

* US BioTek US BioTek. 16020 Linden Av N, Shoreline WA 98133

Lab ID
Patient ID PAT-100009
Ext ID 25304-0076

Test Patient
Sex: Female • 45yrs • 01-Jan-80

RECEIVED
31-Oct-25

MOE-Tox PROFILE

Specimen type - Urine, Spot

Collected

20-Oct-25 11.00am

TOTAL BURDEN INDEX

HEALTHY INDEX

9.0 H 6.0 H

3 2



Low Toxic Burden Moderate Toxic Burden High Toxic Burden

Toxic Burden Comment

Interpretation:

Markedly elevated results suggest significant or chronic toxicant accumulation that may carry clinical relevance. Such elevations warrant investigation of occupational, dietary, or environmental exposures and assessment of detoxification efficiency, mitochondrial status, and organ function. A structured detoxification protocol under clinical supervision is recommended, including source removal, targeted antioxidant and mitochondrial support, and medically guided use of binders or glutathione supplementation. Re-evaluation after intervention is advised to ensure toxin clearance and metabolic recovery.

Mineral Imbalance/Mitochondrial Dysfunction

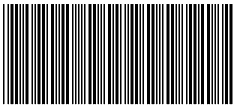
Not Applicable

HIGH Priority

Glyphosate
Aflatoxin Group
Mono-Benzyl phthalate (mBzP)
Ochratoxin A

Moderate Priority

Bisphenol A (BPA)
Butylparaben
Propylparaben



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OCHRATOXINS GROUP

Ochratoxin A

TEST	RESULT	H/L	INTERPRETATION	REFERENCE	UNITS
Ochratoxin A	8.220	H	PRESENT	(<1.800)	ppb

AFLATOXINS GROUP

Aflatoxin B1, Aflatoxin B2, Aflatoxin G1, Aflatoxin G2

TEST	RESULT	H/L	INTERPRETATION	REFERENCE	UNITS
Aflatoxin Group	0.980	H	EQUIVOCAL	(<0.800)	ppb

TRICOTHECENES GROUP

Roridin A, Roridin E, Roridin H, Roridin L-2, Verrucarin A, Verrucarin J, Satratoxin G, Satratoxin H, Isosatratoxin F

TEST	RESULT	H/L	INTERPRETATION	REFERENCE	UNITS
Tricothecenes Group	0.012		Not Present	(<0.070)	ppb

GLIOTOXINS GROUP

Gliotoxin Derivative

TEST	RESULT	H/L	INTERPRETATION	REFERENCE	UNITS
Gliotoxin Derivative	0.820	H	EQUIVOCAL	(<0.500)	ppb

ZEARALENONE GROUP

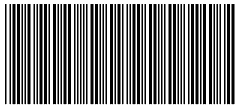
Zearalenone

TEST	RESULT	H/L	INTERPRETATION	REFERENCE	UNITS
Zearalenone	0.410		Not Present	(<0.500)	ppb

Reference Ranges Interpretation

MYCOTOXIN GROUP	Not Present	EQUIVOCAL	PRESENT
Ochratoxin Group	< 1.80 ppb	1.80 - 2.00 ppb	> 2.00 ppb
Aflatoxin Group	< 0.80 ppb	0.80 - 1.00 ppb	> 1.00 ppb
Tricothecenes Group	< 0.04 ppb	0.04 - 0.08 ppb	> 0.08 ppb
Gliotoxins Group	< 0.50 ppb	0.50 - 1.00 ppb	> 1.00 ppb
Zearalenone Group	< 0.50 ppb	0.50 - 0.70 ppb	> 0.70 ppb

Testing performed at Real Time Labs, Carrollton, TX, USA.



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MYCOTOXINS COMMENT

Mycotoxins are low molecular weight secondary metabolites produced by moulds that;

- 1. Are not essential in maintaining the lifecycle of the mold
- 2. But give the mold a competitive advantage over other organisms (bacteria and molds)

Mycotoxins are more commonly known to be present through ingestion of food but airborne contamination (inhaling mouldy air in damp indoor areas) is being recognized as a cause as well.

Mycotoxins,

- 1. bind to DNA and RNA and alter regular protein synthesis and function,
- 2. cause oxidative stress through antioxidant depletion,
- 3. alter cell membrane function and transport.

The following are the key mycotoxins and the organisms that produce them;

KEY MYCOTOXIN ORGANISM/S and EFFECTS

Aflatoxin Causing Organism/s (*Aspergillus flavus, parasiticus, oryzae, fumigatus*)

- Produce Aflatoxin Groups B1, B2, G1, G2
- Inhibit Protein synthesis, cause immune suppression,
- Primary target liver but also found in lung and brain

Ochratoxin A Causing Organism/s (*Aspergillus ochraceus, niger, Penicillium species*)

- Produce Ochratoxin A
- Inhibits phenylalanine tRNA synthetase and mitochondrial ATP production, stimulates lipid peroxidation, suppresses antibody production and globulin synthesis
- Found in grains, coffee beans and some wines
- Primary target is kidney (Nephrotoxic)
- Associated with UTIs and bladder cancer

Macrocyclic Trichothecenes Causing Organism/s (*Stachybotrys chartarum (black mould)*)

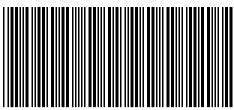
- Produce Toxins Roridins (A, E, H, L-2), Satratoxins (G, H), Verrucarins (A, J), Isosatratoxin F.
- Inhibits protein synthesis, peptidyl synthesis, causes lymphoid, necrosis and dysregulation of IgA production
- Immunosuppression (weakened immune system), nausea, vomiting, weight loss

Glotoxin Causing Organism/s (*Aspergillus fumigatus, terreus, niger, flavus*)

- _ Produce Gliotoxin
- Inhibits macrophage phagocytosis, induces macrophage apoptosis, blocks T and B cell Activation
- Immunosuppression, in-vivo displays anti-inflammatory activity

Zearalenone Causing Organism/s (*Fusarium species*)

- Produce Zearalenone
- Has strong affinity to Estrogen Receptor, increasing activation of this receptor and leading to numerous endocrinology disorders.
(Low sperm count, abnormal levels of Progesterone, disruption of ovulation)
- Reduces integrity of gut lining leading to intestinal hyperpermeability.
- Reduces gut microbiota diversity.
- Down regulates expression of tumour suppression genes leading to higher risk of GIT cancer.



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TEST	RESULT	H/L	REFERENCE	UNITS
Methylparaben	<DL		(<120.00)	ug/gCR
ParahydroxyBenzoic Acid	0.00		(<0.57)	mmol/molCR
Propylparaben	40.60	H	(<35.00)	ug/gCR

PESTICIDES

TEST	RESULT	H/L	REFERENCE	UNITS
3-Phenoxybenzoic Acid (3PBA)	0.45		(<3.00)	ug/gCR
Diethyl Phosphate (DEP)	9.90	H	(<9.00)	ug/gCR
Diethyldithiophosphate (DEDTP)	0.53	H	(<0.20)	ug/gCR
Diphenyl phosphate (DPP)	<DL		(<2.50)	ug/gCR
Diethylthiophosphate (DETP)	<DL		(<1.00)	ug/gCR

PFA's

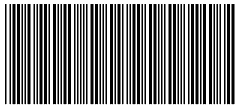
TEST	RESULT	H/L	REFERENCE	UNITS
Perfluorobutanoic acid (PFBA)	0.33		(<1.20)	ug/gCR
Perfluorooctanoic Acid (PFOA)	0.09		(<0.10)	ug/gCR
Perfluorooctane Sulphonic Acid (PFOS)	0.23		(<0.60)	ug/gCR

PHTHALATES

TEST	RESULT	H/L	REFERENCE	UNITS
Butyl Benzyl phthalate (BBP)	0.39		(<1.00)	ug/gCR
Mono-Benzyl phthalate (mBzP)	4.10	H	(<3.00)	ug/gCR
Mono-n-Butyl phthalate (mBP)	<DL		(<55.00)	ug/gCR
Mono (3-carboxypropyl) phthalate (mCPP)	<DL		(<31.00)	ug/gCR
Mono-ethyl phthalate (MEtP)	26.00		(<100.00)	ug/gCR
Mono-2-ethylhexyl phthalate (MEHP)	<DL		(<11.00)	ug/gCR
Mono-(2-ethy-5-hydroxyhexyl) phthalate (MEHHP)	<DL		(<12.00)	ug/gCR
Mono-(2-ethy-5-oxohexyl) phthalate (MEOHP)	<DL		(<27.00)	ug/gCR
Mono-n-octyl phthalate (mOP)	<DL		(<2.00)	ug/gCR
Phthalic Acid	49.00		(<170.00)	ug/gCR
Quinolinic Acid	8.2		(<9.1)	mmol/molCR

VOLATILE ORGANIC COMPOUNDS

TEST	RESULT	H/L	REFERENCE	UNITS
2-hydroxyethyl-mercapturic acid (HEMA)	<DL		(<5.00)	ug/gCR
Mandelic Acid	77.00		(<340.0)	ug/gCR
Phenylglyoxylic Acid	108.00		(<300.0)	ug/gCR
Mandelic Acid + Phenylglyoxylic Acid	185.00		(<610.0)	ug/gCR



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Environmental Phenols Comment

4-NONYLPHENOL ELEVATED:

4-Nonylphenol is a degradation product of nonylphenol ethoxylates, used widely in industrial detergents, plastics, paints, and personal care products. It is classified as an endocrine-disrupting chemical due to its estrogenic activity and affinity for estrogen receptors.

Health implications: Chronic exposure may disrupt hormonal balance, impair reproductive development, and contribute to thyroid and metabolic dysregulation.

Symptoms: Hormonal irregularities, early puberty, reproductive issues, fatigue, and cognitive disturbances.

Treatment considerations: Minimize exposure to industrial and consumer products containing nonylphenol derivatives. Support detoxification pathways with antioxidant-rich nutrition (e.g., sulforaphane, glutathione), liver support, and hydration.

BISPHENOL A (BPA) ELEVATED:

Bisphenol A (BPA) is a synthetic chemical used in the production of certain plastics and resins, such as polycarbonate plastic.

Health implications: High BPA in urine is linked to various adverse health outcomes, including increased risks of heart disease, diabetes, obesity, and certain cancers. It may also be associated with impaired reproductive, liver, kidney, and thyroid function, as well as developmental issues in children.

Symptoms: General fatigue, less of concentration, behavioural changes in children.

Treatment considerations: Treatment focuses on reducing exposure by avoiding BPA-containing plastics and supporting the body's natural detoxification with antioxidants.

Herbicides Comment

GLYPHOSATE ELEVATED:

Glyphosate is a widely used herbicide that poses health risks, especially from large or long-term exposure, .

Health implications: Some health authorities classify glyphosate as a probable carcinogen.

Symptoms: Short-term exposure to products can cause eye, skin, and respiratory irritation, along with nausea and vomiting if swallowed.

Treatment considerations: Focus on microbiome repair, liver support, antioxidant nutrients, and avoidance of glyphosate-laden foods and environments.

Parabens Comment

BUTYLPARABEN ELEVATED:

Butylparaben is a longer-chain paraben used as a preservative in cosmetics, personal care products, and pharmaceuticals. It is more lipophilic than other parabens, allowing it to accumulate in fatty tissues.

Health implications: Butylparaben is an endocrine disruptor that mimics estrogen and may interfere with reproductive hormone signaling, particularly in males. It also has potential links to breast cancer risk and oxidative stress.

Symptoms: Hormonal imbalances, reduced sperm quality, menstrual irregularities, and possible allergic reactions.

Treatment considerations: Eliminate paraben-containing products. Support liver detoxification pathways and hormone metabolism (e.g., DIM, calcium-D-glucarate, cruciferous vegetables). Monitor hormonal status if symptomatic.

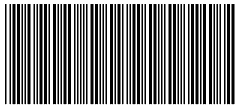
BENZYLPARABEN ELEVATED:

Benzylparaben is a less common paraben, but still used in some cosmetic and pharmaceutical formulations.

Health implications: It exhibits estrogenic properties and may compound the hormonal burden when combined with other parabens. Research is more limited but suggests potential for endocrine disruption and dermal sensitization.

Symptoms: Hormonal imbalances, skin irritation, unexplained fatigue.

Treatment considerations: Minimize exposure to synthetic preservatives. Support detoxification and antioxidant systems. Evaluate total endocrine-disrupting chemical (EDC) burden if multiple parabens are elevated.



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PROPYLPARABEN ELEVATED :

Propylparaben is a medium-chain paraben commonly found in sunscreens, moisturizers, shampoos, and processed foods.

Health implications: It is associated with moderate estrogenic activity and may interfere with male and female reproductive health. Animal studies suggest it may affect sperm count and estrogen receptor expression.

Symptoms: Fertility challenges, irregular cycles, estrogen dominance symptoms.

Treatment considerations: Avoid paraben-containing products. Support estrogen clearance and phase II detox pathways (methylation, glucuronidation, sulfation). Consider antioxidant support.

Phthalates Comment

MONO-ONO-BENZYL PHTHALATE (mBzP) ELEVATED:

mBzP is derived from butyl benzyl phthalate (BBzP), used in flooring, adhesives, and vinyl materials.

Health implications: mBzP has been associated with endocrine disruption, asthma, and allergic disease risk in children, as well as reproductive and thyroid effects.

Symptoms: Hormonal disruption, respiratory issues, immune reactivity, infertility.

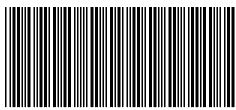
Treatment considerations: Avoid vinyl and PVC-containing materials. Support glutathione production and evaluate indoor air quality. Use activated charcoal or other binders under supervision if high exposures persist.

Environmental Toxins Comment

ENVIRONMENTAL POLLUTANTS PROFILE:

The reported markers in the Environmental Pollutants Profile commonly originate from industrial/manufacturing products or their associated byproducts. Exposures are often occupationally-related and typically through either inhalation or topical exposure.

Metabolism of these products occurs via the liver detoxification pathways leading to excretion into the urine. Chronic exposures may also lead to build up of these products in fatty tissue deposits.



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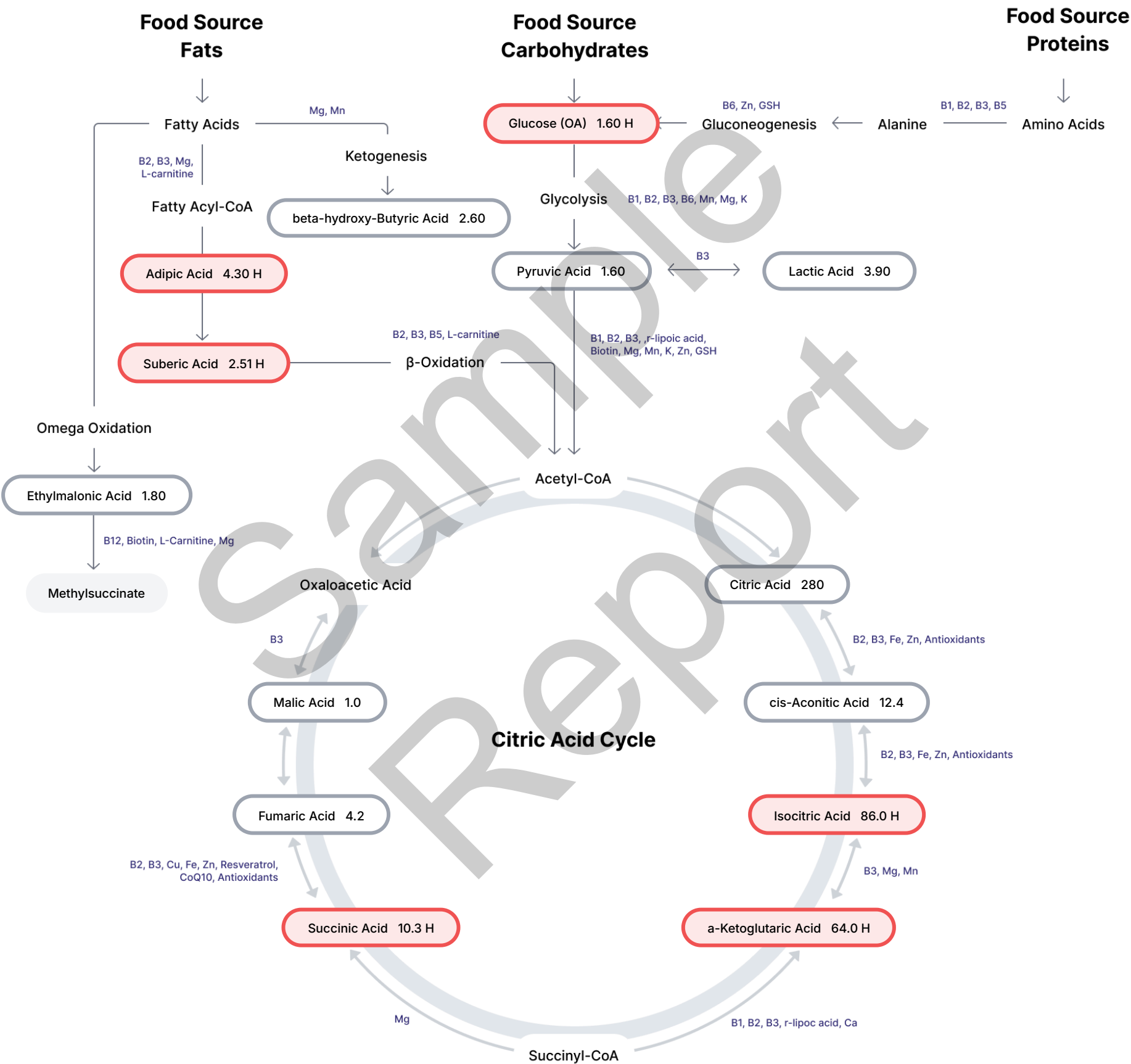
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Legend Not Tested Within Range Out of Range L = Low, LL = Critically Low H = High, HH = Critically High Regulator

Organic Acids Pathway





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TEST	RESULT	H/L	REFERENCE	UNITS
25 3-Methylglutaric Acid	3.2		(<8.5)	mmol/molCR

NEUROTRANSMITTER METABOLISM

(Tyrosine, Tryptophan, B6, Antioxidants)

TEST	RESULT	H/L	REFERENCE	UNITS
26 Homovanillic Acid (HVA)	2.7		(0.1-5.3)	mmol/molCR
27 Vanillylmandelic Acid (VMA)	3.1		(0.4-3.6)	mmol/molCR
28 5-Hydroxyindoleacetic Acid (5HIAA)	2.9		(<4.3)	mmol/molCR
29 Kynurenic Acid	2.9	H	(<2.2)	mmol/molCR
30 Quinolinic Acid	8.2		(<9.1)	mmol/molCR
31 Picolinic Acid	3.2		(<10.3)	mmol/molCR
32 Cortisol (OA)	48.0		(5.0-65.0)	ug/mgCR

OXIDATIVE DAMAGE/ANTIOXIDANT MARKERS

(Vitamin C, Other Antioxidants)

TEST	RESULT	H/L	REFERENCE	UNITS
33 Parahydroxyphenyllactic Acid	4.60	H	(<3.90)	mmol/molCR
34 8-hydroxy-deoxyguanosine	2.90	H	(<2.70)	mmol/molCR

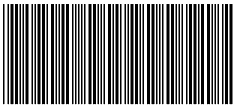
DETOXIFICATION INDICATORS

(Arg, NAC, Meth, Mg, Antioxidants)

TEST	RESULT	H/L	REFERENCE	UNITS
35 2-Methylhippuric Acid	0.02		(<0.04)	mmol/molCR
36 Orotic Acid	2.55		(0.00-3.20)	mmol/molCR
37 Glucaric Acid	4.60		(<11.00)	mmol/molCR
38 Pyroglutamic Acid	15.70		(4.50-33.00)	mmol/molCR

BACTERIAL DYSBIOSIS MARKERS

TEST	RESULT	H/L	REFERENCE	UNITS
39 Benzoic Acid	7.70		(<9.30)	mmol/molCR
40 Hippuric Acid	231.0		(<603.0)	mmol/molCR
41 Phenylacetic Acid	2.10		(0.00-4.16)	mmol/molCR
42 Phenylpropionic Acid	0.60	H	(0.00-0.40)	mmol/molCR
43 ParahydroxyBenzoic Acid	0.00		(<0.57)	mmol/molCR
44 p-HydroxyPhenylacetic Acid	3.90		(0.00-14.60)	mmol/molCR
45 Indoleacetic Acid	6.90		(<11.00)	mmol/molCR
46 Tricarballic Acid	0.34		(<0.44)	mmol/molCR



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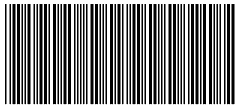
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NUTRITIONAL GUIDE

TEST	RESULT	UNITS	Clinical Notes
Vitamin-E	200.0	U	
Vitamin-B1	15.0	mg	
Vitamin-B2	17.0	mg	
Vitamin-B3	13.0	mg	
Vitamin-B5	10.0	mg	
Vitamin-B6	5.0	mg	
Glycine	5.0	mg	
Glutamine	0.0	mg	
Glutathione	50.0	mg	
Taurine	6.0	mg	
Tyrosine	0.0	mg	
Tryptophan	8.0	mg	
L-Arginine	0.0	mg	
Aspartic Acid	0.0	mg	
Acetyl-L-Carnitine	20.0	mg	
Biotin	0.0	ug	
Chromium	3.0	ug	
Coenzyme Q10	400.0	mg	
Calcium-D-glucurate	0.0	mg	
EPA/DHA	0.0	mg	
Iron	0.0	mg	
Folinic Acid	0.0	ug	
D-Lactate-free probiotics	1.0	billion CFU	
Magnesium	140.0	mg	
Manganese	0.0	mg	
Malic Acid	0.0	ug	
Methionine	6.0	mg	
N-Acetylcysteine	100.0	mg	
Ornithine	10.0	mg	
Vanadium	0.0	ug	
alpha-Lipoic Acid	200.0	mg	
Lysine	0.0	mg	
Lactobacillus	1.0	billion CFU	
5-hydroxy-Tryptophan (5-HTP)	0.0	mg	
Serine	5.0	mg	
Probiotics (Multistrain)	100.0	billion CFU	



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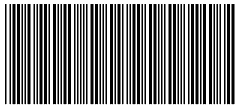
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TEST	RESULT	UNITS	Clinical Notes
Phenylalanine	0.0	mg	
Vitamin-C	400.0	mg	

Sample Report



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Carbohydrate Metabolism Comment

GLUCOSE ELEVATED:

Oxidation of glucose is the major source of cellular energy in the body. Glucose derived from dietary sources is converted to glycogen for storage in the liver or to fatty acids for storage in adipose tissue. Glucose measurement in urine is used as a diabetes screening procedure and to aid in the evaluation of glycosuria, to detect renal tubular defects, and in the management of diabetes mellitus. Elevated levels should be confirmed with a fasting glucose blood test.

Supplementation Recommendations: Chromium, Vanadium, Insulin, Diabetic medication.

Citric Acid Cycle Comment

ISOCITRATE HIGH:

Isocitrate is the precursor to alpha-ketoglutarate in the Krebs Cycle. A high level is suggestive of inhibition to the enzyme by Aluminum. Supplementation Recommendations: Cofactors needed to increase the breakdown of isocitrate to alpha-ketoglutarate are: Vit B3, (NAD), Mg, Mn.

a-KETOGLUTARIC ACID ELEVATED:

a-Ketoglutarate is a key molecule in the TCA cycle, playing a fundamental role in determining the overall rate of this important metabolic process. In the TCA cycle, a-Ketoglutarate is decarboxylated to succinyl-CoA and carbon dioxide by a-Ketoglutarate dehydrogenase, which functions as a key control point of the TCA cycle. a-Ketoglutaric acid changes in direct proportion to urinary pH suggesting it may be a marker of pH imbalance.

Elevations can be seen with nutrient cofactor deficiencies needed for the enzymatic conversion of α ketoglutarate such as vitamin B3, zinc, magnesium, manganese.

SUCCINIC ACID ELEVATED:

Succinate has multiple biological roles including roles as a metabolic intermediate and roles as a cell signalling molecule. It links cellular metabolism, especially ATP formation, to the regulation of cellular function, and can be broken down or metabolized into fumarate by the enzyme succinate dehydrogenase, which is part of the electron transport chain involved in making ATP.

Elevated succinate may indicate a deficiency of Riboflavin and CoQ10. Succinate has also recently been identified as a possible endogenous, cancer causing metabolite at higher levels.

B-Complex Vitamins/Amino Acids Comment

XANTHURENIC ACID ELEVATED:

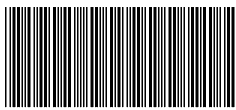
Xanthurenate is a metabolite in the kynurenine pathway of tryptophan degradation.

Elevations in urinary xanthurenate are seen with increased intake of tryptophan, and in high estrogen states. Pregnancy, oral contraceptive use and possibly diabetes, renal failure - are associated with elevated levels of urinary xanthurenic acid where a functional nutrient need for B-vitamins is pronounced.

Consider: Supplementation with B6.

Methylation Cofactors Comment

METHYLMALONIC ACID (MMA) ELEVATED:



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Methylmalonate is formed from propionyl-CoA via methylmalonyl-CoA. Major dietary sources of propionyl-CoA include valine, isoleucine, methionine, threonine, and odd chain fatty acids. methylmalonyl-CoA is converted into succinate via a B12 dependent enzyme Methylmalonyl-Co-A mutase.

Chronically high levels of methylmalonate are associated with at least 5 inborn errors of metabolism; but the most common cause is a B12 deficiency.

Consider: Supplementation with B12.

FORMIMINOGLUTAMIC ACID (FIGLU) ELEVATED:

Formiminoglutamate is an intermediate in the deamination of amino acid, histidine. Folate is the cofactor required to convert for formiminoglutamate to glutamate.

A deficiency of Folate can lead to

inhibition of DNA synthesis, impaired methylation, cell division and alterations in protein synthesis. Elevations in urine have been used to measure folate deficiency for many years.

Oxidative Damage/Detoxification Comment

p-HYDROXYPHENYL-LACTATE (PHPA) ELEVATED:

4-Hydroxyphenyllactate is a tyrosine metabolite. Microbial hydroxyphenyllactate is likely derived from phenolic or polyphenolic compounds in the diet. Bifidobacteria and lactobacilli produce considerable amounts of phenyllactic and p-hydroxyphenyllactic acids. 4-hydroxyphenyllactic acid is often used to help diagnose rare genetic metabolic disorders.

4-Hydroxyphenyllactic acid can sometimes be also slightly elevated in other conditions or due to intake of tyrosine-rich foods.

Bacterial Dysbiosis Comment

PHENYLPROPIONATE ELEVATED:

Mild elevations in phenylpropionate, parahydroxybenzoate, and p-hydroxyphenylacetate may serve as indicators of potential microbial overgrowth. Consider implementing treatment for dysbiosis, dietary modifications, mucosal support, and the use of prebiotics and probiotics.

DHPPA ELEVATED:

Unbalanced microbial growth patterns are indicative of dysbiosis, which may be influenced by dietary changes, fasting, or the use of probiotics, prebiotics, and antibiotics. Elevated levels may necessitate a microbiome assessment to evaluate microbial overgrowth and guide appropriate interventions

Nutritional Markers Comment

8-HYDROXY-2-DEOXYGUANOSINE (8OHdG) ELEVATED:

8-Hydroxy-2-deoxyguanosine is a marker of oxidative damage to guanine of DNA. 8-Hydroxy-2-deoxyguanosine is associated with increased oxidative stress and may indicate a strong need for antioxidants.

Higher levels of 8-hydroxy-2-deoxyguanosine could indicate possible oxidative damage.

Consider: Supplementation with antioxidants such as vitamin C, E, N-acetyl cysteine, lipoate.

Methodology

Enzyme-Linked Immunosorbent Assay (ELISA), Liquid Chromatography-Mass Spectrometry (LC-MS/MS/MS), Automated Chemistry/Immunochemistry, Gas Chromatography-MS (GC/MS)