Combined Gut Health Test (urine)

Sample ID	**Example**
Sample Name	**Example**
DOB	
Sample Collection Date	
Sample Received	
Report Date	

Spot Urinary Creatinine	**0.011**	mol/L
Specific Gravity (SG)	**1.03**	
Urine pH	**7.2**	

Unit of measurement for amino acids are nmol/mg creatinine

Amino Acids	**Reference Range***	**Result**	**(L)ow or (H)igh**
Tyrosine	43-213	94.3	
Phenylalanine	52-146	133.3	
Tryptophan	7-113	154.2	H

Unit of measurement for mmol/mol creatinine unless specified (creatinine is mol/L)

Yeast Metabolites			
Arabinitol	≤ 45	12.0	
Tartaric acid	≤ 0.01	0.02	H
Citrmalic acid	≤ 0.11	0.01	
Bacterial Metabolites			
Benzoic Acid	≤ 1.52	0.3	
Hippuric Acid	≤ 95	67.3	
Ratio: Benzoic Acid / Hippuric Acid	≤ 0.029	0.00	
Phenylacetic Acid	≤ 2.45	0.0	
Phenylpropionic Acid	≤ 0.09	0.02	
p-Hydroxyphenylacetic Acid	≤ 32	0.0	
p-Hydroxybenzoic acid	≤ 2.72	0.0	
Dihydroxyphenylpropionic Acid (DHPPA)	≤ 1.09	0.5	
Tricarballylic Acid	0	0.0	
p-cresol sulfate	≤ 2164	6777.6	H
Indican (indoxyl sulfate)	≤ 37	54.4	H
trans-indolylacryloylglycine (IAG)	≤ 6.3	19.3	H
Dietary Peptides (Casein)		P = Present (left blank if not present)	
beta-casomorphin 1-5			
beta-casomorphin 1-6			
beta-casomorphin 1-7			
Dietary Peptides (Gluten)			
Gluten exorphin A5			
Gluten exorphin B5			
Gluten exorphin C			

*** Where available**

Any additional comments about results:

Levels of one amino acid (tryptophan) were above reference ranges.

Levels of tartarate were elevated against reference ranges; on its own however not suggestive of any specific issues and more likely reflective of some dietary ingredient.

Levels of p-cresol sulfate were elevated, a known uremic toxin (affecting kidney functions). Elevated in cases of autism and chronic kidney disease. Linked to impaired sulfation capacity.

Elevated levels of indican are a potential marker for intestinal (gut) dysbiosis.

Above average levels of IAG detected. IAG and precursory compounds linked to gut barrier issues. Seemingly affected by use of a gluten-free diet.

About this test

Tryptophan, Phenylalanine, Tyrosine
Staring amino acids for the bacterial metabolites analysed.
Citramalate, Tartarate, Arabinitol
Yeast related metabolites. Closely related to human metabolites that can block human metabolic pathways.
Benzoate & Hippurate
Bacterial deamination of phenylalanine forms benzoate, which is conjugated with glycine to form hippurate.
Elevated levels of benzoate compared to hippurate can indicate low levels of glycine and pantothenic acid (vitamin B5).
Phenylacetate & Phenylpropionate
Formed from bacterial action on phenylalanine. Should only be present at trace levels.
p-Hydroxybenzoate, p-hydroxyphenylacetate
Formed by bacterial and protozoa action on tyrosine. Not products of human metabolism.
Dihydroxyphenylpropionate
Confirmed overgrowth of clostridia shows elevated levels of this compound.
Tricarballylate
Produced by a strain of aerobic bacteria. Binds to magnesium which results in magnesium deficiency.
p-cresol sulfate
Derived from secondary metabolism of p-cresol. A uremic toxin (affecting kidney functions) thought to be derived from Clostridial bacteria acting on tyrosine.
Urinary Indican (indoxyl sulfate)
Produced by bacteria in the upper bowel. Normal population of bacteria will only produce trace levels of this compound.
trans-Indolylacryloylglycine (IAG)
Bacterially derived metabolite of tryptophan. Potential biomarker for autism, gastrointestinal (GI) dysfunction and other conditions as well as linked to intestinal permeability. Potentially sensitive to the use of a gluten-free diet.
Beta-casomorphins and gluten exorphins
Dietary-derived peptides formed following the digestion of foods containing casein (the protein derived from mammalian dairy sources) or gluten (the major protein found in various cereal crops). Typically digested in the GI tract and not normally found in urine.
Creatinine
Used in conjunction with specific gravity to determine the concentration of the urine sample.
pH
The pH or acidity of the urine affects the results obtained from the analysis

In the event of specific findings being flagged up, we suggest you contact your healthcare professional.

Several interventions have been proposed in relation to intestinal dysbiosis. These include:

Class	Examples
General	Encourage high fibre diet, remove mucosal irritants such as allergenic foods, alcohol, etc.
Antibacterial	Pharmaceutical (speak to your medical provider)
Anti-fungal	Pharmaceutical (speak to your medical provider)
Anti-protozoal	Pharmaceutical (speak to your medical provider)
Probiotic Aerobic species	L.acidophilus, S.boulardii, etc.
Prebiotic	Fructo-oligosaccharide, use of raw and cooked vegetables
Mucosal regeneration	Glutamine, pantothenic acid

[Adapted from Bralley JA, Lord RS. Laboratory evaluations in molecular medicine. 2001].

References

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Carr K. et al. (2009) Development and reproducibility of a novel High-Performance Liquid Chromatography (HPLC) monolithic column method for the detection of trans-indolyl-3-acryloylglycine (IAcrGly) in human urine.

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Shapira E, et al. (1998) Biochemical genetics: a laboratory manual.

Whiteley P. et al. (2006) Spot urinary creatinine excretion in pervasive developmental disorders.

Yu Y. et al. (2022) Efficacy and Safety of Diet Therapies in Children With Autism Spectrum Disorder: A Systematic Literature Review and Meta-Analysis.

Important notes:

(1) This test does not constitute a diagnosis or confirmation of a diagnosis of any condition.
(2) Any decision to act upon these findings must reside entirely with the person and/or their guardians.
(3) Involvement from a healthcare professional is strongly recommened prior to the commencement of any intervention.
(4) Analutos Ltd reserves the right to securely store any and all results from analyses undertaken.