OAT
ORGANIC ACIDS TEST

Gastrointestinal Health



Mapping metabolic patterns across six clinical categories that may help contextualize complex gastrointestinal presentations.

Gastrointestinal symptoms often reflect overlapping contributors: microbial imbalance, impaired mucosal barrier integrity, disrupted gut–brain signaling, and altered energy or nutrient demand. Patients are frequently left with unclear findings despite a standard structural workup.[2-4] The Organic Acids Test (OAT) evaluates six interconnected metabolic categories at once: microbial, mitochondrial, neurotransmitter, methylation, nutrient, and toxicant pathways. Its pattern-based interpretation may help contextualize physiologic contributors to persistent, multisystem GI presentations.[1–8].

When Might Providers Consider the OAT?

Suspected Fungal/Yeast Overgrowth: GI complaints alongside signs suggestive of Candida or related fungal overgrowth, which OAT's yeast/fungal metabolite markers (arabinose and tartaric acid) may help contextualize.[2]

Suspected Malabsorption or Nutrient Insufficiency: Signs of impaired protein digestion, nutrient depletion, or increased cofactor demand suggesting reduced digestive or absorptive capacity.[7]

GI Symptoms with Overlapping Systemic Features: GI complaints co-occurring with fatigue, cognitive changes, or mood symptoms—suggesting gut–brain axis involvement, chronic fatigue, or mitochondrial contributors.[3,4,6]

What the OAT Measures

Clinical Category	What It Reflects	GI Relevance
Microbial Overgrowth	Markers of yeast, mold, bacteria, and Clostridium species, including named analytes such as HPHPA (Clostridia marker), 4-Cresol (C. difficile marker), DHPPA (beneficial bacteria marker), and yeast/fungal-associated markers such as arabinose and tartaric acid.	May help identify bacterial or fungal dysbiosis patterns relevant to bloating, gas, and altered bowel habits[2,8].
Mitochondrial Health	Krebs cycle and related intermediates of glucose, fatty acid, and amino acid metabolism reflecting cellular energy production.	May reflect metabolic reserve relevant to intestinal epithelial barrier maintenance and the energy-dependent repair processes needed for a healthy gut lining[5,6].
Neurotransmitter Metabolites	Dopamine, serotonin, and norepinephrine/epinephrine pathway metabolites (e.g., 5-HIAA, HVA, VMA, quinolinic acid, kynurenic acid), reflecting turnover rather than synaptic levels.	Since a substantial proportion of the body's serotonin pathway activity originates in the gut, these markers may offer indirect insight into gut–brain signaling relevant to motility, visceral sensitivity, and symptom overlap[3,4].

What the OAT Measures (Cont)

Clinical Category	What It Reflects	GI Relevance
Methylation / Detoxification	Metabolites reflecting methyl group cycling, glutathione status (e.g., N-acetylcysteine, a glutathione precursor), and nutrients involved in both methylation and detoxification.	May provide context when impaired detoxification capacity or glutathione depletion is contributing to gut barrier or mitochondrial stress alongside GI symptoms[5].
Toxic Exposure	Metabolites influenced by heavy metals, environmental toxins, or mold/mycotoxin exposure, along with associated oxidative stress and glutathione depletion.	May provide context when environmental toxicant or mycotoxin burden is contributing to gut barrier or mitochondrial stress alongside GI symptom presentations[5].
Nutrient Needs	Direct and indirect biomarkers reflecting functional demand for B-vitamins (B2, B5, B6, B12, biotin), CoQ10, and other key micronutrients.	May indicate increased biochemical demand associated with malabsorption or reduced digestive/absorptive capacity, relevant to patients with suspected nutrient insufficiency[7].

Clinical Applications & Evidence Context

Condition	Clinical Encapsulation
Irritable Bowel Syndrome (IBS)	IBS has been associated with alterations in gut microbiota composition, intestinal permeability, and gut–brain axis signaling in a substantial proportion of patients; OAT's Microbial Overgrowth and Neurotransmitter Metabolite markers may help contextualize these overlapping contributors[3,4].
Clostridium difficile & Clostridia-Related Dysbiosis	4-Cresol (p-cresol) has been used as a presumptive marker for Clostridium difficile colonization, and HPHPA is associated with Clostridia species overgrowth; OAT's inclusion of both markers may help identify this specific dysbiosis pattern in patients with persistent GI symptoms[1,2,8].
Candida & Fungal GI Dysbiosis	Yeast/fungal metabolite markers, including arabinose and tartaric acid, have been studied in relation to Candida and related fungal overgrowth; OAT's yeast/fungal markers may offer indirect context for fungal dysbiosis patterns contributing to GI and systemic symptom burden[2].
Malabsorption Syndromes	Malabsorptive conditions involve impaired nutrient and protein processing with downstream nutrient insufficiency; OAT's Nutrient Needs markers may provide additional context for digestive and absorptive capacity in these patients[7].

How the OAT Supports Clinical Reasoning

Cross-Domain Pattern Recognition

OAT evaluates six interconnected metabolic categories simultaneously, enabling pattern-based interpretation across microbial, mitochondrial, neurotransmitter, methylation, nutrient, and toxicant pathways that may be relevant to multisystem gastrointestinal presentations[2,5,6].

Physiologic Context for Complex Presentations

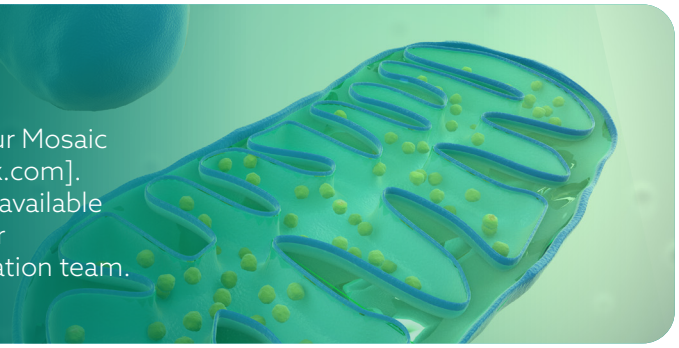
In patients with overlapping GI, systemic, and gut–brain symptoms, OAT findings may help identify metabolic contributors not captured by standard workup, supporting more informed clinical reasoning[1,3].

Cofactor & Nutrient Demand Assessment

Nutrient-related and mitochondrial markers may indicate increased biochemical demand for vitamin-dependent cofactors supporting digestive enzyme function and epithelial repair—providing actionable context for individualized support strategies[5,7].

How to Order

To order the Organic Acids Test (OAT), contact your Mosaic Diagnostics representative or visit [www.mosaicdx.com]. Specimen collection kits and requisition forms are available through your account portal. For clinical support or interpretation questions, contact our clinical education team.



This document is intended for licensed healthcare professionals and is for informational and educational purposes only. The test results are not intended to diagnose, treat, cure, or prevent disease. All clinical interpretation should be done by a qualified healthcare professional in the context of the individual patient. Statements regarding associations between health symptoms and conditions do not constitute diagnostic claims.

References

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