LABTESTSDIRECT
MAKING HEALTH ONLINE EASY

PATIENT FIRST NAME :

PATIENT SURNAME:

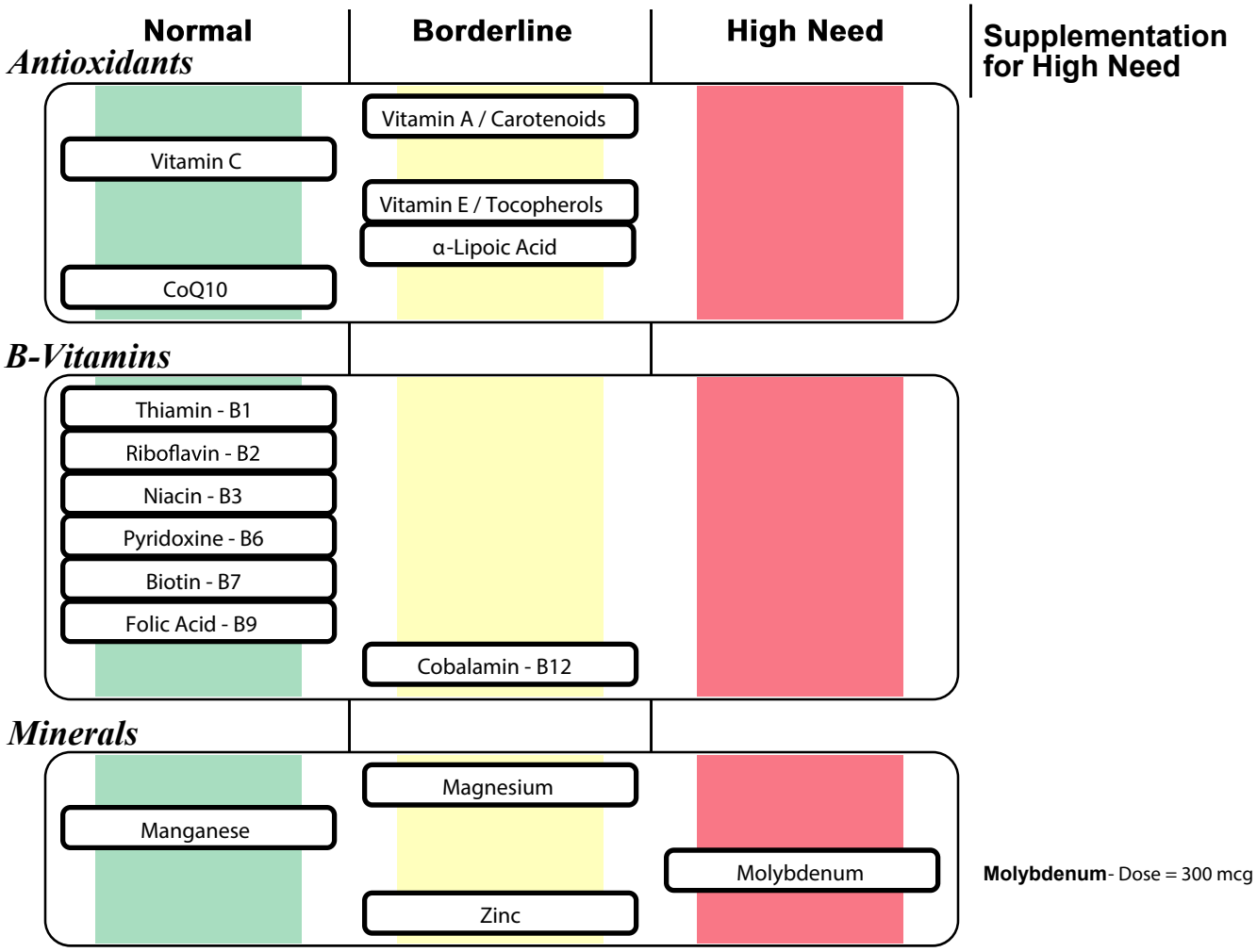
DATE OF BIRTH: GENDER:

ADDRESS:

LAB TESTS DIRECT-PATIENT REPORT

Result Range Units

Results Overview



SUGGESTED SUPPLEMENT SCHEDULE

Supplements	Daily Recommended Intake (DRI)	Patient's Daily Recommendations	Provider Daily Recommendations
Antioxidants			
Vitamin A / Carotenoids	3,000 IU	5,000 IU	
Vitamin C	90 mg	250 mg	
Vitamin E / Tocopherols	22 IU	200 IU	
α-Lipoic Acid		100 mg	
CoQ10		30 mg	
B-Vitamins			
Thiamin - B1	1.2 mg	10 mg	
Riboflavin - B2	1.3 mg	10 mg	
Niacin - B3	16 mg	30 mg	
Pyridoxine - B6	1.3 mg	10 mg	
Biotin - B7	30 mcg	100 mcg	
Folic Acid - B9	400 mcg	400 mcg	
Cobalamin - B12	2.4 mcg	500 mcg	
Minerals			
Magnesium	420 mg	600 mg	
Manganese	2.3 mg	3 mg	
Molybdenum	45 mcg	300 mcg	
Zinc	11 mg	20 mg	
Digestive Support			
Probiotics		25 B CFU	
Pancreatic Enzymes		10,000 IU	

Amino Acid	mg/day	Amino Acid	mg/day
Arginine	226	Methionine	0
Asparagine	0	Phenylalanine	56
Cysteine	0	Serine	0
Glutamine	369	Taurine	0
Glycine	3,318	Threonine	0
Histidine	748	Tryptophan	0
Isoleucine	0	Tyrosine	407
Leucine	0	Valine	0
Lysine	1,291		

Recommendations for age and gender-specific supplementation are set by comparing levels of nutrient functional need to optimal levels as described in the peer-reviewed literature. They are provided as guidance for short-term support of nutritional deficiencies only.

The Suggested Supplemental Schedule is provided at the request of the ordering practitioner. Any application of it as a therapeutic intervention is to be determined by the ordering practitioner.

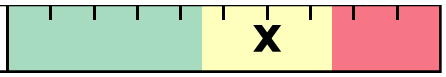
Key Normal | Borderline | High Need

Interpretation At-A-Glance

Nutritional Needs

Antioxidants

Vitamin A / Carotenoids

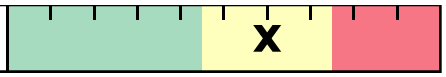


- Beta-carotene & other carotenoids are converted to vitamin A (retinol), involved in vision, antioxidant & immune function, gene expression & cell growth.
- Vitamin A deficiency may occur with chronic alcoholism, zinc deficiency, hypothyroidism, or oral contraceptives containing estrogen & progestin.
- Deficiency may result in night blindness, impaired immunity, healing & tissue regeneration, increased risk of infection, leukoplakia or keratosis.
- Food sources include cod liver oil, fortified cereals & milk, eggs, sweet potato, pumpkin, carrot, cantaloupe, mango, spinach, broccoli, kale & butternut squash.

Vitamin C

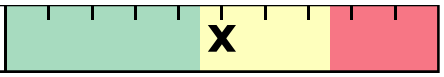
- Vitamin C is an antioxidant (also used in the regeneration of other antioxidants). It is involved in cholesterol metabolism, the production & function of WBCs and antibodies, and the synthesis of collagen, norepinephrine and carnitine.
- Deficiency may occur with oral contraceptives, aspirin, diuretics or NSAIDs.
- Deficiency can result in scurvy, swollen gingiva, periodontal destruction, loose teeth, sore mouth, soft tissue ulcerations, or increased risk of infection.
- Food sources include oranges, grapefruit, strawberries, tomato, sweet red pepper, broccoli and potato.

Vitamin E / Tocopherols



- Alpha-tocopherol (body's main form of vitamin E) functions as an antioxidant, regulates cell signaling, influences immune function and inhibits coagulation.
- Deficiency may occur with malabsorption, cholestyramine, colestipol, isoniazid, orlistat, olestra and certain anti-convulsants (e.g., phenobarbital, phenytoin).
- Deficiency may result in peripheral neuropathy, ataxia, muscle weakness, retinopathy, and increased risk of CVD, prostate cancer and cataracts.
- Food sources include oils (olive, soy, corn, canola, safflower, sunflower), eggs, nuts, seeds, spinach, carrots, avocado, dark leafy greens and wheat germ.

α-Lipoic Acid

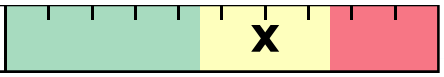


- Lipoic acid plays an important role in energy production, antioxidant activity (including the regeneration of vitamin C and glutathione), insulin signaling, cell signaling and the catabolism of α-keto acids and amino acids.
- High biotin intake can compete with lipoic acid for cell membrane entry.
- Optimal levels of lipoic acid may improve glucose utilization and protect against diabetic neuropathy, vascular disease and age-related cognitive decline.
- Main food sources include organ meats, spinach and broccoli. Lesser sources include tomato, peas, Brussels sprouts and brewer's yeast.

CoQ10

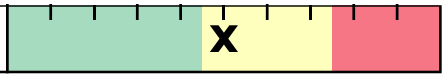
- CoQ10 is a powerful antioxidant that is synthesized in the body and contained in cell membranes. CoQ10 is also essential for energy production & pH regulation.
- CoQ10 deficiency may occur with HMG-CoA reductase inhibitors (statins), several anti-diabetic medication classes (biguanides, sulfonylureas) or beta-blockers.
- Low levels may aggravate oxidative stress, diabetes, cancer, congestive heart failure, cardiac arrhythmias, gingivitis and neurologic diseases.
- Main food sources include meat, poultry, fish, soybean, canola oil, nuts and whole grains. Moderate sources include fruits, vegetables, eggs and dairy.

Glutathione



- Glutathione (GSH) is composed of cysteine, glutamine & glycine. GSH is a source of sulfate and plays a key role in antioxidant activity and detoxification of toxins.
- GSH requirement is increased with high-fat diets, cigarette smoke, cystinuria, chronic alcoholism, chronic acetaminophen use, infection, inflammation and toxic exposure.
- Deficiency may result in oxidative stress & damage, impaired detoxification, altered immunity, macular degeneration and increased risk of chronic illness.
- Food sources of GSH precursors include meats, poultry, fish, soy, corn, nuts, seeds, wheat germ, milk and cheese.

Plant-based Antioxidants

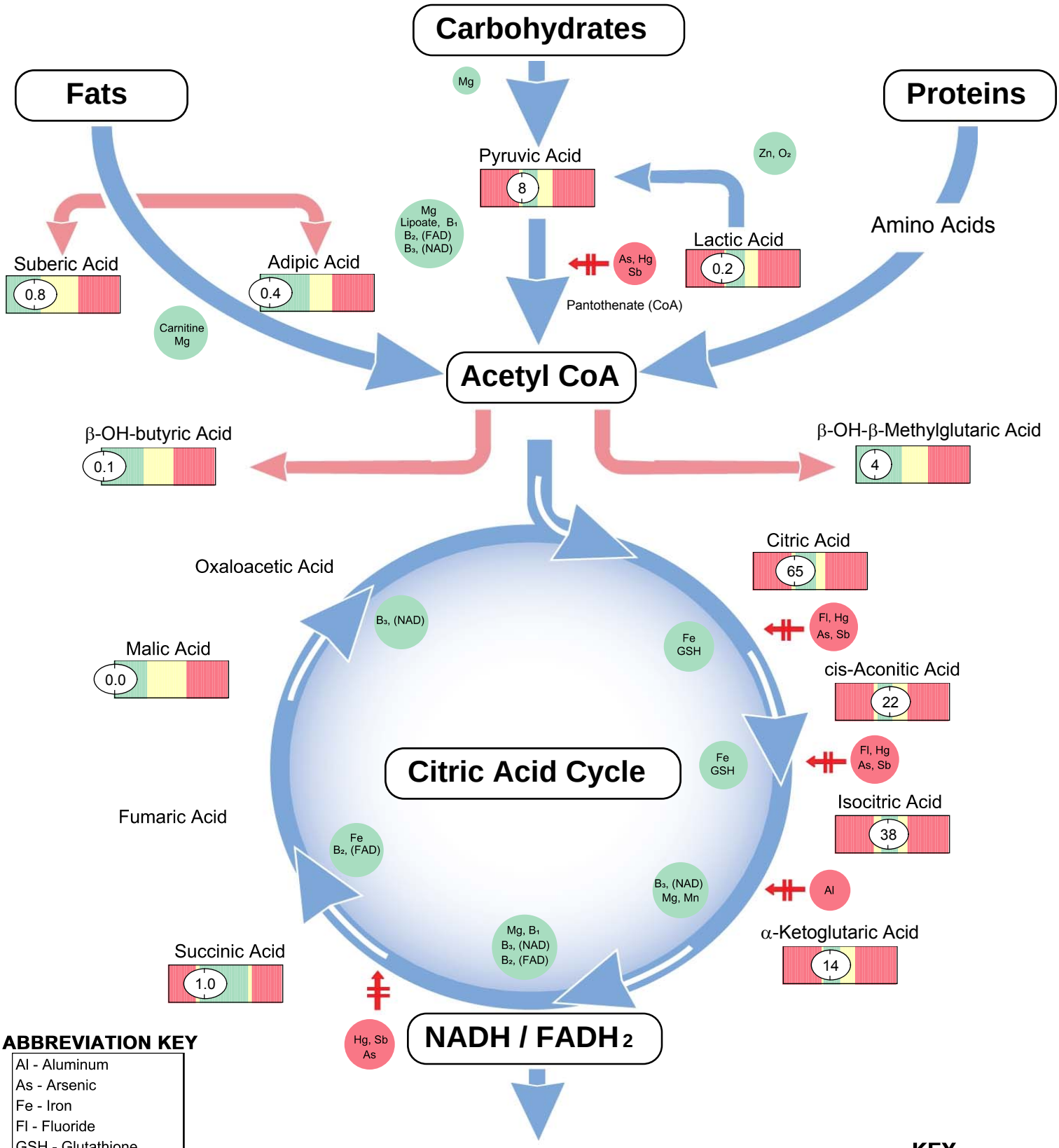


- Oxidative stress is the imbalance between the production of free radicals and the body's ability to readily detoxify these reactive species and/or repair the resulting damage with anti-oxidants.
- Oxidative stress can be endogenous (energy production and inflammation) or exogenous (exercise, exposure to environmental toxins).
- Oxidative stress has been implicated clinically in the development of neurodegenerative diseases, cardiovascular diseases and chronic fatigue syndrome.
- Antioxidants may be found in whole food sources (e.g., brightly colored fruits & vegetables, green tea, turmeric) as well as nutriceuticals (e.g., resveratrol, EGCG, lutein, lycopene, ginkgo, milk thistle, etc.).

Key

- Function
- Causes of Deficiency
- Complications of Deficiency
- Food Sources

Krebs Cycle At-A-Glance



ABBREVIATION KEY

Al - Aluminum
As - Arsenic
Fe - Iron
Fl - Fluoride
GSH - Glutathione
Hg - Mercury
Mg - Magnesium
Mn - Manganese
Sb - Antimony
Zn - Zinc

Electron Transport and Oxidative Phosphorylation

(2) H +1/2 O_2 H_2O

KEY

Green = cofactor

Red = inhibitor

Metabolic Analysis Markers

All biomarkers reported in mmol/mol creatinine unless otherwise noted.

Malabsorption and Dysbiosis Markers

Malabsorption Markers		Reference Range
Indoleacetic Acid (IAA)	1.0	<= 4.2
Phenylacetic Acid (PAA)	0.10	<= 0.12

Bacterial Dysbiosis Markers		
Dihydroxyphenylpropionic Acid (DHPPA)	15.0	<= 12.8
3-Hydroxyphenylacetic Acid	4.4	<= 8.1
4-Hydroxyphenylacetic Acid	18	<= 29
Benzoic Acid	0.02	<= 0.05
Hippuric Acid	324	<= 603

Yeast / Fungal Dysbiosis Markers		
Arabinose	42	<= 96
Citramalic Acid	2.0	<= 5.8
Tartaric Acid	7	<= 15

Cellular Energy & Mitochondrial Metabolites

Carbohydrate Metabolism		Reference Range
Lactic Acid	0.2	1.9-19.8
Pyruvic Acid	8	7-32
β-OH-Butyric Acid (BHBA)	0.1	<= 2.8

Energy Metabolism		
Citric Acid	65	40-520
Cis-Aconitic Acid	22	10-36
Isocitric Acid	38	22-65
α-Ketoglutaric Acid (AKG)	14	4-52
Succinic Acid	1.0	0.4-4.6
Malic Acid	0.0	<= 3.0
β-OH-β-Methylglutaric Acid (HMG)	4	<= 15

Fatty Acid Metabolism		
Adipic Acid	0.4	<= 2.8
Suberic Acid	0.8	<= 2.1

Creatinine Concentration

		Reference Range
Creatinine ◆	12.5	3.1-19.5 mmol.L

Neurotransmitter Metabolites

		Reference Range
Vanilmandelic Acid	0.2	0.4-3.6
Homovanillic Acid	2.9	1.2-5.3
5-OH-indoleacetic Acid	7.9	3.8-12.1
3-Methyl-4-OH-phenylglycol	0.08	0.02-0.22
Kynurenic Acid	1.0	<= 7.1
Quinolinic Acid	1.0	<= 9.1
Kynurenic / Quinolinic Ratio	1.00	>= 0.44

Vitamin Markers

		Reference Range
α-Ketoadipic Acid	0.0	<= 1.7
α-Ketoisovaleric Acid	0.08	<= 0.97
α-Ketoisocaproic Acid	0.06	<= 0.89
α-Keto-β-Methylvaleric Acid	0.1	<= 2.1
Formiminoglutamic Acid (FIGlu)	0.2	<= 0.9
Glutaric Acid	0.10	<= 0.51
Isovalerylglycine	1.8	<= 3.7
Methylmalonic Acid	0.5	<= 1.9
Xanthurenic Acid	0.54	<= 0.96
3-Hydroxypropionic Acid	8	5-22
3-Hydroxyisovaleric Acid	18	<= 29

Toxin & Detoxification Markers

		Reference Range
α-Ketophenylacetic Acid (from Styrene)	0.30	<= 0.46
α-Hydroxyisobutyric Acid (from MTBE)	3.8	<= 6.7
Orotic Acid	0.42	0.33-1.01
Pyroglutamic Acid	17	16-34

Tyrosine Metabolism

		Reference Range
Homogentisic Acid	5	<= 19
2-Hydroxyphenylacetic Acid	0.24	<= 0.76

Metabolic Analysis Reference Ranges are Age Specific

Amino Acids (FMV)

All biomarkers reported in micromol/gm creatinine unless otherwise noted.

Nutritionally Essential Amino Acids

Amino Acid		Reference Range
Arginine	16	10-64
Histidine	266	271-993
Isoleucine	37	17-52
Leucine	54	25-77
Lysine	34	34-226
Methionine	44	26-69
Phenylalanine	27	22-61
Taurine	175	80-545
Threonine	78	52-192
Tryptophan	40	23-88
Valine	28	19-53

Nonessential Protein Amino Acids

Amino Acid		Reference Range
Alanine	101	103-392
Asparagine	60	37-134
Aspartic Acid	36	27-74
Cysteine	71	19-70
Cystine	25	23-68
γ-Aminobutyric Acid	7	<= 23
Glutamic Acid	10	3-15
Glutamine	186	153-483
Proline	2	2-14
Tyrosine	31	28-113

Creatinine Concentration

		Reference Range
Creatinine ◆	12.5	3.1-19.5 mmol/L

Intermediary Metabolites

B Vitamin Markers		Reference Range
α-Aminoadipic Acid	43	11-73
α-Amino-N-butyric Acid	15	9-49
β-Aminoisobutyric Acid	92	19-163
Cystathionine	9	6-29
3-Methylhistidine	203	134-302

Urea Cycle Markers		
Ammonia	28.4	12.0-41.0 mmol/g creatinine
Citrulline	31	9-40
Ornithine	9	3-16
Urea ◆	277	150-380 mmol/g creatinine

Glycine/Serine Metabolites		
Glycine	269	434-1,688
Serine	199	135-426
Ethanolamine	195	156-422
Phosphoethanolamine	22	14-50
Phosphoserine	29	26-64
Sarcosine	30	<= 41

Dietary Peptide Related Markers

		Reference Range
Anserine (dipeptide)	174	8-118
Carnosine (dipeptide)	46	12-120
1-Methylhistidine	2,296	83-1,008
β-Alanine	13	<= 17

Markers for Urine Representativeness

		Reference Range
Glutamine/Glutamate	19	>= 12
Ammonia	28.4	12.0-41.0 mmol/g creatinine
Arginine/Ornithine	1.8	>= 1.0

Urine Representativeness Index	10	Ref Range 5 – 10