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Patient: _____ Accession: _____
 Collected: _____ Received: _____
 DOB: _____ Completed: _____
 Sex: _____ Ordered by: _____



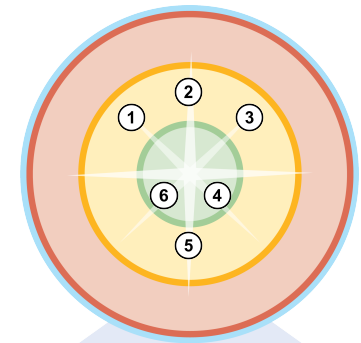
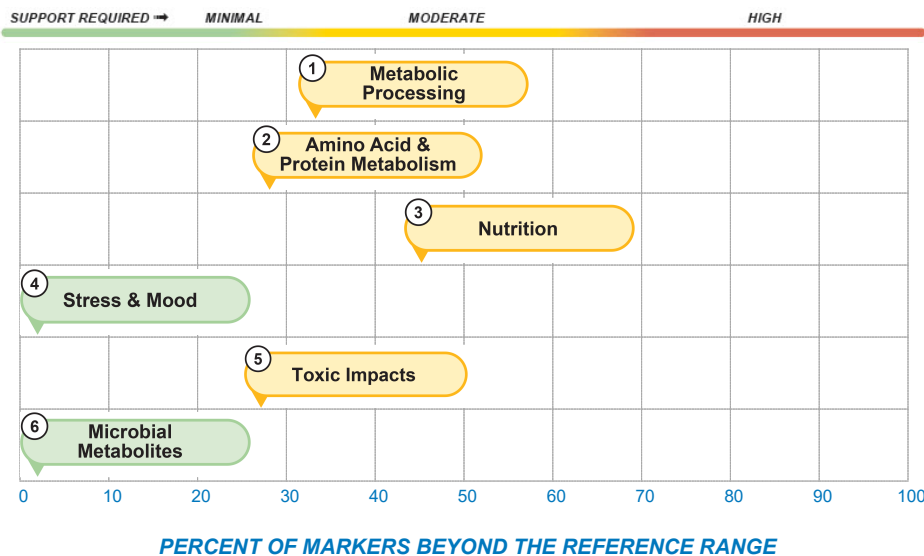
METHODOLOGY: LC-MS/MS - OMX Urine

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

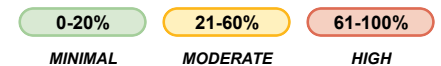
Findings show that 4 of 6 Functional Categories have markers beyond the reference range.

Subcategories are identified below.

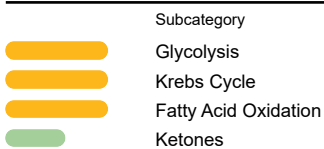
Identifying Impact of Subcategories

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.

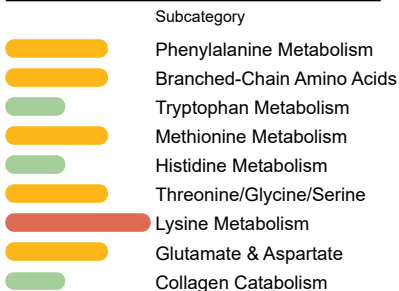
PERCENT OF MARKERS BEYOND THE REFERENCE RANGE



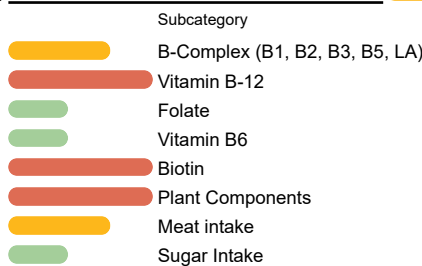
1 Metabolic Processing 32%



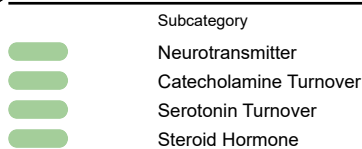
2 Amino Acid & Protein Metabolism 26%



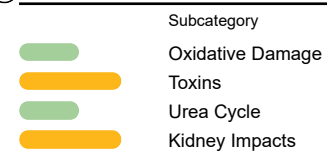
3 Nutrition 43%



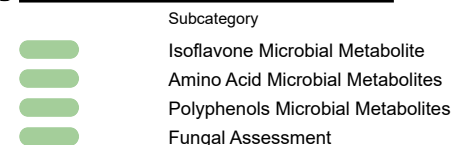
4 Stress & Mood 0%



5 Toxic Impacts 25%



6 Microbial Metabolites 0%



Patient:

Accession:

1 - Metabolic Processing

1 - Metabolic Processing				
	Result			Reference
Glycolysis				
Glucose <i>Glucokinase</i>	10.9			< 15.2 mg/dL
Pyruvic Acid <i>Pyruvate dehydrogenase + B1, B2, B3, B5 LA</i>	119.4 H			< 47.2 nmol/mg Creatinine
Lactic Acid <i>Lactate dehydrogenase + B3</i>	38.0			23.1 - 722.6 nmol/mg Creatinine
D-Lactic Acid <i>D-Lactate dehydrogenase</i>	0.5			< 21.6 nmol/mg Creatinine
Alanine <i>Alanine transaminase + B6</i>	51.2 L			65.4 - 572.6 nmol/mg Creatinine
Krebs Cycle				
Citric Acid <i>Citrate synthase</i>	309.1 L			> 356.2 nmol/mg Creatinine
cis-Aconitic Acid <i>Aconitase</i>	102.2			91.3 - 363.1 nmol/mg Creatinine
Isocitric Acid <i>Isocitrate dehydrogenase + B3</i>	183.3			< 415.6 nmol/mg Creatinine
α-Ketoglutaric Acid <i>alpha-Ketoglutarate dehydrogenase + B1, B2, B3, B5, LA</i>	32.3			< 157.2 nmol/mg Creatinine
Succinic Acid <i>Succinic dehydrogenase + B2</i>	45.1			4.8 - 224.1 nmol/mg Creatinine
Fumaric Acid <i>Fumarase</i>	185.1 L			320.2 - 3375.5 nmol/mg Creatinine
Malic Acid <i>Malate dehydrogenase + B3</i>	1.6			< 21.5 nmol/mg Creatinine

KEY: < dl = Results below detection limit.

Patient:

Accession:

1 - Metabolic Processing

1 - Metabolic Processing			
	Result		Reference
Fatty Acid Oxidation			
Adipic Acid <i>Saturated dicarboxylic acid</i>	3.1		2.0 - 15.1 nmol/mg Creatinine
Sebacic Acid <i>Fatty acid oxidation + Carnitine</i>	<DL		< 3.7 nmol/mg Creatinine
Suberic Acid <i>Fatty acid oxidation + Carnitine</i>	3.0		3.0 - 29.4 nmol/mg Creatinine
Pimelic Acid <i>Saturated dicarboxylic acids</i>	4.9 L		5.9 - 31.8 nmol/mg Creatinine
Hexanoylglycine <i>Medium-chain acyl glycines</i>	0.7		< 2.6 nmol/mg Creatinine
Suberylglycine <i>Medium-chain acyl glycines</i>	0.5		< 2.3 nmol/mg Creatinine
3-Phenylpropionylglycine <i>Medium-chain acyl glycines</i>	0.1		< 1.3 nmol/mg Creatinine
Ethylmalonic Acid <i>Dicarboxylic acid</i>	7.8		5.0 - 43.3 nmol/mg Creatinine
2-Methylsuccinic Acid <i>Dicarboxylic acid</i>	23.6 H		3.2 - 21.1 nmol/mg Creatinine
Ketones			
β-Hydroxybutyric Acid <i>beta-Hydroxybutyrate dehydrogenase + B3</i>	1.0		< 60.5 nmol/mg Creatinine

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Patient:

Accession:

2 - Amino Acid & Protein Metabolism

2 - Amino Acid & Protein Metabolism			
Phenylalanine Metabolism	Result	20% 40% 60% 80%	Reference
Phenylalanine <i>Phenylalanine hydroxylase + BH4</i>	14.5		11.7 - 73.7 nmol/mg Creatinine
Phenylacetic Acid <i>Aldehyde dehydrogenase</i>	0.4 L		0.5 - 19.1 nmol/mg Creatinine
Tyrosine <i>Tyrosine hydroxylase + BH4</i>	16.8		11.4 - 126.7 nmol/mg Creatinine
Homovanillic Acid <i>COMT + Magnesium & Monoamine oxidase + B2</i>	1.3		< 10.3 nmol/mg Creatinine
Vannilylmandelic Acid <i>Monoamine oxidase + B2</i>	8.1		4.8 - 21.4 nmol/mg Creatinine
4-Hydroxyphenylpyruvic Acid <i>Tyrosine aminotransferase + B6</i>	>1164.6		35.5 - 1116.3 nmol/mg Creatinine
Homogentisic Acid <i>4-Hydroxyphenylpyruvate dioxygenase + Iron</i>	62.7		7.9 - 336.4 nmol/mg Creatinine
Branched-Chain Amino Acids	Result	20% 40% 60% 80%	Reference
Total Branched Chain Amino Acids <i>Branched-chain amino acid transaminase + B6</i>	18.5		14.3 - 105.4 nmol/mg Creatinine
Valine <i>Branched-chain amino acid transaminase + B6</i>	8.5 L		9.2 - 48.9 nmol/mg Creatinine
α-Ketoisovaleric Acid <i>Branched-chain keto acid dehydrogenase + B1, B2, B3, B5, LA</i>	22.0 H		< 11.9 nmol/mg Creatinine
Isoleucine/allo-Isoleucine <i>Branched-chain amino acid transaminase + B6</i>	3.1		< 14.9 nmol/mg Creatinine
α-Keto-β-methylvaleric Acid <i>Branched-chain keto acid dehydrogenase + B1, B2, B3, B5, LA</i>	<DL		< 11.9 nmol/mg Creatinine
Leucine <i>Branched-chain amino acid transaminase + B6</i>	6.9		< 35.4 nmol/mg Creatinine
α-Ketoisocaproic Acid <i>Branched-chain keto acid dehydrogenase + B1, B2, B3, B5, LA</i>	2.5		< 17.0 nmol/mg Creatinine

KEY: < dl = Results below detection limit.

Patient:

Accession:

2 - Amino Acid & Protein Metabolism

Tryptophan Metabolism	Result		Reference
Tryptophan <i>Tryptophan hydroxylase + BH4</i>	13.2		10.5 - 68.7 nmol/mg Creatinine
5-Hydroxyindoleacetic Acid <i>Aldehyde dehydrogenase + B3</i>	10.3		6.3 - 28.7 nmol/mg Creatinine
Kynurenine <i>Kynurenine mono-oxygenase (KMO) + B2</i>	1.2		< 13.7 nmol/mg Creatinine
KT Ratio <i>Kynurenine / Tryptophan</i>	0.094		0.064 - 0.638
Hydroxykynurenine <i>Kynureninase + B6</i>	<DL		< 12.1 nmol/mg Creatinine
Xanthurenic Acid <i>Kynurenine transaminase + B6</i>	0.5		< 9.5 nmol/mg Creatinine
Anthranilic Acid <i>Kynureninase + B6</i>	<DL		< 11.8 nmol/mg Creatinine
Picolinic Acid <i>Non-enzymatic conversion</i>	<DL		< 4.0 nmol/mg Creatinine
Kynurenic Acid <i>Kynurenine transaminase + B6</i>	4.9		2.1 - 18.5 nmol/mg Creatinine
Quinolinic Acid <i>Non-enzymatic conversion</i>	66.0		9.0 - 105.7 nmol/mg Creatinine

KEY: < dl = Results below detection limit.

Patient:

Accession:

2 - Amino Acid & Protein Metabolism

2 - Amino Acid & Protein Metabolism				
	Result			Reference
Methionine Metabolism				
Methionine <i>Methionine adenosyltransferase</i>	2.1			< 11.0 nmol/mg Creatinine
Homocystine <i>Methionine synthase + B12</i>	<DL			< 5.7 nmol/mg Creatinine
Cystathionine <i>Cystathionine gamma-lyase + B6</i>	2.1 L			3.6 - 85.5 nmol/mg Creatinine
Sulfocysteine <i>Sulfite oxidase (SOX) + Mo</i>	1.5			< 8.8 nmol/mg Creatinine
Taurine <i>Hypotaurine dehydrogenase</i>	179.9			41.9 - 3644.8 nmol/mg Creatinine
Cystine <i>Oxidation</i>	5.9 L			9.7 - 96.1 nmol/mg Creatinine
α-Hydroxybutyric Acid <i>Dehydrogenase + B3</i>	12.0			10.6 - 62.6 nmol/mg Creatinine
α-Ketobutyric Acid <i>Lactate dehydrogenase + B3</i>	0.4			< 7.2 nmol/mg Creatinine
Pyroglutamic Acid <i>5-Oxoprolinase</i>	73.2 H			< 72.7 nmol/mg Creatinine
Histidine Metabolism				
Histidine <i>Histidine decarboxylase + B6</i>	139.4			126.4 - 1592.8 nmol/mg Creatinine
3-Methylhistidine <i>Myofibrillar Breakdown</i>	148.1			49.7 - 1852.9 nmol/mg Creatinine
β-Alanine <i>Carnosine synthase</i>	0.8			< 11.8 nmol/mg Creatinine

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Patient:

Accession:

2 - Amino Acid & Protein Metabolism

2 - Amino Acid & Protein Metabolism			
	Result		Reference
Threonine/Glycine/Serine			
Threonine <i>Glycine C-acetyltransferase + B6</i>	23.2 L		38.3 - 402.2 nmol/mg Creatinine
Glycine <i>Glutathione synthetase</i>	183.7 L		248.3 - 6396.0 nmol/mg Creatinine
Serine <i>Cystathionine beta-synthase + B6, Iron</i>	64.5		11.7 - 724.3 nmol/mg Creatinine
Sarcosine <i>Sarcosine dehydrogenase + B2</i>	<DL		< 148.3 nmol/mg Creatinine
Ethanolamine <i>Ethanolamine kinase</i>	147.1		68.0 - 405.0 nmol/mg Creatinine
Phosphoethanolamine <i>Phosphoethanolamine cytidyltransferase</i>	29.2		< 49.7 nmol/mg Creatinine
Lysine Metabolism			
Lysine <i>alpha-Aminoacidipic semialdehyde synthase</i>	19.3 L		23.3 - 1800.4 nmol/mg Creatinine
α-Aminoacidipic Acid <i>Aminotransferase + B6</i>	3.9 L		4.5 - 75.3 nmol/mg Creatinine
Glutaric Acid <i>Glutaryl-CoA dehydrogenase + B2</i>	0.6		< 4.5 nmol/mg Creatinine

KEY: < dl = Results below detection limit.

Patient:

Accession:

2 - Amino Acid & Protein Metabolism

		20%	40%	60%	80%	
Glutamate & Aspartate	Result	----- ----- ----- -----				Reference
Glutamine <i>Glutaminase</i>	61.6 L	----- ----- ----- -----				126.4 - 659.1 nmol/mg Creatinine
Glutamic Acid <i>Glutamate cysteine ligase</i>	6.2 L	----- ----- ----- -----				6.5 - 83.4 nmol/mg Creatinine
Glutamine / Glutamate Ratio <i>Glutaminase</i>	10.0	----- ----- ----- -----				2.5 - 39.5
Asparagine <i>Asparaginase</i>	23.0 L	----- ----- ----- -----				30.6 - 199.2 nmol/mg Creatinine
Aspartic Acid <i>Asparagine synthase</i>	<DL	----- ----- ----- -----				< 51.1 nmol/mg Creatinine
		20%	40%	60%	80%	
Collagen Catabolism	Result	----- ----- ----- -----				Reference
Proline <i>Prolyl hydroxylase + Vitamin C</i>	3.1	----- ----- ----- -----				< 14.7 nmol/mg Creatinine
Hydroxyproline <i>4-Hydroxyproline oxidase</i>	<DL	----- ----- ----- -----				< 25.3 nmol/mg Creatinine
Glycylproline <i>Dipeptide of Glycine + Proline</i>	2.2	----- ----- ----- -----				< 18.9 nmol/mg Creatinine

3 - Nutrition

		20%	40%	60%	80%	
B-Complex (B1, B2, B3, B5, LA)	Result	----- ----- ----- -----				Reference
Branched Chain Alpha-Keto Organic Acids <i>Branched-chain keto acid dehydrogenase + B1, B2, B3, B5, LA</i>	<DL	----- ----- ----- -----				< 28.3 nmol/mg Creatinine
α-Ketoglutaric Acid <i>alpha-Ketoglutarate dehydrogenase + B1, B2, B3, B5, LA</i>	32.3	----- ----- ----- -----				< 157.2 nmol/mg Creatinine
Pyruvic Acid <i>Pyruvate dehydrogenase + B1, B2, B3, B5, LA</i>	119.4 H	----- ----- ----- -----				< 47.2 nmol/mg Creatinine
		20%	40%	60%	80%	
Vitamin B-12	Result	----- ----- ----- -----				Reference
Methylmalonic Acid <i>Methylmalonyl-CoA mutase + B12</i>	2.5 L	----- ----- ----- -----				2.7 - 25.9 nmol/mg Creatinine

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Patient:

Accession:

3 - Nutrition			
	Result		Reference
Folate			
Formiminoglutamic Acid <i>Glutamate formimino-transferase + Folate</i>	0.00		< 0.4 nmol/mg Creatinine
Vitamin B6			
Pyridoxic Acid <i>Aldehyde oxidase</i>	4.4		< 111.9 nmol/mg Creatinine
Xanthurenic Acid <i>Kynurenine transaminase + B6</i>	0.5		< 9.5 nmol/mg Creatinine
Biotin			
β-Hydroxyisovaleric Acid <i>Methylcrotonyl-CoA carboxylase + Biotin</i>	10.7 L		25.1 - 223.4 nmol/mg Creatinine
Plant Components			
Quercetin <i>Polyphenol: Flavonoid</i>	1.1 L		> 2.7 nmol/mg Creatinine
Tartaric Acid <i>Plant component</i>	0.6 L		> 1.8 nmol/mg Creatinine
Meat intake			
1-Methylhistidine <i>Dietary meat & fish</i>	112.0		88.0 - 394.4 nmol/mg Creatinine
Carnosine <i>Carnosinase</i>	1.8 L		3.9 - 70.0 nmol/mg Creatinine
Anserine <i>Anserinase</i>	6.7		< 364.6 nmol/mg Creatinine
Sugar Intake			
Fructose <i>Fructokinase</i>	0.7		< 4.7 nmol/mg Creatinine

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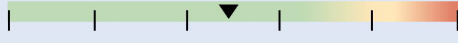
Patient:

Accession:

4 - Stress & Mood

Neurotransmitter		Result	20% 40% 60% 80%	Reference
γ-Aminobutyric Acid <i>gamma-Aminobutyric acid aminotransferase + B6</i>	<DL			< 2.9 nmol/mg Creatinine
Catecholamine Turnover		Result	20% 40% 60% 80%	Reference
Homovanillic Acid <i>COMT + magnesium & monoamine oxidase + B2</i>	1.3			< 10.3 nmol/mg Creatinine
Vannilylmandelic Acid <i>Monoamine oxidase + B2</i>	8.1			4.8 - 21.4 nmol/mg Creatinine
Serotonin Turnover		Result	20% 40% 60% 80%	Reference
5-Hydroxyindoleacetic Acid <i>Aldehyde dehydrogenase + B3</i>	10.3			6.3 - 28.7 nmol/mg Creatinine
Steroid Hormone		Result	20% 40% 60% 80%	Reference
Cortisol <i>11-beta-Hydroxysteroid dehydrogenase + B3</i>	3.4			< 82.0 mcg/g Creatinine
Cortisone <i>11-beta-Hydroxysteroid dehydrogenase + B3</i>	10.9			< 665.0 mcg/g Creatinine
Aldosterone <i>Steroid 5-beta reductase</i>	<DL			< 2.5 mcg/g Creatinine

5 - Toxic Impacts

Oxidative Damage		Result	20% 40% 60% 80%	Reference
8-Hydroxy-2'-deoxyguanosine <i>DNA oxidation</i>	0.6			< 8.4 nmol/mg Creatinine

KEY: < dl = Results below detection limit.

Patient:

Accession:

5 - Toxic Impacts

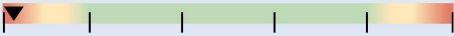

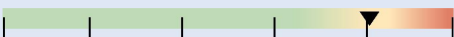

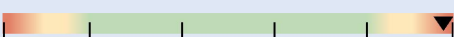
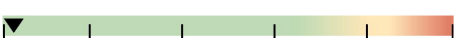
Toxins	Result	20% 40% 60% 80%	Reference
2-Methylhippuric Acid <i>Xylene exposure</i>	0.1		< 2.1 nmol/mg Creatinine
Mandelic Acid <i>Styrene exposure</i>	0.4		< 4.6 nmol/mg Creatinine
Benzoylform <i>Styrene exposure</i>	2.0		< 4.3 nmol/mg Creatinine
Glucaric Acid <i>Glucuronic Acid Pathway</i>	1.8 L		3.6 - 25.8 nmol/mg Creatinine
Urea Cycle	Result	20% 40% 60% 80%	Reference
Arginine <i>Arginase & Nitric oxide synthase</i>	4.6		< 31.4 nmol/mg Creatinine
Citrulline <i>Argininosuccinate synthase</i>	1.5		< 13.6 nmol/mg Creatinine
Ornithine <i>Ornithine transcarbamylase</i>	3.7		< 63.0 nmol/mg Creatinine
Homocitrulline <i>Argininosuccinate synthase</i>	6.1		6.1 - 43.5 nmol/mg Creatinine
Arginosuccinic Acid <i>Argininosuccinate lyase</i>	13.5		< 49.7 nmol/mg Creatinine

KEY: < dl = Results below detection limit.

Patient:

Accession:

5 - Toxic Impacts

Kidney Impacts	Result	20% 40% 60% 80%	Reference
Orotic Acid <i>Uridine monophosphate synthase</i>	0.6 L		0.7 - 6.0 nmol/mg Creatinine
pH	5.6		5.0 - 8.0
Microalbumin <i>Blood protein</i>	2.8		< 130.4 mcg/mg Creatinine
Phosphate <i>Charged particle (ion)</i>	>285.0 L		11.2 - 192.4 mg/dL
Creatinine <i>Creatine breakdown</i>	476.5 H		29.3 - 296.8 mg/dL
Oxalic Acid <i>Divalent metallic cations</i>	133.5		< 1532.5 nmol/mg Creatinine

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Patient:

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6 - Microbial Metabolites

6 - Microbial Metabolites			
	Result		Reference
Amino Acid Microbial Metabolites			
4-Hydroxyphenylacetic Acid <i>Disordered tyrosine metabolism</i>	97.1		85.8 - 902.3 nmol/mg Creatinine
Indoleacetic Acid <i>Disordered tryptophan metabolism</i>	3.9		< 13.7 nmol/mg Creatinine
Polyphenols Microbial Metabolites			
3,4-Dihydroxyhydrocinnamic Acid <i>Polyphenol metabolite</i>	<DL		< 1490.3 nmol/mg Creatinine
3,5-Dihydroxybenzoic Acid <i>Microbial metabolite</i>	40.2		< 277.1 nmol/mg Creatinine
4-Hydroxybenzoic Acid <i>Hydroxybenzoic acid derivative</i>	0.6		< 14.9 nmol/mg Creatinine
Benzoic Acid <i>Glycine N-benzoyltransferase</i>	<DL		< 488.0 nmol/mg Creatinine
Hippuric Acid <i>Glycine conjugate of benzoate</i>	19.1		< 291.9 nmol/mg Creatinine
Isoflavone Microbial Metabolite			
Equol <i>Isoflavone metabolite</i>	2.3		< 12.8 nmol/mg Creatinine
Fungal Assessment			
Arabinitol <i>Dehydrogenase</i>	2.1		< 9.0 nmol/mg Creatinine

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Patient:

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

PROTEIN	Findings	Suggested Recommendation
Phenylalanine	Adequate	No Additional Support
Isoleucine/allo-Isoleucine	Adequate	No Additional Support
Leucine	Adequate	No Additional Support
Valine	Low	Assess calorie and protein intake; evaluate digestion
Tryptophan	Adequate	No Additional Support
Methionine	Adequate	No Additional Support
Threonine	Low	Assess calorie and protein intake; evaluate gut bacteria, glycine status (benzoate and hippurate).
Lysine	Low	Assess calorie and protein intake; evaluate anxiety, ADHD, LPI variant SLC7A9, and carnitine need.
Histidine	Adequate	No Additional Support
Arginine	Adequate	No Additional Support
Glycine	Low	Evaluate toxin exposure, IBD; check glutathione and B6 level; add glycine and lipoic acid
Taurine	Adequate	No Additional Support

ADDITIONAL SUPPORT	Support Required	Suggested Recommendation
Glutathione Need	High	Supplementation with glycine or serine, NAC, lipoic acid, and an NAD+ precursor (tryptophan, niacin, or nicotinamide riboside).
Inflammation	None	No Additional Support
Liver Parameters	None	No Additional Support
Kidney Parameters	None	No Additional Support