PRECISION POINT DIAGNOSTICS
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LAB #: Sample Report
PATIENT: Sample Patient
ID:
SEX: Male
DOB: 01/01/1981

CLIENT #: 12345
DOCTOR: Sample Doctor
Precision Point Diagnostics
Nine Dunwoody Park 122
Dunwoody, GA 30338 U.S.A.

Amino Acids; Urine

ESSENTIAL / CONDITIONALLY INDISPENSABLE AMINO ACIDS	RESULT µM/g creatinine	REFERENCE INTERVAL	PERCENTILE 2.5th 16th 50th 84th 97.5th
Methionine	**7.1**	7- 35	
Lysine	**24**	35- 500	
Threonine	**66**	48- 275	
Leucine	**21**	10- 65	
Isoleucine	**7**	4- 28	
Valine	**23**	12- 50	
Phenylalanine	**19**	25- 75	
Tryptophan	**15**	20- 75	
Taurine	**270**	170- 1200	
Cysteine	**37**	20- 57	
Arginine	**13**	8- 50	
Histidine	**150**	270- 1150	

NONESSENTIAL AMINO ACIDS	RESULT µM/g creatinine	REFERENCE INTERVAL	PERCENTILE 2.5th 16th 50th 84th 97.5th
Alanine	**93**	100- 500	
Aspartate	**3.4**	6- 30	
Asparagine	**45**	40- 180	
Glutamine	**180**	145- 580	
Glutamate	**14**	8- 45	
Cystine	**27**	20- 90	
Glycine	**430**	280- 2800	
Tyrosine	**22**	23- 113	
Serine	**200**	110- 450	
Proline	**4.7**	1- 45	

SPECIMEN DATA

Comments:

Date Collected: 09/15/2020
DateReceived: 09/15/2020
Date Completed: 09/15/2020

Collection Period: **Random**
Volume:

Methodology: **LC MS/MS**
NH_4, Urea, Creatinine by Automated Chem Analyzer

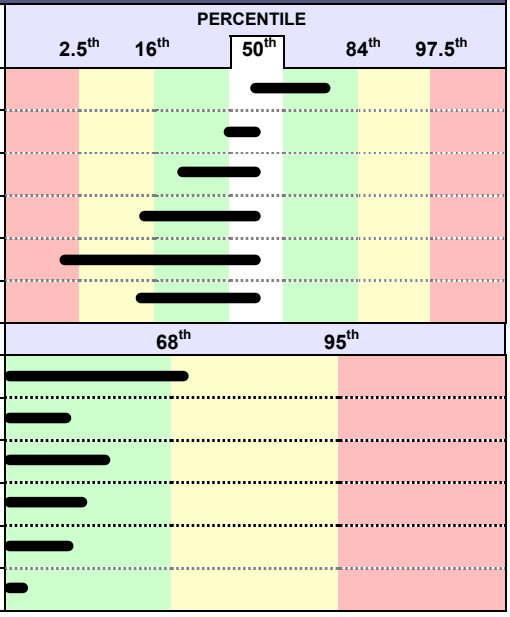
v3

PRECISION POINT DIAGNOSTICS

PATIENT: Sample
Patient LAB#: Sample Report
DATE COLLECTED: 06/11/2020
PAGE: 2

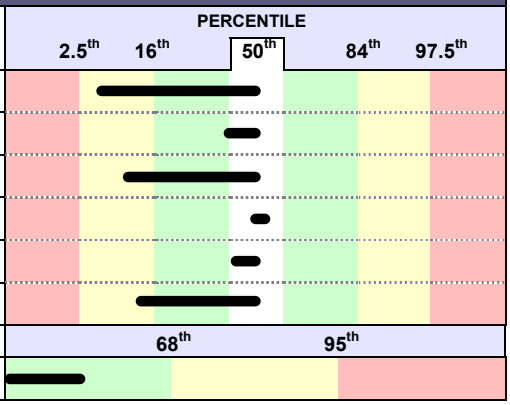
GASTROINTESTINAL MARKERS

	RESULT µM/g creatinine	REFERENCE INTERVAL
Ammonia (NH_4)	**25900**	9000- 39000
Ethanolamine	**210**	120- 330
Alpha-Aminoadipitate	**18**	7- 50
Threonine	**66**	48- 275
Tryptophan	**15**	20- 75
Taurine	**270**	170- 1200
Beta-alanine	**4.7**	< 20
Beta-aminoisobutyrate	**27**	< 300
Anserine	**11**	< 60
Carnosine	**5.6**	< 35
Gamma-aminobutyrate	**0.94**	< 5
Hydroxyproline	**1.7**	< 32



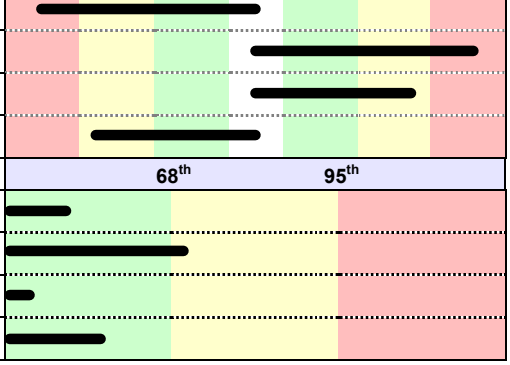
MAGNESIUM DEPENDANT MARKERS

	RESULT µM/g creatinine	REFERENCE INTERVAL
Citrulline	**2**	1- 24
Ethanolamine	**210**	120- 330
Phosphoethanolamine	**18**	15- 56
Phosphoserine	**0.22**	0.06- 0.6
Serine	**200**	110- 450
Taurine	**270**	170- 1200
Methionine Sulfoxide	**2.3**	< 10



B6, B12, & FOLATE DEPENDANT MARKERS

	RESULT µM/g creatinine	REFERENCE INTERVAL
Serine	**200**	110- 450
Alpha-aminoadipate	**18**	7- 50
Cysteine	**37**	20- 57
Cystathionine	**3**	7- 40
1-Methylhistidine	**270**	75- 240
3-Methylhistidine	**820**	50- 900
Alpha-amino-N-butyrate	**8.4**	7- 50
Beta-aminoisobutyrate	**27**	< 300
Beta-alanine	**4.7**	< 20
Homocystine	**0.081**	< 1
Sarcosine	**1.2**	< 7



ADDRESS: 3755 Illinois Avenue, St. Charles, IL 60174-2420 CLIA ID NO: 14D0646470 MEDICARE PROVIDER NO: 148453
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PRECISION POINT DIAGNOSTICS

PATIENT: Sample Patient
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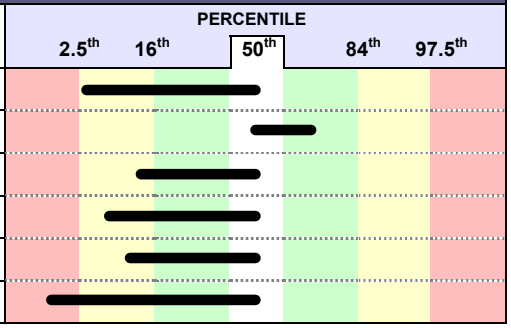
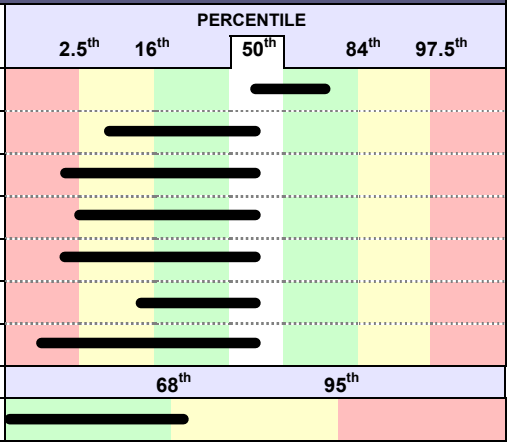
DETOXIFICATION MARKERS

	RESULT µM/g creatinine	REFERENCE INTERVAL
Methionine	**7.1**	7- 35
Cysteine	**37**	20- 57
Taurine	**270**	170- 1200
Glutamine	**180**	145- 580
Glycine	**430**	280- 2800
Aspartate	**3.4**	6- 30



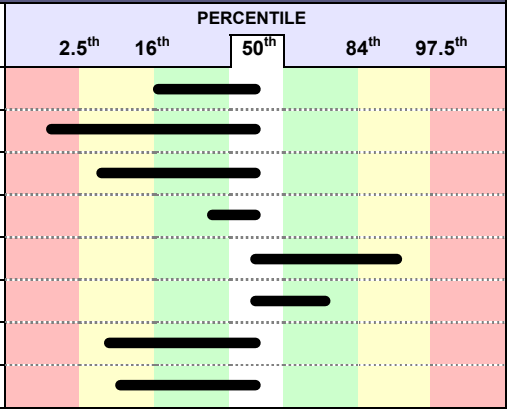
NEUROLOGICAL MARKERS

	RESULT µM/g creatinine	REFERENCE INTERVAL
Ammonia (NH_4)	**25900**	9000- 39000
Glutamine	**180**	145- 580
Phenylalanine	**19**	25- 75
Tyrosine	**22**	23- 113
Tryptophan	**15**	20- 75
Taurine	**270**	170- 1200
Cystathionine	**3**	7- 40
Beta-alanine	**4.7**	< 20



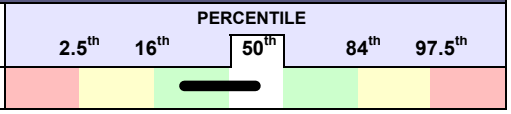
UREA CYCLE METABOLITES

	RESULT per creatinine	REFERENCE INTERVAL
Arginine	**13 µM/g**	8- 50
Aspartate	**3.4 µM/g**	6- 30
Citrulline	**2 µM/g**	1- 24
Ornithine	**7.9 µM/g**	3- 35
Urea	**430 mM/g**	150- 480
Ammonia (NH_4)	**25900 µM/g**	9000- 39000
Glutamine	**180 µM/g**	145- 580
Asparagine	**45 µM/g**	40- 180



OTHER

	RESULT	REFERENCE INTERVAL
Creatinine	**100 mg/dL**	35- 240



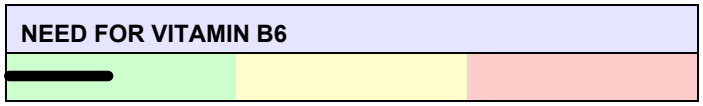
PRECISION POINT DIAGNOSTICS

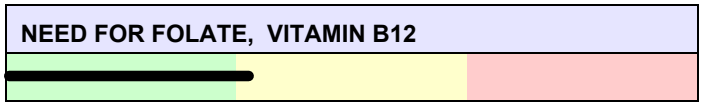
SUPPLEMENTATION SCHEDULE

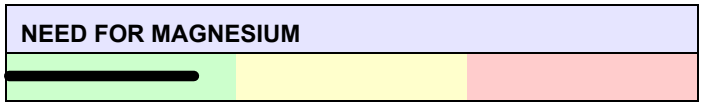
L-configured Amino Acids	Total Daily Oral Dose
Tryptophan	**430 mg**
Arginine	**710 mg**
Histidine	**1135 mg**
Isoleucine	**710 mg**
Leucine	**970 mg**
Lysine	**1305 mg**
Methionine	**805 mg**
Phenylalanine	**1240 mg**
Threonine	**610 mg**
Valine	**980 mg**
Pyridoxal-5-phosphate	**30 mg**
Alpha-ketoglutarate	**650 mg**
Taurine	**145 mg**

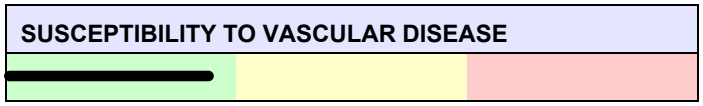
The supplement schedule is not intended for use by pregnant females and is strictly contraindicated for individuals with suspected or known renal insufficiency or renal failure.

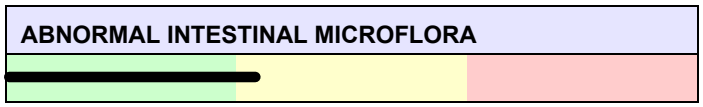
PRESUMPTIVE NEEDS / IMPLIED CONDITIONS

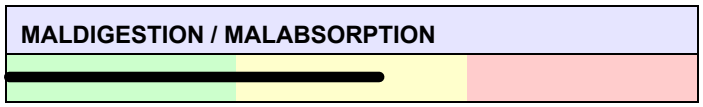


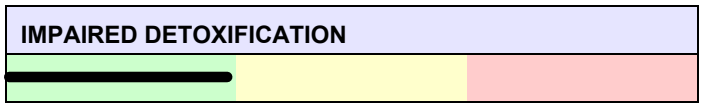


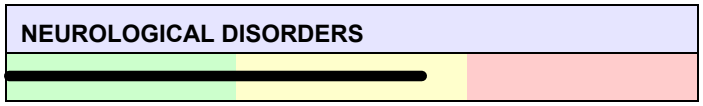


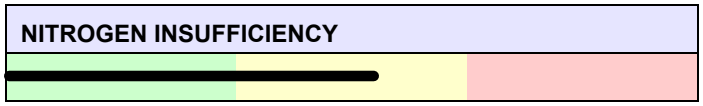


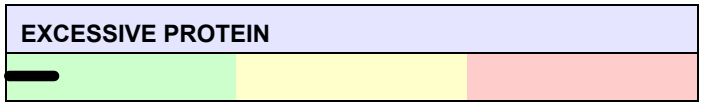


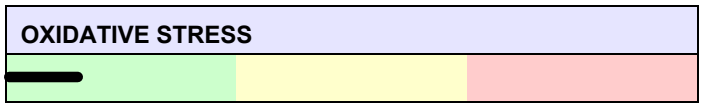












This recommended Amino Acid Supplement Schedule was calculated based upon the difference between the test results for this specific patient and optimal urine levels, and guidelines for human amino acid requirements as provided by the Food and Nutrition Board of the NRC. The schedule has been provided at the request of a licensed medical practitioner and the calculated levels of amino acids only apply to ORAL administration. The supplement schedule is not intended for use by pregnant females and is strictly contraindicated for individuals with suspected or known renal insufficiency or renal failure.

Only pure, L-form crystalline amino acids should be used and the custom formulation should be prepared by credible pharmacies or purveyors who specialize in amino acid formulations. In order to get the full benefit of the amino acid supplementation, one needs to ensure adequate intake of CALORIES and the essential co-factors that permit proper metabolism of the amino acids (eg. B-6, B-12, folate, magnesium). Supplemental cystine or N-acetylcysteine should not be given to patients who have been diagnosed with intestinal candidiasis.

This analysis of amino acids and related metabolites was performed using High Pressure Liquid Chromatography. The test provides fundamental information about the adequacy of dietary protein, digestive disorders, dysbiosis, mood and sleep disorders, and vitamin and mineral deficiencies. When the level of a specific amino acid or metabolite deviates significantly from the norm, an interpretive paragraph is presented which briefly discusses the possible causes, clinical implications and remedies for the metabolic aberrations. If no significant abnormalities are detected, interpretive paragraphs and amino acid supplementation schedules are not provided.

”Presumptive Needs” are not the result of direct analyses of B vitamins or magnesium but are based upon algorithms that utilize levels of specific amino acids (AA) and intermediary metabolites that may be abnormal if nutrient cofactors limit normal AA metabolism. Direct testing for B vitamins and magnesium (Red Blood Cell Elements) may be warranted. ”Implied conditions” may infer further clinical evaluation, functional testing and direct laboratory testing (e.g. Comprehensive Stool Analysis, Cardiovascular Risk Profile, DNA Oxidative Damage, Methylation Profile).

Creatinine

The urinary creatinine concentration (CC) presented in this report represents the actual creatinine concentration in the specimen that was submitted. Under normal conditions, the rate of excretion of creatinine is quite constant and highly correlated with lean body mass (muscle). However, the CC can vary significantly as a function of urine volume. An unusually high CC most likely indicates poor hydration of the patient at the time of the urine collection. A very low CC most likely indicates unusually high fluid consumption, or perhaps the influence of diuretics. If the urine specimen is very dilute (extremely low CC), the accuracy of the amino acid analysis may be compromised due to analytical detection limits. It is emphasized that the CC in this specimen should not be utilized to assess renal function or glomerular filtration. For that purpose, one should perform a bona fide creatinine clearance test.

For a given age and gender, intra-individual variability in daily creatinine excretion can vary by as much as two-fold. Therefore, to more accurately assess amino acid status using a random collection, the reported values for each analyte are expressed per gram ”normalized” creatinine. Creatinine values are adjusted to account for body surface

area (BSA) using the formula:

CreatinineN (Normalized) = creatinine concentration x (1.73/BSA).

Lysine (low)

Lysine, an essential amino acid, is low in this urine specimen. Lysine is a component of structural proteins and enzymes in the body. Transamination of amino acids requires lysine as an ”anchor” point for coenzyme pyridoxal phoshate. Some individuals who exhibit symptoms of B-6 deficiency actually have a lysine deficiency that limits functional B-6 activity. Lysine is abundant in animal source proteins and legumes, but is often deficient in vegetarian diets that are based on corn, rice and cereal grains. Symptoms commonly associated with lysine deficiency include poor appetite, muscle weakness/poor muscle tone, weight loss, anemia, and poor dream recall.

Phenylalanine (low)

Phenylalanine, an essential amino acid, is low in this urine specimen. Phenylalanine is required for the synthesis of proteins and is the precursor of tyrosine. Tyrosine is required for the production of neurotransmitters (eg.dopamine, DOPA, epinephrine) and, thyroid hormone. Phenylalanine is typically low as a result of unbalanced protein in the diet or gastrointestinal dysfunction, particularly hypochlorhydria. Phenylalanine is often low in patients with endogenous depression. Soy protein, legumes/lentils, cheese, nuts and shellfish are good dietary sources of phenylalanine.

Tryptophan (low)

Tryptophan, an essential amino acid, is low in this urine specimen. Tryptophan is the precursor of niacin and serotonin (vasoconstrictor and neurotransmitter). Low serotonin is often associated with disturbed sleep cycle or insomnia, anxiety or depression, aggressive behavior and low pain threshold. Tryptophan can be low as a result of low quality/quantity protein intake or intestinal malabsorption (eg. hypochlorhydria). Bacterial action on unabsorbed tryptophan in the intestine produces elevated levels of mildly toxic indole compounds such as indican (”blue diaper syndrome” in infants). A Comprehensive Stool Analysis may be warranted if dietary intake of protein appears to be adequate. Foods that are good sources of tryptophan include turkey, wild game, pork, soy protein, sunflower seeds, and cheeses.

Histidine (low)

Histidine, a semi essential amino acid, is low in this urine specimen. Histidine is required for maintenance and growth of tissue, transport of copper, and it is the precursor of histamine (vasodilator). Histamine stimulates gastric secretions (HCL) and is necessary for proper digestion of food and assimilation of nutrients. Histidine is commonly low in patients with rheumatoid arthritis. Low histidine may result from protein malnutrition or gastrointestinal dysfunction.

Alanine (low)

Alanine, a nonessential amino acid, is low in this urine specimen. Alanine is an abundant amino acid that is typically low with poor dietary habits or protein malnutrition. Gross protein malnutrition is rarely the result of maldigestion but rather the result of insufficient dietary protein/calories. Alanine is a primary source of glucose (gluconeogenesis) with caloric insufficiency (eg. anorexia, bulimia). Check for low urinary levels of essential amino acids, ammonia, urea and creatinine and hypoglycemia.

Aspartate (low)

Aspartate, a nonessential amino acid, is low in this urine specimen. Aspartate is derived directly from dietary protein and, is also synthesized from glutamate via the B-6 dependent enzyme SGOT. Adequate aspartate is required for proper urea cycle function: in a magnesium dependent reaction, aspartate combines with citrulline to form arginosuccinate. Low urinary aspartate can result from general dietary protein insufficiency, maldigestion, or possibly B-6 deficiency.

Tyrosine (low)

Tyrosine, a nonessential amino acid, is low in this urine specimen. Tyrosine is derived from dietary protein and, endogenously from the essential amino acid phenylalanine. Tyrosine is not only a constituent amino acid of proteins and enzymes but, importantly it is the precursor in the synthesis of dopa, dopamine, norepinephrine and epinephrine (adrenaline). Tyrosine is also iodinated to form the thyroid hormones. Hence a chronic deficiency of tyrosine can result in hypothyroidism, adrenal catacholamine deficiency and impaired neurotransmitter metabolism. Tyrosine deficiency can be associated with behavioral and learning disorders, depression, anxiety and inability to deal with stress, and symptoms commonly exhibited with hypothyroidism. Tyrosine has been used in the treatment and withdrawal of cocaine abuse. Low urinary tyrosine can result from phenylalanine deficiency, protein malnutrition or malabsorption, or impaired conversion of phenylalanine to tyrosine that may result in phenylketonurea. Whole food sources that are relatively high in tyrosine include meats, poultry, wheat germ, cottage and ricotta cheeses, soy protein, cashews and lentils. Most fruits, vegetables and cereals are low in tyrosine.

Cystathionine (low)

Cystathionine is low in this urine specimen. Cystathionine is an intermediary metabolite that is formed in the sequential enzymatic conversion of methionine (essential amino acid) to cysteine. Serine and B-6 are required to produce cystathionine from homocysteine. Subnormal cystathionine is usually a nutritional condition that is readily corrected by adequate provision of serine and B-6/P-5-P. If dietary cysteine intake is concomitantly insufficient, there could also be a cysteine deficiency that could be associated with subnormal intracellular glutathione and decreased antioxidant and detoxification (chemical and heavy metal) capacity.

1-Methylhistidine (high)

1-methylhistine is abnormally high in this urine specimen. 1-methyhistidine is abundant in poultry tuna and salmon and can be elevated if intake of these foods is excessive. A reduction in the intake of such dietary protein sources may be warranted, and supplemental B-12 and folic acid may be beneficial.