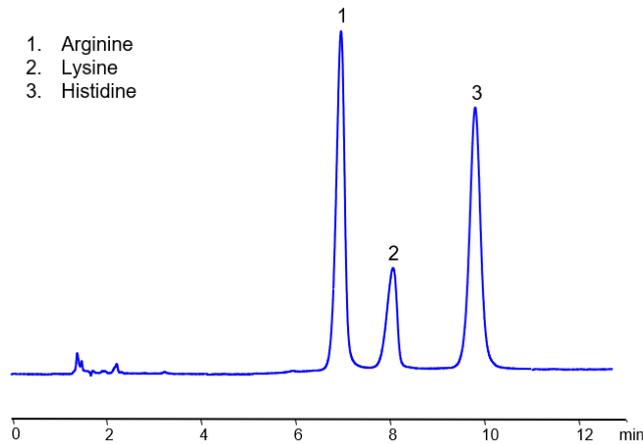


## HPLC Method for Analysis of Arginine, Lysine and Histidine Amino Acids on BIST B+



<b>Column:</b>	BIST™ B+
<b>Column size:</b>	4.6 × 150 mm, 5 μm
<b>Column part number:</b>	TBP-46.150.0510
<b>Mobile phase:</b>	MeCN/H <sub>2</sub> O - 70/30%
<b>Buffer:</b>	H <sub>2</sub> SO <sub>4</sub> - 0.2%
<b>Flow rate:</b>	1.0 mL/min
<b>Detection:</b>	UV 210 nm

Arginine is a semiessential amino acid with the chemical formula  $(\text{H}_2\text{N})(\text{HN})\text{CN}(\text{H})(\text{CH}_2)_3\text{CH}(\text{NH}_2)\text{CO}_2\text{H}$ . It was originally isolated from yellow lupin seedlings in 1886 by Ernst Schulze and Ernst Steiger. Now, commercially, it is obtained through fermentation. Arginine can be typically found in meat, poultry, and fish. You can find detailed UV spectra of Arginine and information about its various lambda maxima by visiting the following link .

Lysine is an essential amino acid with the chemical formula  $\text{C}_6\text{H}_{14}\text{N}_2\text{O}_2$ . Its primary role is in proteinogenesis, but it also plays a part in uptake of essential mineral nutrients, production of carnitine, and histone modification. Lysine is known in pop culture thanks to Jurassic Park, in which dinosaurs were genetically altered to be unable to produce lysine. While in the story, this made the dinosaurs be unable to survive in the wild due to needing the lysine supplements provided by the staff at Jurassic Park, no real animal can produce lysine naturally. Lysine is another essential amino acid typically found in meat, and also cereal grains. You can find detailed UV spectra of Lysine and information about its various lambda maxima by visiting the following link.

Histidine is an essential amino acid with the chemical formula  $\text{C}_9\text{H}_9\text{N}_3\text{O}_2$ . It cannot be produced within the body and must be obtained through consuming it. It is fundamental for repair of damaged tissue, growth of muscles, and making of blood cells through biosynthesis of protein. Outside of protein, it also has the unique property of being able to act as a buffer to help maintain stable pH levels in the body. Sources of it include meat, fish, dairy products, beans, and nuts. Histidine, is also typically found in meat, poultry, and also cereal grains (like rice, wheat, and rye). You can find detailed UV spectra of Lysine and information about its various lambda maxima by visiting the following link.

Basic amino acids, like Arginine , Lysine , Histidine can be difficult to separate and retain in typical reverse-phase chromatography. Using SIELC's newly introduced BIST™ method, these three essential amino acids, which protonate in water, can be retained on a positively-charged anion-exchange BIST B+ column. There are two keys to this retention method: 1) a multi-charged, negative buffer, such as Sulfuric acid (H<sub>2</sub>SO<sub>4</sub>), which acts as a bridge, linking the positively-charged amino acid analytes to the positively-charged column surface and 2) a mobile phase consisting mostly of organic solvent (such as MeCN) to minimize the formation of a solvation layer around the charged analytes. Using this new and unique analysis method, Arginine, Lysine, and Histidine can be retained and UV detected at 210 nm.

### Method Parameters

<b>Column</b>	BIST B+, 4.6 x 150 mm, 5 µm, 100 Å, dual ended
<b>Mobile Phase</b>	MeCN – 70%
<b>Buffer</b>	H <sub>2</sub> SO <sub>4</sub> – 0.2%
<b>Flow Rate</b>	1.0 mL/min
<b>Detection</b>	UV 210 nm

Quelle: <https://sielc.com/hplc-method-arginine-lysine-histidine-amino-acids>