



# *Amino Acids: the Body's Fundamental Building Blocks*

Amino acids make up proteins found in every tissue of the body. They play a major role in nearly every chemical process that affects both physical and mental function. As a result, amino acids have more diverse functions than any other nutrient group, including:

- Cellular energy production
- Formation of ligaments, tendons, and bones
- Formation of antibodies
- Formation and regulation of enzymes and blood transport proteins

## **Plasma Amino Acids**

Fasting plasma levels represent a homeostatic balance between supply and utilization of amino acids. Problems in amino acid metabolism are revealed by the amino acids and metabolites that are reported in categories according to function.

### *Plasma 20 Profile*

This amino acid analysis can illuminate problems in amino acid absorption by determining essential amino acid imbalances. Additionally, evaluation of essential amino acid derivatives shows neuroendocrine metabolic disorders as well as functional vitamin and mineral deficiencies.

### *Plasma 40 Profile*

This amino acid profile features all of the benefits of the Plasma 20 Profile, but adds amino acid derivatives focusing on energy, sulfation, muscle wasting, and bone loss.

### *Customized Amino Acid Formula*

A formula for a customized amino acid blend individually formulated, based on your patient's specific test results, is provided with every plasma amino acid test result.

These customized amino acid formulations provide appropriate amounts of essential and conditionally essential amino acids, delivered in a balanced ratio to offset the risk of imbalance sometimes seen with the use of single amino acid supplements. This blend can be made by many compounding pharmacies.

## **Urine Amino Acids**

Urine amino acid analysis is better for discriminating the metabolic effects of short-term (24 to 48 hour) dietary changes than is plasma analysis. Conversely, urine analysis requires more rigorous dietary control than plasma analysis in order to give an accurate picture of a patient's steady-state amino acid sufficiency and metabolism.

### *Urine 40 Profile*

The urine amino acid profile reports levels of essential amino acids and their derivatives in categories. Functional vitamin and mineral deficiencies and diagnosis of metabolic disorders, including neuroendocrine, muscle wasting, and bone loss, can be determined from a urine amino acid analysis. A 24-hour urine collection gives the most accurate analysis of urine amino acids.

### *Metamatrix amino acid testing features:*

- A variety of specimen and profile choices.
- Customized amino acid formulations based on your patient's specific test results.
- Metamatrix quality and reliability backed by over 20 years of experience.



# Amino Acids - Plasma

Test #0010 - 40 analytes  
 Test #0011 - 20 analytes

**Specimen Requirements**

3 ml of plasma, frozen

**Method:** 0010 - ION Exchange HPLC, 0011 - HPLC

**Turnaround Time:** 7-14 days, 10 days average

**CPT Codes**

CPT #	Description
82139	Amino acids, 6 or more, quantitative

Test #0012 - 40 analytes

**Specimen Requirements**

10 ml of 24-hour urine, frozen

**Method:** ION Exchange HPLC

**Turnaround Time:** 7-14 days, 14 days average

**CPT Codes**

CPT #	Description
82139	Amino acids, 6 or more, quantitative

**Analytes Reported**

**Profile 0010**

**Essential Amino Acids**

- Arginine
- Histidine
- Isoleucine
- Leucine
- Lysine
- Methionine
- Phenylalanine
- Threonine
- Tryptophan
- Valine

**Essential Amino Acid Derivatives - Neuroendocrine Metabolism**

- Gamma-Aminobutyric Acid
- Glycine
- Serine
- Taurine
- Tyrosine

**Ammonia/Energy Metabolism**

- Alpha-Aminoadipic Acid
- Asparagine
- Aspartic Acid
- Citrulline
- Glutamic Acid
- Glutamine
- Ornithine

**Sulfur Metabolism**

- Cystine
- Cystathionine
- Homocysteine

**Additional Metabolites**

- Alpha-Amino-N-Butyric Acid
- Alanine
- Anserine
- Beta-Alanine
- Beta-Aminoisobutyric Acid
- Carnosine
- Ethanolamine
- Hydroxylysine
- Hydroxyproline
- 1-Methylhistidine
- 3-Methylhistidine
- Phosphoethanolamine
- Phosphoserine
- Proline
- Sarcosine

**Profile 0011**

**Essential Amino Acids**

- Arginine
- Histidine
- Isoleucine
- Leucine
- Lysine
- Methionine
- Phenylalanine
- Threonine
- Tryptophan
- Valine

**Essential Amino Acid Derivatives - Neuroendocrine Metabolism**

- Gamma-Aminobutyric Acid
- Glycine
- Serine
- Taurine
- Tyrosine

**Ammonia/Energy Metabolism**

- Alpha-Aminoadipic Acid
- Asparagine
- Aspartic Acid
- Citrulline
- Glutamic Acid
- Glutamine
- Ornithine

**Profile 0012**

**Essential Amino Acids**

- Arginine
- Histidine
- Isoleucine
- Leucine
- Lysine
- Methionine
- Phenylalanine
- Threonine
- Tryptophan
- Valine

**Essential Amino Acid Derivatives - Neuroendocrine Metabolism**

- Gamma-Aminobutyric Acid
- Glycine
- Serine
- Taurine
- Tyrosine

**Ammonia/Energy Metabolism**

- Alpha-Aminoadipic Acid
- Asparagine
- Aspartic Acid
- Citrulline
- Glutamic Acid
- Glutamine
- Ornithine

**Sulfur Metabolism**

- Cystine
- Cystathionine
- Homocysteine

**Additional Metabolites**

- Alpha-Amino-N-Butyric Acid
- Alanine
- Anserine
- Beta-Alanine
- Beta-Aminoisobutyric Acid
- Carnosine
- Ethanolamine
- Hydroxylysine
- Hydroxyproline
- 1-Methylhistidine
- 3-Methylhistidine
- Phosphoethanolamine
- Phosphoserine
- Proline



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