Nordic Laboratories

PATIENT: **XXXXXXXXXXXXX**
TEST NUMBER: G-NL-XXXXX
GENDER: XXXXXX
AGE: XX

COLLECTED: 00-XXX-2024
RECEIVED: 00-XXX-2024
TESTED: 00-XXX-2024

TEST REF: **GNL-NL-XXXXX**
PRACTITIONER:
XXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXX

TEST: Peptides (Gluten & Milk Digestion) Result: UK

TEST: **ADVANCED GUT HEALTH SCREEN (URINE)** ANALYSIS: **Q-TOF MASS SPECTROMETRY VIA HPLC**

Units of measurement are mmol/mol creatinine unless specified (creatinine is mol/L)

COMPOUNDS	RESULT (L)ow / (H)igh	REF RANGE
BENZOATE	0.127225	NOT AVAILABLE
HIPPURATE	12.75704	≤ 680
RATIO BENZOATE:HIPPURATE	0.009973	≤ 0.07
PHENYLACETATE	0.266769	TRACE LEVELS ONLY
PHENYLPROPIONATE	0.114791	TRACE LEVELS ONLY
p-HYDROXYBENZOATE	0.134947	≤ 3.0
p-HYDROXYPHENYLACETATE	0	2 - 32
TRICARBALLYLATE	176.7054 (H)	TRACE LEVELS ONLY
DIHYDYROXYPHENYLPROPIANATE	0.255434	≤ 227
CITRAMALATE	0.10689	≤ 5.0
TARTARATE	0.007244	≤ 6.5
ARABINITOL	20.19421	16 - 89
INDICAN (INDOXYL SULFATE)	4.204837	NOT AVAILABLE
p-CRESOL SULFATE	128.0643 (H)	NOT AVAILABLE
trans-INDOLYLACRYLOLYGLYCINE (IAG)	1.608145	Average: 5.8
BETA-CASOMORPHIN 1-5	None detected	
BETA-CASOMORPHIN 1-6	None detected	
BETA-CASOMORPHIN 1-7	None detected	
GLUTEN EXORPHIN A5	None detected	
GLUTEN EXORPHIN B5	None detected	
GLUTEN EXORPHIN C	None detected	
CREATININE (random urine)	0.019981	mol/L
SPECIFIC GRAVITY (SG)	1.020	
SAMPLE pH	6.2	

[Amino acids are nmol/mg creatinine]

TRYPTOPHAN	2.395937 (L)	43 - 217
PHENYLALANINE	43.44257	34 - 145
TYROSINE	41.46377 (L)	122 - 517

SAMPLE ID:		STATUS: **COMPLETED**

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COMMENTS ABOUT THIS RESULT

- **Levels of two amino acids (tryptophan, tyrosine) were below reference ranges.This could imply (a) issues with dietary intake of this amino acid, or (b) increased biological consumption of this amino acid (specifically associated with certain gut bacteria).**
- **Levels of tricarballylate were above the trace levels normally expected, potentially suggestive of an issue with magnesium availability as a result of the chelating potential of this compound.**
- **Levels of p-cresol sulfate were elevated. This is a known uremic toxin (affecting kidney functions). It has been found to be elevated in cases of autism and other conditions including chronic kidney disease. It has been linked to impaired sulfation capacity.**

ABOUT THIS TEST

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). Benzoate can be increased due to dietary intake of certain foods.

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. These compounds should not be present or only present at trace levels.

Tricarballylate
Produced by a strain of aerobic bacteria. Binds to magnesium which results in magnesium deficiency.

Dihydroxyphenylpropionate
Confirmed overgrowth of clostridia shows elevated levels of this compound.

Citramalate, Tartarate, Arabinitol
Closely related to human metabolites that can block human metabolic pathways.

Urinary Indican (indoxyl sulfate)
Produced by bacteria in the upper bowel. Normal population of bacteria will only produce trace levels of this compound.

p-cresol sulfate
A microbial metabolite that is found in urine and likely derives from secondary metabolism of p-cresol. A uremic toxin (affecting kidney functions) it is thought to be derived from certain Clostridial bacteria acting on tyrosine. Possible links to autism, multiple sclerosis, cardiovascular disease and oxidative injury.

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). Such peptides would normally be digested in the GI tract and wouldn't typically be found in urine.

Tryptophan, Phenylalanine, Tyrosine
Precursors of some of the above compounds. High or low levels of these amino acids can affect the gut dysbiosis markers.

Creatinine
Used in conjunction with specific gravity to determine the concentration of the urine

pH
The pH or acidity of the urine affects the results obtained from the analysis

Analutos does <u>not</u> provide clinical advice on results obtained. 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].

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References

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