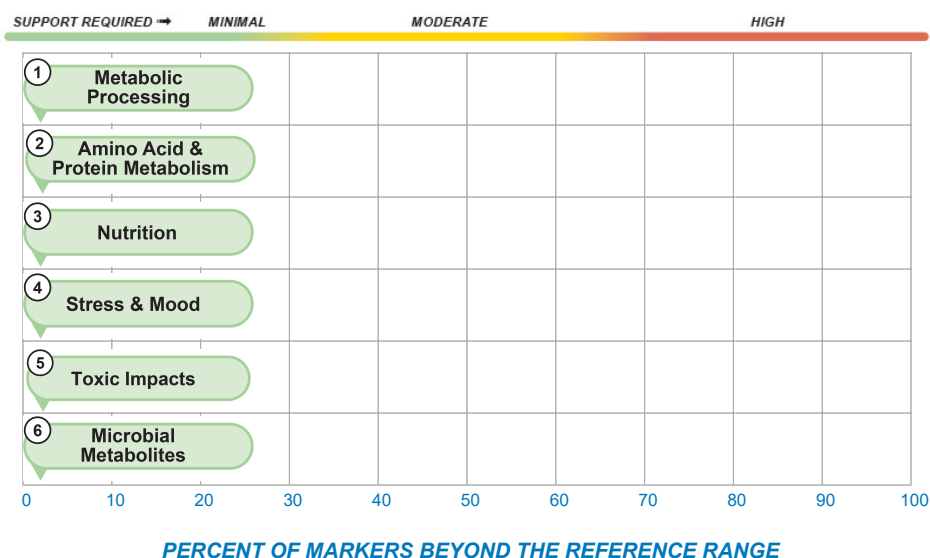


## YOUR PERSONALIZED REPORT

The charts on this page are designed to give you a bird's-eye-view of your current metabolic signature and help you get a general preview of the detailed report found on the following pages.

## METABOLOMIC SIGNATURE

### Identifying Impact of Functional Categories



### YOUR HEALTH TARGET RESULTS

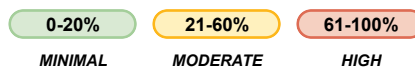
Findings show that 0 of 6 Functional Categories have markers beyond the reference range.

Subcategories are identified below.

### Identifying Impact of Subcategories

NOTE: Below is a list of the Functional Categories and the included subcategories. It lists the percentage of markers that are beyond the reference range so clinicians can better target areas of concern.

### PERCENT OF MARKERS BEYOND THE REFERENCE RANGE



#### ① Metabolic Processing 0%

Subcategory
Glycolysis
Krebs Cycle
Fatty Acid Oxidation
Ketones

#### ② Amino Acid & Protein Metabolism 0%

Subcategory
Phenylalanine Metabolism
Branched-Chain Amino Acids
Tryptophan Metabolism
Methionine Metabolism
Lysine Metabolism

#### ③ Nutrition 0%

Subcategory
B-Complex (B1, B2, B3, B5, LA)
Vitamin B-12
Folate
Vitamin B6
Biotin
Plant Components
Sugar Intake

#### ④ Stress & Mood 0%

Subcategory
Catecholamine Turnover
Serotonin Turnover
Steroid Hormone

#### ⑤ Toxic Impacts 0%

Subcategory
Oxidative Damage
Toxins
Kidney Impacts

#### ⑥ Microbial Metabolites 0%

Subcategory
Amino Acid Microbial Metabolites
Polyphenols Microbial Metabolites
Isoflavone Microbial Metabolite
Fungal Assessment

## 1 - Metabolic Processing

Glycolysis		Result	20% 40% 60% 80%	Reference
<b>Glucose</b>		8.0		< 15.2 mg/dL
<i>Glucokinase</i>				
<b>Pyruvic Acid</b>		24.2		< 47.2 nmol/mg Creatinine
<i>Pyruvate dehydrogenase + B1, B2, B3, B5 LA</i>				
<b>Lactic Acid</b>		84.3		23.1 - 722.6 nmol/mg Creatinine
<i>Lactate dehydrogenase + B3</i>				
<b>D-Lactic Acid</b>		0.03		< 20.0 nmol/mg Creatinine
<i>D-Lactate dehydrogenase</i>				
Krebs Cycle		Result	20% 40% 60% 80%	Reference
<b>Citric Acid</b>		694.1		> 356.2 nmol/mg Creatinine
<i>Citrate synthase</i>				
<b>cis-Aconitic Acid</b>		192.6		91.3 - 363.1 nmol/mg Creatinine
<i>Aconitase</i>				
<b>Isocitric Acid</b>		245.2		< 415.6 nmol/mg Creatinine
<i>Isocitrate dehydrogenase + B3</i>				
<b>α-Ketoglutaric Acid</b>		19.5		< 157.2 nmol/mg Creatinine
<i>alpha-Ketoglutarate dehydrogenase + B1, B2, B3, B5, LA</i>				
<b>Succinic Acid</b>		6.4		4.8 - 224.1 nmol/mg Creatinine
<i>Succinic dehydrogenase + B2</i>				
<b>Fumaric Acid</b>		840.8		320.2 - 3375.5 nmol/mg Creatinine
<i>Fumarase</i>				
<b>Malic Acid</b>		4.2		< 21.5 nmol/mg Creatinine
<i>Malate dehydrogenase + B3</i>				

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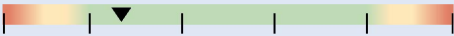

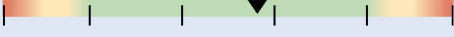

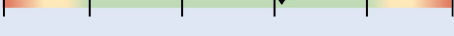
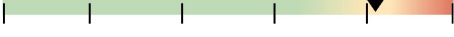
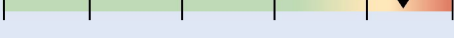
## 1 - Metabolic Processing

Fatty Acid Oxidation		Result	20% 40% 60% 80%	Reference
<b>Adipic Acid</b>		4.9		2.0 - 15.1 nmol/mg Creatinine
<i>Saturated dicarboxylic acid</i>				
<b>Suberic Acid</b>		11.0		3.0 - 29.4 nmol/mg Creatinine
<i>Fatty acid oxidation + Carnitine</i>				
<b>Sebacic Acid</b>		<DL		< 3.7 nmol/mg Creatinine
<i>Fatty acid oxidation + Carnitine</i>				
<b>Pimelic Acid</b>		17.9		5.9 - 31.8 nmol/mg Creatinine
<i>Saturated dicarboxylic acids</i>				
<b>Hexanoylglycine</b>		0.5		< 2.6 nmol/mg Creatinine
<i>Medium-chain acyl glycines</i>				
<b>Suberylglycine</b>		0.7		< 2.3 nmol/mg Creatinine
<i>Medium-chain acyl glycines</i>				
<b>3-Phenylpropionylglycine</b>		<DL		< 1.3 nmol/mg Creatinine
<i>Medium-chain acyl glycines</i>				
<b>Ethylmalonic Acid</b>		14.2		5.0 - 43.3 nmol/mg Creatinine
<i>Dicarboxylic acid</i>				
<b>2-Methylsuccinic Acid</b>		5.1		3.2 - 21.1 nmol/mg Creatinine
<i>Dicarboxylic acid</i>				
Ketones		Result	20% 40% 60% 80%	Reference
<b><math>\beta</math>-Hydroxybutyric Acid</b>		2.1		< 60.5 nmol/mg Creatinine
<i>beta-Hydroxybutyrate dehydrogenase + B3</i>				

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## 2 - Amino Acid &amp; Protein Metabolism

Phenylalanine Metabolism		Result	20% 40% 60% 80%	Reference
<b>Phenylacetic Acid</b>		<b>0.9</b>		0.5 - 19.1 nmol/mg Creatinine
<i>Aldehyde dehydrogenase</i>				
<b>Homovanillic Acid</b>		<b>2.8</b>		< 10.3 nmol/mg Creatinine
<i>COMT + Magnesium &amp; Monoamine oxidase + B2</i>				
<b>Vannilylmandelic Acid</b>		<b>12.3</b>		4.8 - 21.4 nmol/mg Creatinine
<i>Monoamine oxidase + B2</i>				
<b>4-Hydroxyphenylpyruvic Acid</b>		<b>183.3</b>		35.5 - 1116.3 nmol/mg Creatinine
<i>Tyrosine aminotransferase + B6</i>				
<b>Homogentisic Acid</b>		<b>60.8</b>		7.9 - 336.4 nmol/mg Creatinine
<i>4-Hydroxyphenylpyruvate dioxygenase + Iron</i>				
Branched-Chain Amino Acids		Result	20% 40% 60% 80%	Reference
<b><math>\alpha</math>-Ketoisovaleric Acid</b>		<b>&lt;DL</b>		< 11.9 nmol/mg Creatinine
<i>Branched-chain keto acid dehydrogenase + B1, B2, B3, B5, LA</i>				
<b><math>\alpha</math>-Keto-<math>\beta</math>-methylvaleric Acid</b>		<b>0.9</b>		< 11.9 nmol/mg Creatinine
<i>Branched-chain keto acid dehydrogenase + B1, B2, B3, B5, LA</i>				
<b><math>\alpha</math>-Ketoisocaproic Acid</b>		<b>12.6</b>		< 17.0 nmol/mg Creatinine
<i>Branched-chain keto acid dehydrogenase + B1, B2, B3, B5, LA</i>				

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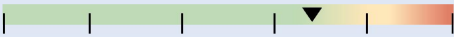

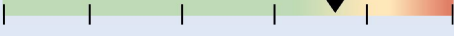
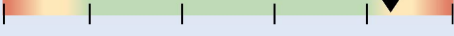
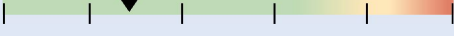
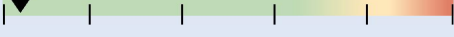

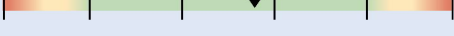
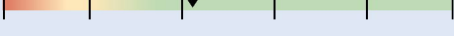

## 2 - Amino Acid &amp; Protein Metabolism

Tryptophan Metabolism		Result	20% 40% 60% 80%	Reference
<b>5-Hydroxyindoleacetic Acid</b> <i>Aldehyde dehydrogenase + B3</i>	9.7			6.3 - 28.7 nmol/mg Creatinine
<b>Hydroxykynurenine</b> <i>Kynureninase + B6</i>	<DL			< 12.1 nmol/mg Creatinine
<b>Xanthurenic Acid</b> <i>Kynurenine transaminase + B6</i>	2.6			< 9.5 nmol/mg Creatinine
<b>Anthranilic Acid</b> <i>Kynureninase + B6</i>	<DL			< 11.8 nmol/mg Creatinine
<b>Picolinic Acid</b> <i>Non-enzymatic conversion</i>	<DL			< 4.0 nmol/mg Creatinine
<b>Kynurenic Acid</b> <i>Kynurenine transaminase + B6</i>	15.7			2.1 - 18.5 nmol/mg Creatinine
<b>Quinolinic Acid</b> <i>Non-enzymatic conversion</i>	56.0			9.0 - 105.7 nmol/mg Creatinine
Methionine Metabolism		Result	20% 40% 60% 80%	Reference
<b>α-Hydroxybutyric Acid</b> <i>Dehydrogenase + B3</i>	30.8			10.6 - 62.6 nmol/mg Creatinine
<b>α-Ketobutyric Acid</b> <i>Lactate dehydrogenase + B3</i>	<DL			< 7.2 nmol/mg Creatinine
<b>Pyroglutamic Acid</b> <i>5-Oxoprolinase</i>	36.9			< 72.7 nmol/mg Creatinine
Lysine Metabolism		Result	20% 40% 60% 80%	Reference
<b>Glutaric Acid</b> <i>Glutaryl-CoA dehydrogenase + B2</i>	0.8			< 4.5 nmol/mg Creatinine

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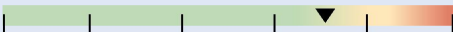
## 3 - Nutrition

B-Complex (B1, B2, B3, B5, LA)		Result	20% 40% 60% 80%	Reference
<b>Branched Chain Alpha-Keto Organic Acids</b> <i>Branched-chain keto acid dehydrogenase + B1, B2, B3, B5, LA</i>	13.5			< 28.3 nmol/mg Creatinine
<b>α-Ketoglutaric Acid</b> <i>alpha-Ketoglutarate dehydrogenase + B1, B2, B3, B5, LA</i>	19.5			< 157.2 nmol/mg Creatinine
<b>Pyruvic Acid</b> <i>Pyruvate dehydrogenase + B1, B2, B3, B5, LA</i>	24.2			< 47.2 nmol/mg Creatinine
Vitamin B-12		Result	20% 40% 60% 80%	Reference
<b>Methylmalonic Acid</b> <i>Methylmalonyl-CoA mutase + B12</i>	14.4			2.7 - 25.9 nmol/mg Creatinine
Folate		Result	20% 40% 60% 80%	Reference
<b>Formiminoglutamic Acid</b> <i>Glutamate formimino-transferase + Folate</i>	0.05			< 0.4 nmol/mg Creatinine
Vitamin B6		Result	20% 40% 60% 80%	Reference
<b>Pyridoxic Acid</b> <i>Aldehyde oxidase</i>	<DL			< 111.9 nmol/mg Creatinine
<b>Xanthurenic Acid</b> <i>Kynurenine transaminase + B6</i>	2.6			< 9.5 nmol/mg Creatinine
Biotin		Result	20% 40% 60% 80%	Reference
<b>β-Hydroxyisovaleric Acid</b> <i>Methylcrotonyl-CoA carboxylase + Biotin</i>	78.5			25.1 - 223.4 nmol/mg Creatinine
Plant Components		Result	20% 40% 60% 80%	Reference
<b>Quercetin</b> <i>Polyphenol: Flavonoid</i>	5.3			> 2.7 nmol/mg Creatinine
<b>Tartaric Acid</b> <i>Plant component</i>	5.0			> 1.8 nmol/mg Creatinine

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## 3 - Nutrition

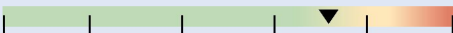
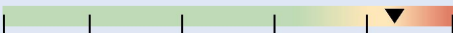
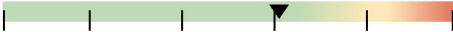
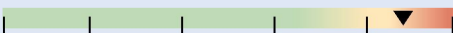

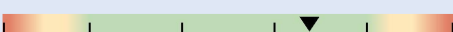
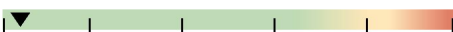
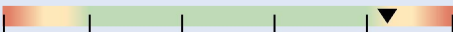
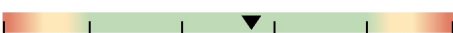
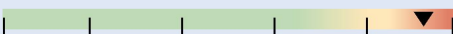
Sugar Intake		Result	20% 40% 60% 80%	Reference
<b>Fructose</b>		1.6		< 4.7 nmol/mg Creatinine
<i>Fructokinase</i>				

## 4 - Stress &amp; Mood

Catecholamine Turnover		Result	20% 40% 60% 80%	Reference
<b>Homovanillic Acid</b>		2.8		< 10.3 nmol/mg Creatinine
<i>COMT + magnesium &amp; monoamine oxidase + B2</i>				
<b>Vannilylmandelic Acid</b>		12.3		4.8 - 21.4 nmol/mg Creatinine
<i>Monoamine oxidase + B2</i>				
Serotonin Turnover		Result	20% 40% 60% 80%	Reference
<b>5-Hydroxyindoleacetic Acid</b>		9.7		6.3 - 28.7 nmol/mg Creatinine
<i>Aldehyde dehydrogenase + B3</i>				
Steroid Hormone		Result	20% 40% 60% 80%	Reference
<b>Cortisol</b>		20.5		< 82.0 mcg/g Creatinine
<i>11-beta-Hydroxysteroid dehydrogenase + B3</i>				
<b>Cortisone</b>		92.9		< 695.1 mcg/g Creatinine
<i>11-beta-Hydroxysteroid dehydrogenase + B3</i>				
<b>Aldosterone</b>		<DL		< 0.5 mcg/g Creatinine
<i>Steroid 5-beta reductase</i>				

**KEY:** < dl = Results below detection limit.

## 5 - Toxic Impacts



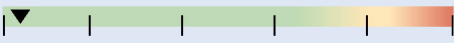
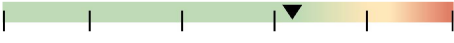
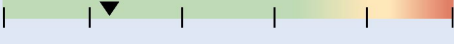
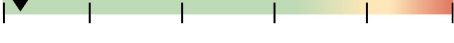
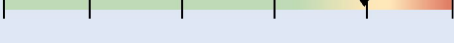
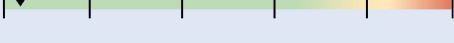

Oxidative Damage		Result	20% 40% 60% 80%	Reference
<b>8-Hydroxy-2'-deoxyguanosine</b>		2.7		< 8.4 nmol/mg Creatinine
<i>DNA oxidation</i>				
Toxins		Result	20% 40% 60% 80%	Reference
<b>2-Methylhippuric Acid</b>		1.2		< 2.1 nmol/mg Creatinine
<i>Xylene exposure</i>				
<b>Mandelic Acid</b>		1.3		< 4.6 nmol/mg Creatinine
<i>Styrene exposure</i>				
<b>Benzoylform</b>		2.9		< 4.3 nmol/mg Creatinine
<i>Styrene exposure</i>				
<b>Glucaric Acid</b>		7.7		3.6 - 25.8 nmol/mg Creatinine
<i>Glucuronic Acid Pathway</i>				
Kidney Impacts		Result	20% 40% 60% 80%	Reference
<b>Orotic Acid</b>		2.7		0.7 - 6.0 nmol/mg Creatinine
<i>Uridine monophosphate synthase</i>				
<b>Microalbumin</b>		<DL		< 130.4 mcg/g Creatinine
<i>Blood protein</i>				
<b>Phosphate</b>		145.0		11.2 - 192.4 mg/dL
<i>Charged particle (ion)</i>				
<b>Creatinine</b>		150.0		29.3 - 296.8 mg/dL
<i>Creatine breakdown</i>				
<b>Oxalic Acid</b>		533.3		< 1532.5 nmol/mg Creatinine
<i>Divalent metallic cations</i>				

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## 6 - Microbial Metabolites

Amino Acid Microbial Metabolites		Result	20% 40% 60% 80%	Reference
<b>4-Hydroxyphenylacetic Acid</b> <i>Disordered tyrosine metabolism</i>	175.5			85.8 - 902.3 nmol/mg Creatinine
<b>Indoleacetic Acid</b> <i>Disordered tryptophan metabolism</i>	1.3			< 13.7 nmol/mg Creatinine
Polyphenols Microbial Metabolites		Result	20% 40% 60% 80%	Reference
<b>3,4-Dihydroxyhydrocinnamic Acid</b> <i>Polyphenol metabolite</i>	<DL			< 1490.3 nmol/mg Creatinine
<b>3,5-Dihydroxybenzoic Acid</b> <i>Microbial metabolite</i>	70.9			< 277.1 nmol/mg Creatinine
<b>4-Hydroxybenzoic Acid</b> <i>Hydroxybenzoic acid derivative</i>	2.6			< 14.9 nmol/mg Creatinine
<b>Benzoic Acid</b> <i>Glycine N-benzoyltransferase</i>	<DL			< 488.0 nmol/mg Creatinine
<b>Hippuric Acid</b> <i>Glycine conjugate of benzoate</i>	184.9			< 291.9 nmol/mg Creatinine
Isoflavone Microbial Metabolite		Result	20% 40% 60% 80%	Reference
<b>Equol</b> <i>Isoflavone metabolite</i>	<DL			< 12.8 nmol/mg Creatinine
Fungal Assessment		Result	20% 40% 60% 80%	Reference
<b>Arabinitol</b> <i>Dehydrogenase</i>	2.8			< 9.0 nmol/mg Creatinine

**KEY:** < dl = Results below detection limit.

## PERSONALIZED METABOLOMIC RECOMMENDATIONS

*Note: Nutrient supplementation is up to the treating clinician's discretion with full understanding of the patient's medical history and current clinical condition.*

MICRONUTRIENTS	Support Required	Recommendations	Food Sources
<b>B-Complex</b>	None	No Additional Support	Mixed diet
<b>Thiamin (B1)</b>	None	1.2 mg*	Rice, wheat germ, lentils, peas, pork, whole wheat bread, spinach
<b>Riboflavin (B2)</b>	None	1.3 mg*	Milk, almonds, eggs, salmon, chicken, broccoli, spinach
<b>Niacin (B3)</b>	None	16 mg*	Chicken, tuna, turkey, cereal, peanuts, lentils, coffee
<b>Cobalamine (B12)</b>	None	2.4 mcg*	Clams, mussels, mackerel, crab, beef, salmon, milk, eggs
<b>Folate (B9)</b>	None	400 mcg DFE*	Lentils, garbanzo beans, spinach, asparagus, lima beans, orange juice
<b>Biotin (B7)</b>	None	30 mcg*	Eggs, liver, salmon, avocado, raspberries, cauliflower, bread
<b>CoQ10</b>	None	6 mg	Beef, herring, chicken, canola oil, Rainbow trout, peanuts, pistachio nuts, broccoli
<b>Magnesium</b>	None	420 mg*	Beef, pork, milk, cod, chicken, avocado
<b>Carnitine</b>	None	10+ mg	Beef, pork, milk, cod, chicken, avocado
<b>Copper</b>	None	0.9 mcg	Eastern oysters, crab meat, clams, cashews, sunflowers, hazelnuts, almonds

\* DV or Daily Values, are the recommended amounts of nutrients per day for a healthy, non-deficient adult.

ADDITIONAL SUPPORT	Support Required	Suggested Recommendation
<b>Glutathione Need</b>	None	No Additional Support
<b>Inflammation</b>	None	No Additional Support
<b>Kidney Parameters</b>	None	No Additional Support