

# Separation of an Amino Acid Mixture Using a Luna™ Omega Polar C18 Column

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## Overview

Amino acids are the building blocks of proteins, making them an extremely well researched compound class. With thousands of naturally occurring amino acids available, separating and quantitating a mixture of amino acids can be challenging. While HPLC is a well characterized method for amino acid analysis, LC-MS/MS analysis of amino acids poses several challenges.

In this application note, a Luna Omega 3 µm Polar C18 column and a robust LC-MS/MS method was used to separate an amino acid mixture. The stationary phase provides a unique selectivity within a wide elution window and increased retention for both polar and non-polar analytes. The all-purpose C18 ligand provides hydrophobic interactions while a polar modified particle surface provides enhanced polar retention and aqueous stability.

## LC Conditions

**Column:** Luna Omega 3 µm Polar C18  
**Dimensions:** 150 x 0.3 mm  
**Part No.:** [00F-4760-AC](#)  
**Mobile Phase:** A: 0.1 % Formic Acid in Water  
 B: 0.1 % Formic Acid in Methanol

Gradient: Time (min)	%B
0	2
6	10
12	85
13	2
20	2

**Flow Rate:** 10 µL/min  
**Injection:** 1 µL  
**Temperature:** 40 °C  
**Detector:** QTRAP® 6500  
**System:** NanoLC™ 425 (SCIEX®)  
**Detection:** MS/MS

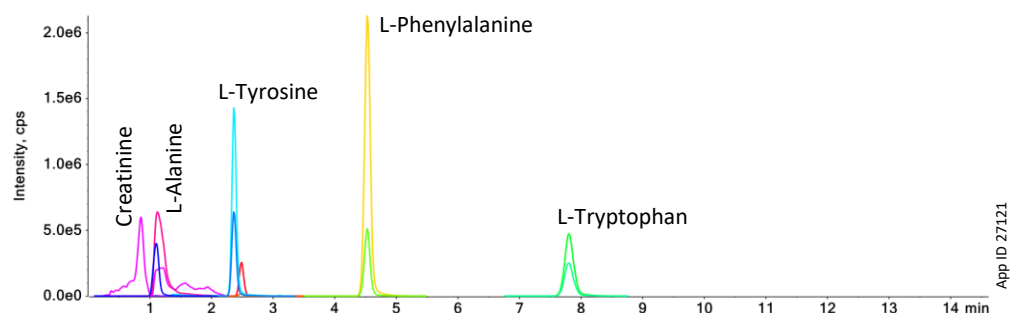
**Table 1.** Amino Acids Used and Their Respective MRM Transitions.

Metabolite	Q1 (m/z)	Q3 (m/z)
Creatinine (D3)	117	47
L-Phenylalanine (13C6)	172	126
L-Leucine (13C6)	138	91
L-Tryptophan (13C11)	216	155
L-Tyrosine (13C6)	188	142
L-Alanine (13C3/15N)	94	47

## MS/MS Conditions

**Scan Type:** MRM  
**Polarity:** Positive  
**Source:** OptiFlow® Turbo V™  
**SG1:** 20  
**SG2:** 30  
**CUR:** 30  
**Temperature:** 150 °C  
**Spray Voltage:** 5000 V

**Figure 1.** Extracted Ion Chromatogram of 6 Amino Acids on a Luna Omega 3 µm Polar C18 Column.



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