



• GET TO THE ROOT CAUSE •

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A unit of Functional Medicine Institute Pvt. Ltd.

Patient: Ima Sample
 Collected: 11/5/2021
 DOB: 11/4/2021
 Sex: Male

Accession: OMXTest10
 Received: 11/6/2021
 Completed: 5/10/2022
 Ordered by: Diane Farhi



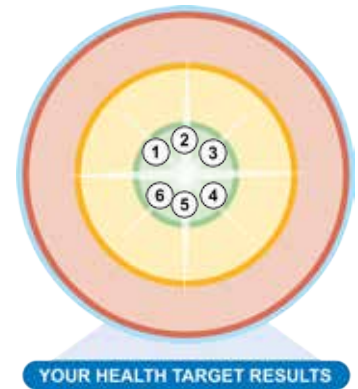
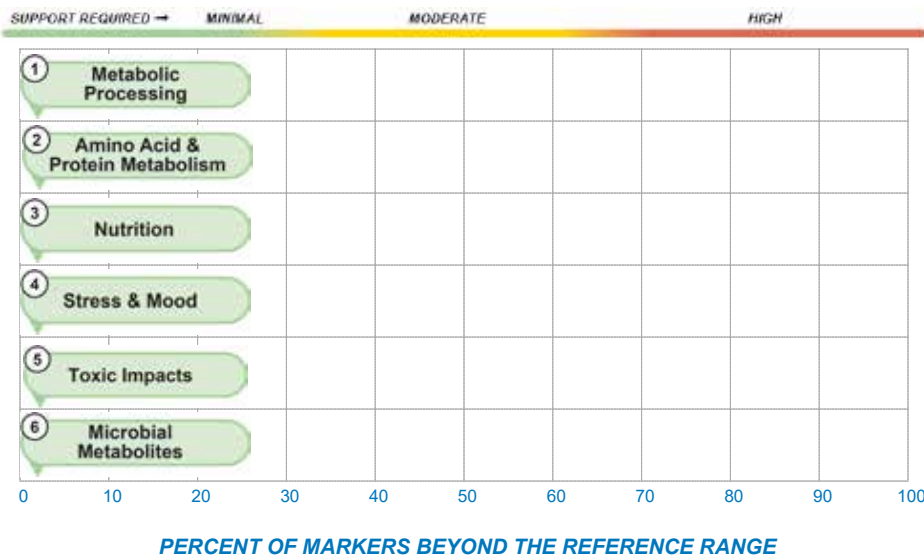
METHODOLOGY: LC-MS/MS - Organic Acids Urine

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



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

The assays were developed and/or the performance characteristics determined by Diagnostic Solutions Laboratory. The results are for research and not for diagnostic purposes.


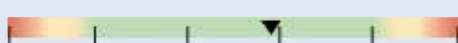

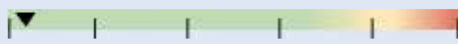



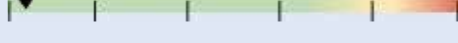


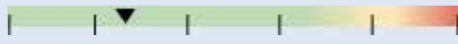
1 - Metabolic Processing

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

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1 - Metabolic Processing

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

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2 - Amino Acid & Protein Metabolism

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

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2 - Amino Acid & Protein Metabolism

2 - Amino Acid & Protein Metabolism			
	Result		Reference
Tryptophan Metabolism			
5-Hydroxyindoleacetic Acid <i>Aldehyde dehydrogenase + B3</i>	9.7		6.3 - 28.7 nmol/mg Creatinine
Hydroxykynurenine <i>Kynureninase + B6</i>	<DL		< 12.1 nmol/mg Creatinine
Xanthurenic Acid <i>Kynurenine transaminase + B6</i>	2.6		< 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>	15.7		2.1 - 18.5 nmol/mg Creatinine
Quinolinic Acid <i>Non-enzymatic conversion</i>	56.0		9.0 - 105.7 nmol/mg Creatinine
Methionine Metabolism			
α-Hydroxybutyric Acid <i>Dehydrogenase + B3</i>	30.8		10.6 - 62.6 nmol/mg Creatinine
α-Ketobutyric Acid <i>Lactate dehydrogenase + B3</i>	<DL		< 7.2 nmol/mg Creatinine
Pyroglutamic Acid <i>5-Oxoprolinase</i>	36.9		< 72.7 nmol/mg Creatinine
Lysine Metabolism			
Glutaric Acid <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
Branched Chain Alpha-Keto Organic Acids <i>Branched-chain keto acid dehydrogenase + B1, B2, B3, B5, LA</i>	13.5			< 28.3 nmol/mg Creatinine
α-Ketoglutaric Acid <i>alpha-Ketoglutarate dehydrogenase + B1, B2, B3, B5, LA</i>	19.5			< 157.2 nmol/mg Creatinine
Pyruvic Acid <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
Methylmalonic Acid <i>Methylmalonyl-CoA mutase + B12</i>	14.4			2.7 - 25.9 nmol/mg Creatinine
Folate		Result	20% 40% 60% 80%	Reference
Formiminoglutamic Acid <i>Glutamate formimino-transferase + Folate</i>	0.05			< 0.4 nmol/mg Creatinine
Vitamin B6		Result	20% 40% 60% 80%	Reference
Pyridoxic Acid <i>Aldehyde oxidase</i>	<DL			< 111.9 nmol/mg Creatinine
Xanthurenic Acid <i>Kynurenine transaminase + B6</i>	2.6			< 9.5 nmol/mg Creatinine
Biotin		Result	20% 40% 60% 80%	Reference
β-Hydroxyisovaleric Acid <i>Methylcrotonyl-CoA carboxylase + Biotin</i>	78.5			25.1 - 223.4 nmol/mg Creatinine
Plant Components		Result	20% 40% 60% 80%	Reference
Quercetin <i>Polyphenol: Flavonoid</i>	5.3			> 2.7 nmol/mg Creatinine
Tartaric Acid <i>Plant component</i>	5.0			> 1.8 nmol/mg Creatinine

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3 - Nutrition

Sugar Intake	Result		Reference
Fructose <i>Fructokinase</i>	1.6		< 4.7 nmol/mg Creatinine

4 - Stress & Mood

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

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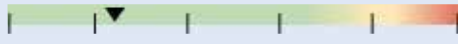
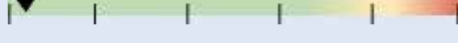

5 - Toxic Impacts

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

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6 - Microbial Metabolites

6 - Microbial Metabolites			
	Result		Reference
Amino Acid Microbial Metabolites			
4-Hydroxyphenylacetic Acid <i>Disordered tyrosine metabolism</i>	175.5		85.8 - 902.3 nmol/mg Creatinine
Indoleacetic Acid <i>Disordered tryptophan metabolism</i>	1.3		< 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>	70.9		< 277.1 nmol/mg Creatinine
4-Hydroxybenzoic Acid <i>Hydroxybenzoic acid derivative</i>	2.6		< 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>	184.9		< 291.9 nmol/mg Creatinine
Isoflavone Microbial Metabolite			
Equol <i>Isoflavone metabolite</i>	<DL		< 12.8 nmol/mg Creatinine
Fungal Assessment			
Arabinitol <i>Dehydrogenase</i>	2.8		< 9.0 nmol/mg Creatinine

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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
Cobalamine (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.*

ADDITIONAL SUPPORT	Support Required	Suggested Recommendation
Glutathione Need	None	No Additional Support
Inflammation	None	No Additional Support
Kidney Parameters	None	No Additional Support