Metametrix Clinical Laboratory
3425 Corporate Way
Duluth, GA 30096
770.446.5483 Fax:770.441.2237

Ordering Physician:

Metametrix

3425 Corporate Way
Duluth, GA 30096

Accession Number: **A0906180213**
Reference Number:
Patient: Sample Report
Age: 47 *Sex:* Male
Date of Birth: 02/05/1962
Date Collected: 6/17/09
Date Received: 6/18/09
Report Date: 6/18/09
Telephone: (770) 446-4583
Fax: (770) 441-2237
Reprinted: 7/24/09
Comment:

0010 Amino Acid Analysis - 40 Plasma

This report contains reference range adjustments from routine revalidation procedures. It also contains the following three upgrades:

1) The amino acids have been reorganized so that they appear in functional categories that can convey more relevant information at a glance. The order is consistent with that found in the newly released Metametrix Handbook.

2) Five calculated ratios have been added: Phenylalanine/Tyrosine, Glutamic Acid/Glutamine, Hydroxyproline/Proline, α-ANB/Leucine, and Tryptophan/LNAA.

3) The recommended individualized amino acid powder has been reformulated. The table will now show small amounts added when patient results fall below the middle of the third quintile rather than only when they are below the second quintile. The amounts added increase exponentially as levels fall to lower levels, giving more accurately adjusted amounts according to the levels of physiological demand. Also, rather than showing the constant percentages in the base, the table shows the more useful calculated percentages in each patient formula. The hydrochloride (HCl) forms of arginine, histidine and lysine that have always been used in the formulas are now specified in the table.

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Methodology: High Pressure Liquid Chromatography

Ranges are for ages 13 and over

		Results umol/L		Percentile Ranking by Quintile (1st 2nd 3rd 4th 5th; 20% 40% 60% 80%)	95% Reference Interval
Essential Amino Acids					
Limiting Amino Acids					
1	Lysine	120	L	147 – 263	120 - 318
2	Methionine	30		17 – 34	14 - 48
3	Tryptophan	60		39 – 69	31 - 83
Branched Chain Amino Acids					
4	Isoleucine	57		40 – 82	35 - 104
5	Leucine	128		87 – 164	74 - 196
6	Valine	211		167 – 316	146 - 370
Other Essential Amino Acids					
7	Phenylalanine	68		48 – 77	42 - 95
8	Histidine	60	L	63 – 97	57 - 114
9	Threonine	143		88 – 172	73 - 216
Conditionally Essential Amino Acids					
10	Arginine	35	L	43 – 107	29 - 137
11	Taurine	51		36 – 99	29 - 136
12	Glycine	342		192 – 418	155 - 518
13	Serine	121		74 – 139	60 - 172

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Funtional Categories				
Vitamin B6 Status Markers				
14 α-aminoadipic acid	<0.5		0.5	<= 1.5
15 α-Amino-n-butyric acid (α-ANB)	22		28	<= 39
16 γ-aminobutyric acid	<0.6		0.6	<= 1.5
17 Cystathionine	<0.2		0.3	<= 0.3
Vascular Function				
18 Arginine	35	L	43 107	29 - 137
19 Taurine	51		36 99	29 - 136
20 α-aminoadipic acid	<0.5		0.5	<= 1.5
Neurotransmitters and Precursors				
21 Phenylalanine	68		48 77	42 - 95
22 Tyrosine	58		45 87	38 - 110
23 Tryptophan	60		39 69	31 - 83
24 Glutamic Acid	42		33 136	24 - 214
25 Taurine	51		36 99	29 - 136
Sulfur Amino Acids (Glutathione - related)				
26 Methionine	30		17 34	14 - 48
27 Cystathionine	<0.2		0.3	<= 0.3
28 Homocystine	<0.6		0.6	<= 0.6
29 Cystine	4.9		1.6 16.3	0.8 - 27.5
30 Taurine	51		36 99	29 - 136

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Urea Cycle and Ammonia Detoxification				
31 Arginine	35	L	43 – 107	29 - 137
32 Citrulline	38		22 – 45	18 - 57
33 Ornithine	80		36 – 86	28 - 117
34 Glutamine	931	H	458 – 771	372 - 876
35 Asparagine	72	H	39 – 71	31 - 90
36 Aspartic Acid	5.3		3.5 – 8.6	2.9 - 12.6
Glycine, Serine and Related Amino Acids				
37 Alanine	414		284 – 559	230 - 681
38 Glycine	342		192 – 418	155 - 518
39 Sarcosine	13.5	H	12.1	<= 19.5
40 Serine	121		74 – 139	60 - 172
41 Phosphoserine	<0.5		0.5	<= 0.8
42 Ethanolamine	11.3	H	9.3	<= 11.6
43 Phosphoethanolamine	3.9		4.6	<= 7.4
Collagen - Related Amino Acids				
44 Proline	192		119 – 279	99 - 363
45 Hydroxyproline	12		16	<= 26
46 Lysine	120	L	147 – 263	120 - 318
47 Hydroxylysine	0.0		0.6	<= 0.6

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β-Amino Acids and Derivatives

48	β-Alanine	<1		<= 5.0
49	Histidine	60	L	57 - 114
50	Carnosine	3.9		<= 6.3
51	1-Methylhistidine	64	H	<= 52
52	Anserine	52	H	<= 43

Muscle-Specific Amino Acids

53	3-Methylhistidine	6.7		<= 9.8

Ratios

54	Phenylalanine/Tyrosine	1.17	H	<= 1.10
55	Glutamic Acid/Glutamine	0.05	L	0.06 - 0.23
56	Hydroxyproline/Proline	0.063		<= 0.152
57	α-ANB/Leucine	0.17		<= 0.22
58	Tryptophan/LNAA*	0.099	H	0.080 - 0.09

*Large neutral amino acids

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Amino Acid Formula Recommendation

The table below shows a customized amino acid formula based on the results of your laboratory profile. The formula is optimized by adding amounts shown in the Grams Added column according to the relative positions of results found.

Directions: Adults mix 1 and 1/2 measuring teaspoon (5g) in juice or water 2 times daily between meals as a dietary supplement, or as directed by a health care provider. Children under 12 years old: 3/4 teaspoon 1-2 times daily between meals. Children under 5 years old: Use 1/4 teaspoon, 1-3 times daily; adjust for body weight.

	Grams Added	% of Formula	Active mg/day
L-Arginine HCl (80% active)	20	15.50	1,240
L-Histidine HCl (74% active)	9	13.26	981
L-Isoleucine	1	7.40	740
L-Leucine	0	9.69	969
L-Lysine HCl (80% active)	16	14.16	1,133
L-Methionine	0	5.79	579
L-Phenylalanine	0	9.69	969
Taurine	3	1.00	100
L-Threonine	0	6.08	608
L-Tryptophan	0	1.66	166
L-Valine	2	9.16	916
Pyridoxal-5-phosphate	0	0.27	22
Alpha-ketoglutaric acid	0	7.69	638

Total grams added	51
Base Formula amount	249
Total Weight	300

✓	☐	L-5-Hydroxytryptophan	0	0.55	33

This formula is intended to optimize essential and conditionallly essential amino acid intake. Other non-essential amino acids can be produced in human tissues. Pyridoxal-5-phosphate (an active form of vitamin B6) and alpha-ketoglutaric acid are key factors needed for the body's utilization of amino acids.

The formula may be ordered as a powder that dissolves easily in beverages or may be added to foods such as applesauce. Other forms of supplemental dietary protein or amino acids may need to be restricted while using your customized formula. If enhanced energy levels prevent sleep, avoid bedtime use.

This formula is provided as a starting point that may guide decisions about medical treatment based on the test results. It is derived only from the laboratory results included in this report. Final recommendations should be based on consideration of hte patient's medical history and current clinicl condition.