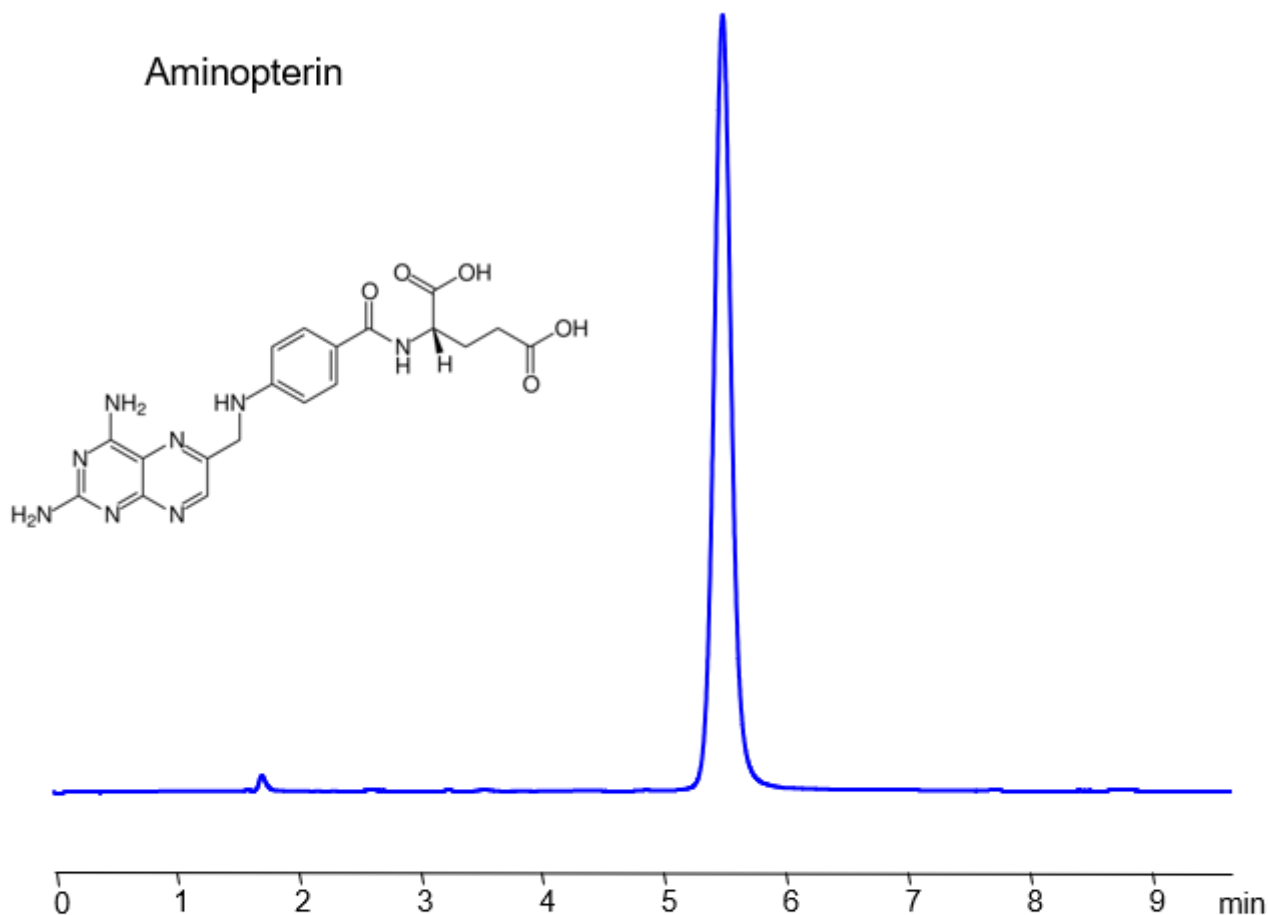


HPLC Method for Analysis of Aminopterin on Primesep 100 Column

<https://sielc.com/hplc-separation-of-aminopterin>

Chromatogram



Column:	Primesep 100
Column size:	4.6 × 150 mm, 5 µm
Column part number:	100-46.150.0510
Mobile phase:	MeCN/H ₂ O – 50/50%
Buffer:	Ammonium formate pH 3.0 – 20 mM
Flow rate:	1.0 mL/min
Detection:	UV 290 nm

Description

· High Performance Liquid Chromatography (HPLC) Method for Analysis of Aminopterin .

Aminopterin is a chemical compound with the chemical formula C₁₉H₂₀N₈O₅. It belongs to the class of drugs known as antifolates. It's a derivative of folic acid (vitamin B9) and works by inhibiting an enzyme called dihydrofolate reductase (DHFR). This enzyme plays a crucial role in the synthesis of nucleotides, the building blocks of DNA and RNA. By inhibiting this enzyme, aminopterin interferes with cell growth and division.

Aminopterin was one of the first antifolates to be used in cancer chemotherapy, particularly in the treatment of childhood leukemia. However, it has largely been replaced by methotrexate, a similar but less toxic compound. Methotrexate is still widely used in the treatment of various cancers and autoimmune diseases.

Despite its historical use in cancer treatment, aminopterin is extremely toxic and can cause severe side effects, including damage to the bone marrow, gastrointestinal tract, and skin. As a result, it is not typically used in human medicine today.

In addition to its role in chemotherapy, aminopterin has also been used in research to create what are known as “conditionally immortal” cell lines. It’s important to note that the use of aminopterin should always be overseen by professionals due to its high toxicity.

You can find detailed UV spectra of Aminopterin and information about its various lambda maxima by visiting the following link.

Aminopterin retained and analyzed using a reverse-phase Primesep 100 column. The mobile phase for this method consists of water, acetonitrile (MeCN), and ammonium formate, which serves as a buffer. This analytical method can be monitored using UV detection at 290 nm, an Evaporative Light Scattering Detector (ELSD), or any other evaporative detection method such as Charged Aerosol Detection (CAD) or Electrospray Ionization Mass Spectrometry (ESI-MS)

Method Parameters

Mobile Phase	MeCN/H ₂ O -50/50%
Buffer	Ammonium formate pH 3.0 – 20 mM
Flow Rate	1.0 ml/min
Detection	UV 290 nm
Peak Retention Time	5.08 min
Sample concentration	0.02 mg/ml
Injection volume	5 µl
Sample diluent	H ₂ O + NaOH
LOD	0.04 ppm
Class of Compounds	Drug, Aminopterin, Antifolates
Analyzing Compounds	Aminopterin

HPLC Column Used

Primesep 100, 4.6 x 150 mm, 5 µm, 100 Å, dual ended

[Order this column at hplc-shop.de →](#)