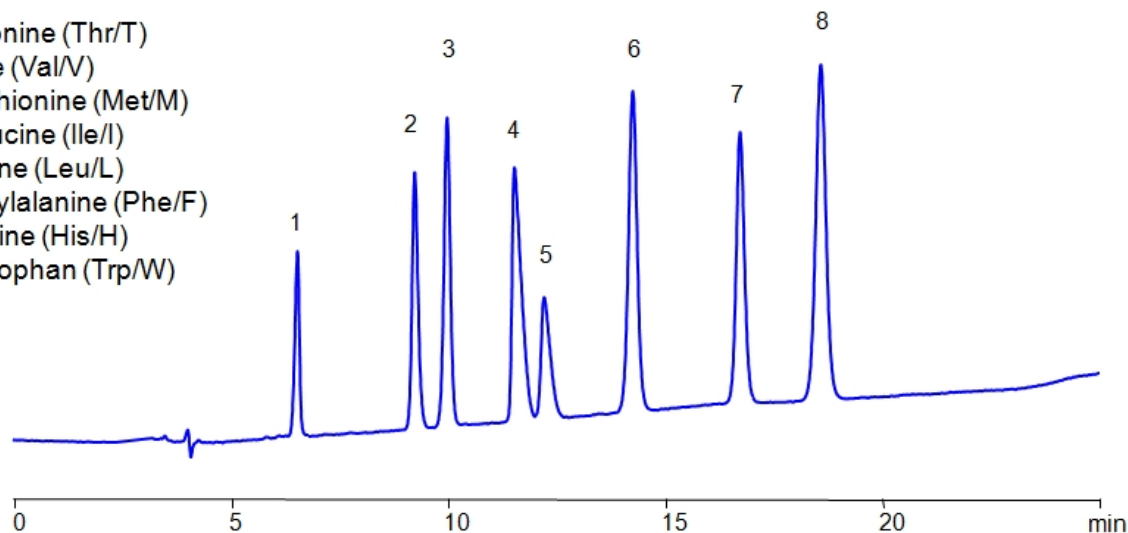


# HPLC Separation of Mixture of Essential Amino Acids on Primesep 100 Column

<https://sielc.com/hplc-separation-of-mixture-of-essential-amino-acids>

## Chromatogram

1. L-Threonine (Thr/T)
2. L-Valine (Val/V)
3. DL-Methionine (Met/M)
4. L-Isoleucine (Ile/I)
5. L-Leucine (Leu/L)
6. L-Phenylalanine (Phe/F)
7. L-Histidine (His/H)
8. L-Tryptophan (Trp/W)



**Column:** Primesep 100  
**Column size:** 4.6 × 250 mm, 5 µm  
**Mobile phase:** MeCN /H<sub>2</sub>O  
**Buffer:** H<sub>2</sub>SO<sub>4</sub>  
**Flow rate:** 1 mL/min  
**UV detection:** 200 nm

Time, min	%MeCN	%H <sub>2</sub> O	%H <sub>2</sub> SO <sub>4</sub>
0.00	25	75	0.05
25.00	25	75	0.20

## Description

High Performance Liquid Chromatography (HPLC) Method for Analysis of Valine , D-Valine , Methionine , L-Methionine , Isoleucine , D-Isoleucine , DL-Isoleucine , L-Isoleucine , D-Leucine , Phenylalanine , Histidine , L-Histidine hydrochloride monohydrate , Tryptophan , Amino Acids , L-Threonine .

L-Threonine is an essential amino acid with the chemical formula C<sub>4</sub>H<sub>9</sub>N<sub>1</sub>O<sub>3</sub> . It cannot be produced within the body and must be obtained through consuming it. It's found in many protein-rich foods, including but not limited to eggs, meat, dairy, legumes, and seeds. It is necessary in the body as a building block of protein like collagen and elastin. The two proteins are crucial for skin, hair, and connective tissue.

L-Valine is an essential amino acid with the chemical formula C<sub>5</sub>H<sub>11</sub>N<sub>1</sub>O<sub>2</sub> . It cannot be produced within the body and must be obtained through consuming it. It's found in foods including but not limited to nuts, legumes, whole grains, and seeds. It is especially beneficial for athletes. It is important for muscle repair, growth, and energy regulation.

DL-Methionine is an essential amino acid with the chemical formula C<sub>5</sub>H<sub>11</sub>NO<sub>2</sub>S . It cannot be produced within the body and must be obtained through consuming it. It is required for protein synthesis. It also helps build and repair tissue including, but not limited to, skin, hair, muscles, and nails. In a veterinary context, DL-Methionine is used to address bladder issues in dogs.

L-Isoleucine is an essential amino acid with the chemical formula C<sub>6</sub>H<sub>13</sub>NO<sub>2</sub> . It cannot be produced within the body and must be obtained through consuming it. It is a building block of protein that are essential for muscle growth, repair, and other

bodily functions. It also helps regulate blood sugar levels and supports the immune system. It is found in foods like meat, fish, eggs, dairy, beans, lentils, nuts, and seeds.

L-Leucine is an essential amino acid with the chemical formula  $C_6H_{13}NO_2$ . It cannot be produced within the body and must be obtained through consuming it. It stimulates production of protein that are essential for muscle building and repair. Meats are the easiest way to get L-Leucine in significant amounts.

L-Phenylalanine is an essential amino acid with the chemical formula  $C_9H_9NO_2$ . It cannot be produced within the body and must be obtained through consuming it. It is typically found in high protein foods such as meat, eggs, and fish. Outside of being important for creation of protein, it is also used in treatment for skin disorders and depression.

#### Method Parameters

<b>Mobile Phase</b>	MeCN/H <sub>2</sub> O – 25/75%
<b>Buffer</b>	Gradient H <sub>2</sub> SO <sub>4</sub> 0.05-0.2% 25 min
<b>Flow Rate</b>	1.0 ml/min
<b>Detection</b>	UV, 200 nm
<b>Class of Compounds</b>	Drug, Acid, Hydrophilic, Ionizable, Vitamin, Supplements, Amino acid
<b>Analyzing Compounds</b>	Valine,D-Valine,Methionine,L-Methionine,Isoleucine,D-Isoleucine,DL-Isoleucine,L-Isoleucine hydrochloride monohydrate,Tryptophan,Amino Acids,L-Threonine

#### HPLC Column Used

**Primesep 100, 4.6 x 250 mm, 5 µm, 100 Å, dual ended**

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