

**Centre for Human Metabolomics**  
*Final* **Laboratory Report**



**Requisition:** 50001736  
**Collection Date:** 2020/01/15 05:30  
**Receiving Date:** 2020/01/21 09:15  
**Final report:** 2020/02/06 10:07  
**Results reported on:** 2020/02/06 10:07  
**Cons. Ref. no.:**

North West University (NWU)  
Potchefstroom Campus  
Biochemistry  
Building F3  
11 Hoffman Street  
Potchefstroom  
South Africa  
2531  
Tel (018)299 2310/2  
**Pr123**

**Patient:**

**ID:** 721213  
**Date of birth:** 1972/12/13  
**Age:** 47Y  
**Gender:** M  
**Address:** 102 A Alcade Road  
Lynnwood Glen  
Pretoria  
0081

**Bill To:** Biometrix Labs, Bioxl

**Sample Type:** Urine : Frozen  
**Visit:** Repeat request  
**Patient Status:** Clinical information received

**Doctor:** Biometrix Labs, Dr  
**Copy to:**

**Address:** 102 A Alcade Road,  
Lynnwood Glen, Pretoria,  
0081

**Requested:** U-Creatinine, U-Uric Acid, U-Uric Acid Prodeo, U-Labstix, Turn Around Time, Urine Organic acids

**Interpretation:**

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**Results:**

Tests	Results	H/L	Reference ranges
<b>Pre-Analytical Screening</b>			
U-Creatinine	16.82		mmol/L
U-Uric Acid	3.33		mmol/L
Specific Gravity (U-Labstix)	1.02		
pH (U-Labstix)	5		
Leucocytes (U-Labstix)	Negative		
Nitrites(U-Labstix)	Negative		
Haemoglobin (U-Labstix)	Negative		
Blood (U-Labstix)	Negative		
Protein (U-Labstix)	Negative		
Glucose (U-Labstix)	Negative		
Ascorbic Acid (U-Labstix)	Negative		
Ketones (U-Labstix)	Negative		
Urobilinogen (U-Labstix)	Negative		
Bilirubin (U-Labstix)	Negative		
<b>Urine organic acids: Glycolysis and Krebs Cycle intermediates</b>			
2-Oxoglutaric acid/2-Ketoglutaric acid	1.29		< 74 mmol/mol creat
Aconitic acid	19.22	H	5.2 - 16.3 mmol/mol creat
Citric acid	64.27	L	87 - 639 mmol/mol creat
D/L-2-Hydroxyglutaric acid	0.36		< 52 mmol/mol creat
DL-Lactic acid	1.99		< 16.4 mmol/mol creat
Fumaric acid	0.15	L	0.2 - 1.7 mmol/mol creat
Isocitric acid	11.35		< 119.1 mmol/mol creat
Malic acid	0.3		< 5.3 mmol/mol creat
Pyruvic acid	0.16		< 3.7 mmol/mol creat
Succinic acid	3.29		2.5 - 13.5 mmol/mol creat
<b>Urine organic acids: Fatty acid oxidation intermediates</b>			
3-Hydroxybutyric acid	BDL		< 6.4 mmol/mol creat
Acetoacetic acid	0.44		< 24.9 mmol/mol creat
Adipic acid	0.33		< 5 mmol/mol creat
Ethylmalonic acid	1.21		< 4 mmol/mol creat
Methylsuccinic acid	BDL		< 6.2 mmol/mol creat
Sebacic acid	0.56		< 5 mmol/mol creat
Suberic acid	1.22		< 1.9 mmol/mol creat
<b>Urine organic acids: Branched chain amino acid intermediates</b>			
2-Ethylhydracrylic-/2-Ethyl-3-OH-propionic acid	2.79		< 2.9 mmol/mol creat
2-Hydroxyisocaproic acid	0.25		< 0.39 mmol/mol creat
2-Hydroxyisovaleric acid	0.2		< 0.48 mmol/mol creat
2-Oxoisovaleric acid / 3-Methyl-2-oxobutyric acid	0.94		< 1.1 mmol/mol creat
3-Hydroxy-2-methylbutyric acid	1.86		< 6.2 mmol/mol creat
3-Hydroxyisobutyric acid	7.42	L	11.8 - 59.8 mmol/mol creat
3-Hydroxyisovaleric acid	4.86		< 17.2 mmol/mol creat
3-Methyl-2-oxovaleric-/2-Keto-3-methylvaleric acid	BDL		< 4.8 mmol/mol creat
3-Methylglutaconic acid	1.98	L	2.3 - 8.3 mmol/mol creat
3-Methylglutaric acid	0.26	L	1 - 6.5 mmol/mol creat
4-Methyl-2-oxovaleric acid/2-Ketoisocaproic acid	0.02		< 0.86 mmol/mol creat
Malonic acid	BDL		< 3.1 mmol/mol creat
<b>Urine organic acids: Phenylalanine and Tyrosine intermediates</b>			
Phenylpyruvic acid	BDL		< 0.76 mmol/mol creat
3-Phenyllactic acid	BDL		< 0.49 mmol/mol creat
4-Hydroxyphenyllactic acid	0.59		< 3 mmol/mol creat
4-Hydroxyphenylpyruvic acid	0.34		< 4.3 mmol/mol creat
Mandelic acid	0.18		< 1.7 mmol/mol creat
Homogentisic acid	BDL		< 2.8 mmol/mol creat
Succinylacetone	3.17		< 4.7 mmol/mol creat

Tests	Results	H/L	Reference ranges
<b>Urine organic acids: Other Amino acid intermediates</b>			
3-Hydroxyglutaric acid (Lysine Metabolism)	0.87		< 3 mmol/mol creat
Glutaconic acid (Lysine Metabolism)	BDL		< 3.1 mmol/mol creat
N-Acetylaspartic acid (Aspartic Metabolism)	0.1		< 7 mmol/mol creat
<b>Urine organic acids: Pyrimidine and Urea cycle intermediates</b>			
Orotic acid	0.39		< 1.2 mmol/mol creat
Thymine	BDL		< 0.9 mmol/mol creat
Uracil	0.91		< 22.8 mmol/mol creat
Uric acid	197.98		93 - 329 mmol/mol creat
<b>Urine organic acids: Detoxification markers</b>			
2-Hydroxybutyric acid	BDL		< 6.9 mmol/mol creat
2-Methylhippuric acid	BDL		< 13.5 mmol/mol creat
Glyceric acid	0.12		< 28.8 mmol/mol creat
Glycolic acid	8.54		< 78.1 mmol/mol creat
N-2-Methylbutyrylglycine	BDL		< 2 mmol/mol creat
N-Butyrylglycine	BDL		< 2 mmol/mol creat
N-Hexanoylglycine	BDL		< 2 mmol/mol creat
N-Isobutyrylglycine	0.42		< 3.8 mmol/mol creat
N-Isovalerylglycine	0.44		< 10 mmol/mol creat
N-Phenylpropionylglycine	BDL		< 0.6 mmol/mol creat
N-Suberylglycine	BDL		< 0.52 mmol/mol creat
N-Tiglylglycine	1.17		< 2 mmol/mol creat
N-3-Methylcrotonylglycine	BDL		< 2 mmol/mol creat
Oxalic acid	10.89		1.11 - 33.34 mmol/mol creat
Pyroglutamic acid	6.22		< 24.9 mmol/mol creat
<b>Urine organic acids: Microbiome markers</b>			
2,5-Furandicarboxylic acid	2.41		< 5.4 mmol/mol creat
2-Hydroxyphenylacetic acid	1.86		1.4 - 3.7 mmol/mol creat
3,4-Dihydroxyphenylpropionic acid	0.31		< 0.35 mmol/mol creat
3,5-Dihydroxyphenylpropionic acid (DHPPA)	BDL		< 0.38 mmol/mol creat
3-Hydroxyphenyl-3-hydroxypropionic acid (HPHPA)	6.79		< 90 mmol/mol creat
3-Indoleacetic acid	3.28		< 5.4 mmol/mol creat
3-Oxoglutaric acid/3-Ketoglutaric acid	BDL		< 0.11 mmol/mol creat
4-Hydroxybenzoic acid	1.64		< 3.6 mmol/mol creat
4-Hydroxyhippuric acid	6.79		< 30 mmol/mol creat
4-Hydroxyphenylacetic acid	14.64	H	1.4 - 14.6 mmol/mol creat
5-Hydroxymethyl-2-furoic acid (Sumiki's acid)	0.84		< 1.7 mmol/mol creat
Arabinose	19.59	H	< 19.4 mmol/mol creat
Benzoic acid	BDL		< 6.5 mmol/mol creat
Citramalic acid	0.77		< 4.8 mmol/mol creat
Hippuric acid	132.13		28 - 610 mmol/mol creat
Hydrocinnamic acid/3-phenylpropionic acid	0.121		< 0.219 mmol/mol creat
N-2-Furanylcarbonylglycine	0.21		< 8.4 mmol/mol creat
p-Cresol	5.47		< 118.9 mmol/mol creat
Phenylacetic acid	BDL		< 5.07 mmol/mol creat
Tartaric acid	0.26		< 64.4 mmol/mol creat
Tricarballic acid	0.14		< 0.44 mmol/mol creat
<b>Urine organic acids: Neurotransmitter intermediates</b>			
4-Hydroxybutyric acid (GABA metabolism)	BDL		< 3.6 mmol/mol creat
5-Hydroxyindoleacetic acid (5-HIAA)	1.87		< 5.8 mmol/mol creat
Homovanillic acid (HVA)	1.96		< 8.9 mg/mmol creat
Quinurenic acid / Kynurenic acid	BDL		< 4.1 mmol/mol creat
Quinolinic acid	0.55		< 15.1 mmol/mol creat
Vanillic acid	BDL		< 0.19 mmol/mol creat
Vanillylmandelic acid (VMA)	2.29		< 2.8 mmol/mol creat
HVA/VMA ratio	0.86		0.16 - 1.8
Quinolinic acid / 5-HIAA ratio	0.3		< 2

Tests	Results	H/L	Reference ranges
<b>Urine organic acids: Nutritional markers</b>			
3-Hydroxy-3-methylglutaric acid (Q10)	1.17		< 5.2 mmol/mol creat
3-Hydroxypropionic acid (Biotin)	1.62		< 11.8 mmol/mol creat
4-Pyridoxic acid (Vit B6)	BDL		< 7.5 mmol/mol creat
Ascorbic acid (Vit C)	BDL		4.6 - 78 mmol/mol creat
Glutaric acid (Riboflavin)	0.11	L	0.7 - 3.6 mmol/mol creat
Methylcitric acid (Biotin)	0.79	L	1.2 - 1.8 mmol/mol creat
Methylmalonic acid (Vit B12)	0.42		< 2.1 mmol/mol creat
Mevalonic acid (Q10)	BDL		< 0.22 mmol/mol creat
N-Acetylcysteine (Glutathione cycle)	BDL		< 0.13 mmol/mol creat
Pantothenic acid (Vit B5)	0.96		< 4.4 mmol/mol creat
Xanthurenic acid (Vit B6)	BDL		< 1.72 mmol/mol creat

### Technical

**Information:** Davoren, Elmarie (E) Miss

#### GENERAL COMMENTS

BDL: The level of the reported metabolite is below the detection limit of the applied methodology. International reference ranges are currently applied.

South African population based reference ranges have not yet been established.

The uric acid level is determined via the chemical analyser platform with an enzyme based assay

\*Essential amino acids.

#### NUTRITIONAL MARKER COMMENTS

Low or BDL 4-pyridoxic acid, ascorbic acid, pantothenic, N-acetylcysteine may be suggestive of a deficiency/insufficiency in these micronutrient

Elevated glutaric acid, methylcitric acid, 3-hydroxy-3-methyl-glutaric acid, 3-hydroxypropionic acid, mevalonic acid, xanthurenic acid are suggestive of corresponding micronutrient marker deficiency/insufficiency. A low level is insignificant

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**Disclaimer:** The requested analyses are not intended for the diagnosis of inborn errors of metabolism and the results are reported without interpretation.

Please take note that the reference ranges have changed as from 26 October 2018.