

Ordering Physician:

282978 - 310140

Metamatrix Staff & Family

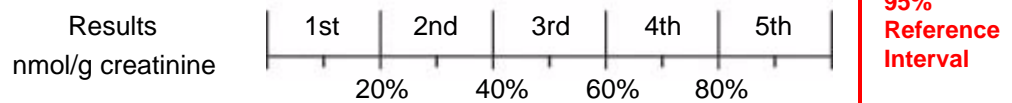
3425 Corporate Way

Duluth, GA 30096

0060 Porphyrin Profile - Urine

Methodology: Liquid Chromotography/Mass Spectroscopy

Percentile Ranking by Quintile



Porphyrin Pathway Intermediates

Substance	Results (nmol/g creatinine)	Percentile	95% Reference Interval
Uroporphyrin I & III	18.2 H	13.4	<= 21.0
Heptacarboxyporphyrin	5.3 H	4.8	<= 7.5
Hexacarboxyporphyrin	2.6 H	1.4	<= 1.4
Pentacarboxyporphyrin	2.8 H	2.6	<= 4.2
Precoproporphyrin*	5.1 H	3.0	<= 4.6
Coproporphyrin I	28	35	<= 49
Coproporphyrin III	175 H	154	<= 267

Calculated Values

Substance	Results (nmol/g creatinine)	Percentile	95% Reference Interval
Total Porphyrins	232 H	222	<= 297
Precopro/Uro I & III	0.3	0.4	<= 1.2
Copro I/Copro III	0.2	0.4	<= 0.6

Creatinine =31 mg/dL

* Atypical porphyrin consistent with precoproporphyrin reported in the literature. Precoproporphyrin is reported as a ratio of peak area to internal standard peak area in units of response/g creatinine.^{1,2}

- J.S. Woods, M.A. Bowers, H.A. Davis, Toxicology and Applied Pharmacology 110, 464-476 (1991).
- D. Echeverria et al., Neurotoxicology and Teratology 28 (2006) 39-48.

**Result Less than detection limits

***Unable to calculate due to indeterminant value

These test results are not for the diagnosis of disease. They are intended to provide nutritional guidelines to qualified healthcare professionals with full knowledge of patient history and concerns to assist in their design of an appropriate healthcare program.

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Methodology: *Liquid Chromotography/Mass Spectroscopy*

The following comments pertain to abnormalities found on this report.

A moderate elevation of Uroporphyrin I & III is consistent with stimulation of the porphyrin pathway. Such stimulation can be due to many pharmaceuticals and environmental chemicals, including ethanol.

Elevations of either or both of the compounds Heptacarboxyporphyrin and Hexacarboxyporphyrin is a pattern consistent with toxic effects of arsenic or certain organotoxins. Such elevations are more specifically due to such toxin exposure if Uroporphyrin I&III is not elevated.

The further arsenic toxic effect sign of Coproporphyrin I/III ratio elevation is not found.

Elevation of 3 of the compounds Pentacarboxyporphyrin, Precoproporphyrin and Coproporphyrin III is associated with the toxic effects of mercury. The confirmatory elevation of the Precoproporphyrin/Uroporphyrin I & III ratio is not found. This may be due to independent factors raising Uroporphyrin I&III levels.

Elevation of Coproporphyrin III may also be associated with the toxic effects of lead, especially if no other porphyrin intermediates are elevated. Strong Coproporphyrin III elevation is also found in some genetic porphyrias.

Although the Metametrix profile will reveal disruptions in the heme pathway, the data is not reviewed by a specialist who can make a diagnosis of hereditary porphyrias. Abnormalities may be due to combinations of genetic factors and environmental exposures. All potential impacts on porphyrin synthesis should be considered when interpreting the results. The comments provided are intended to help alert clinicians to factors that may be relevant according to published studies.

DNA testing is considered the "gold standard" for the diagnosis of hereditary porphyrias, and it is recommended by The American Porphyria Foundation. Many patients with hereditary porphyrias may not have had an acute attack or currently be symptomatic, so abnormalities on biochemical testing (enzyme assays or urinary, stool, or plasma porphyrins and porphyrin precursors) may be insufficient for diagnosis. For further information, the American Porphyria Foundation can be found at:
<http://www.porphyrifoundation.com/>

Reference limits on the Porphyrin Profile were established using an outpatient population of all ages. Consistent with other recent studies, Metametrix has found that children (ages 10 and under) have higher levels of some porphyrins, specifically Uroporphyrin I & III, Heptacarboxyporphyrin, Pentacarboxyporphyrin, and Coproporphyrin III. This data has not been used to construct reference ranges for children because Metametrix is not able to separate age-related effects from toxic effects.