THE NEW THIRD GENERATION 3

Configuration

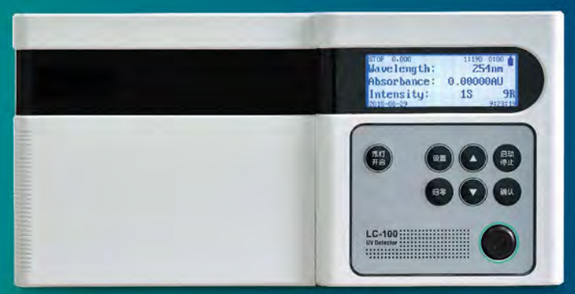
Isocratic System, Binary Gradient System and Quaternary Low-Pressure Gradient System

Column Oven

The integrated temperature control and solvent tray makes the unit both attractive and practical.

Detector Unit

Detector Units include: UV/ UV-VIS, FLD, DAD, RID, ELSD



Infusion Unit

Infusion Units include: Analytical type, Semi-preparative type, High pressure Semi & Preparative type.

Better Configuration and Multiple Options

The new LC-100 covers analytical, semi-preparative and preparative types.

The workstation software offers two optional versions according to customer's needs . One of them can meet a variety of certification requirements, including GMP, FDA, 3Q, etc. Optional manual sample injector and auto-sampler are also provided.

Reliable and stable, visible touch of high quality, all reflect superb

The professional team built the New LC-100, all parts through rigorous selection, from the exterior of each component shine began to reflect the strength beyond peers.

Strict production standards and management make LC-100 has always been a "tried & trusted" Chinese high-end product.

New Function Rich configuration

The new optional, Solvent Manager units can easily switch4 to 8 kinds of solvent base on binary gradient system. There are several configurations available for user selection.

Program and Structure optimization

Base on years of experience and application requirements, program and structure has been optimized. The new solvent pressure real-time compensation control function makes the detection result more accurate. As well as one-piece check valve makes the infusion more stable, and the maintenance more convenient.

LC-100
HPLC System

Intelligent ARCUS 5 Auto-sampler

Arcus 5 is equipped with control software can easily operate via PC. Sample analysis, dilution and mixing, and other steps in processing can be performed conveniently and quickly by the user-friendly design facilitates

Chromatographic Workstation Software

Two kinds of chromatographic workstation software are provided to fulfill different needs.
You can choose the most suitable system according to the demands of your application.

THE NEW THIRD GENERATION

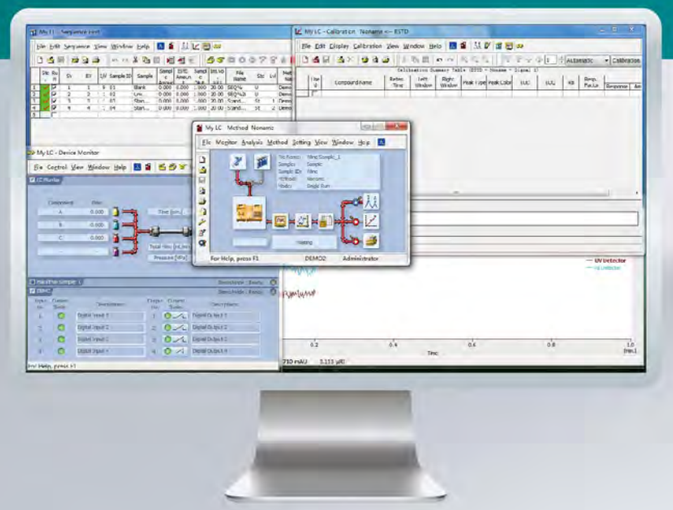
Workstation Software - Professional Version

This workstation is custom-made by DataApex specializing in professional chromatography software. This company has provided professional chromatographic workstation software to numerous internationally renowned chromatograph manufacturers. A variety of high precision 24-bit chromatography signal acquisition modes enables digital control of the instruments .

The workstation conforms to data GMP certification, FDA certification, Installation Qualification/Operational Qualification (IQ/OQ), System Suitability Test (SST) and other specifications intended to ensure data validity and security. Efficient batch processing streamlines the whole process of instrument control, auto-sampler sequence acquisition, automatic integration calibration, and reporting output. It also features post-processing, chromatogram comparison, re-calibration, data input and output, and three-dimensional chromatogram processing.

The feature-rich interface is designed to meet diverse analytical demands. The workstation displays complex functions with graphs and arranges icons logically in the admin window to match the actual instrument sequence.

The software can control up to 400 instruments that are compatible with each other, and can collect one to four independent detector signals simultaneously. You can establish a high performance general chromatographic workstation with multi-channel analysis and multi-user access.



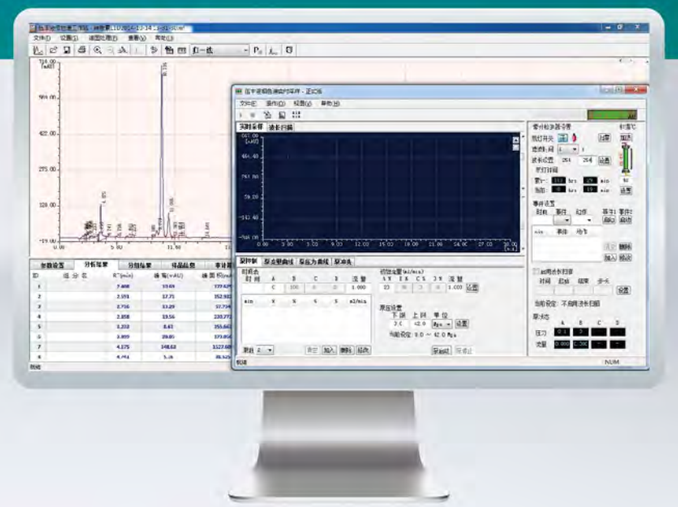
Workstation Software - Standard Version

WS100 chromatographic workstation supports RS232 serial port or USB interface as well as all digital signal output modes. It allows you to configure all of your instruments and fully-automate your system. The user interface is well-organized and straight-forward, providing you with all the most common analytic functions as well as some frequently-used advanced functions, such as spectrum scanning, variable wavelength scanning, etc. The streamlined interface allows you to seamlessly integrate chromatograms into professional presentations in the post-processing stages. This concise, but feature-rich software will satisfy most users' requirements.

Gradient Elution
You can manage gradient elution easily and accurately just by entering mobile phase ratio, flow rate, and gradient time in the corresponding lists. In addition, the software provides a pump flow curve so you can adjust gradient settings easily. This also allows you to follow the progress of gradient operations directly.

Spectrum Scanning
The software provides a spectrum scanning function for testing the deuterium lamp. First, it detects the light intensity of the deuterium lamp under different wavelengths, and then you can decide whether it is necessary to replace the deuterium lamp based on the results. Second, you can determine the wavelength error by the positions of two points on the chromatogram, 486 nm and 656 nm.

Event Relay
The event relay is controlled by a temporal program to help you perform all the required functions, e.g. switch on the conversion valve to separate and recycle the mobile phase. Many of these functions are not available in other popular workstation systems.



Infusion Unit

Infusion Units include: Analytical type, Semi-preparative type, High pressure Semi & Preparative type.

The Semi-PRE HPLC system can fulfill most analysis and preparation requirements. The High pressure preparation HPLC system is mainly used in small-scale sample preparation and purification in laboratories.

- The new upgraded pump reserves the classic reciprocating parallel pump design to provide accurate flow and minimize pressure fluctuations.
- The structure of one-piece check valve is simple and provides excellent leak resistance.
- The piston rod can be retracted automatically so you to replace the piston seal easily without opening the instrument case.
- New piston rinse function adopts dual-piston seals design, it is provided for buffer salt systems.
- Less noise and higher reliability.
- Extended warranty service and more comprehensive after-sales service to assist with your analysis.

Pumps connected in parallel with reciprocating dual pistons

Unique check valve design

Specifications of Infusion Unit

Analytical system

Model	P100 (Analytical)
Liquid Infusion System	Dual-piston reciprocating parallel pump, equipped with a binary high-pressure mixer
Flow Rate Range	0.001-10 mL/min
Max Output Pressure	42 MPa
Flow Accuracy	≤ ±1%
Flow Precision	RSD<0.07%
Qualitative Repeatability	RSD_6 ≤ 0. 1% (naphthalene/methanol standards)
Quantitative Repeatability	RSD_6 ≤ 0 .3% (naphthalene/methanol standards)
Pressure Fluctuation	0.1 MPa
Power Supply	220V/110V

Semi-preparation system

Model	P100SP (40 ml)semi-preparation system
Flow Rate Range	0.01 -40 mL/min
Prsssure Range	0-25 MPa
Flow Accuracy	± 2%
Flow Rate Accuracy	RSD<0.1%

High pressure semi-preparation system and High pressure preparation system

Model	P100HSP (50 mL) high pressure semi-preparation system	P100HP (120 mL) high pressure preparation system
Flow Rate Range	0.01-50 mL/min	0.01-120 mL/min
Prsssure Range	0-42 MPa	
Flow Accuracy	± 2%	
Flow Rate Accuracy	RSD <0.2%	

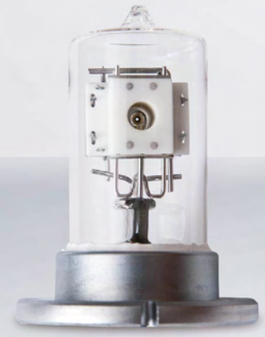
Detector Unit

Detector Units include: UV/ UV-VIS, FLD, DAD, RID, ELSD

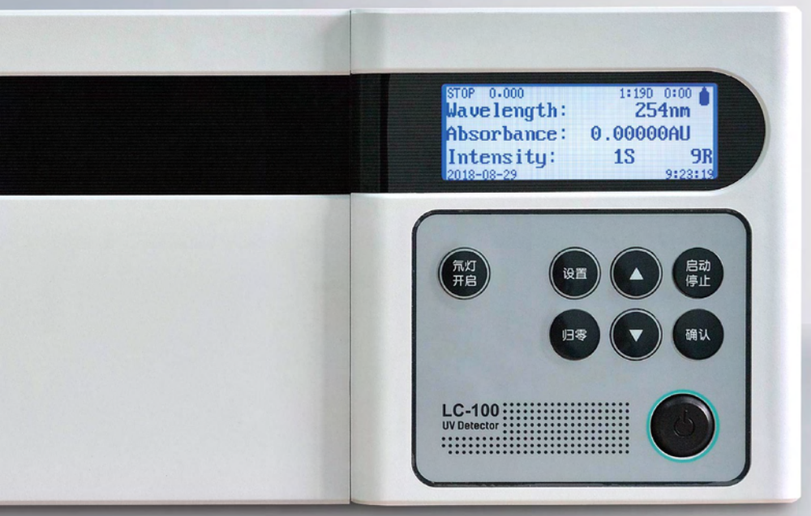
Wufeng's UHPLC design concepts were integrated into the upgraded UV100 UV detector to minimize distortion due to system errors.

- Fully digital exchange system prevents the signal distortion and interference, compare with other UV detectors require multiple analog-digital conversions.
- Flow cell designed with dual parallel conical bores significantly increases the signal-to-noise ratio over conventional devices.
- Deuterium lamp upgraded to 2000-h deuterium lamp with longer service life and higher sensitivity. Wavelength range is 190 - 680 nm.Tungsten lamp option covers the visible light region. Wavelength range is 190 - 900 nm.
- Minimum detectable concentration is $3x10^{-9}$ g/mL, for excellent detection sensitivity.

Flow Cell



D2 Lamp



Specifications of Infusion Unit

UV Detector

Model	UV-100 UV detector	UV-VIS100 detector	UV-100S preparative UV detector
Flow Cell Volume	8 μL	8 μL	6 μL
Light Source	D2 lamp	D2 lamp＋W lamp	D2 lamp
Wavelength Range	190-680 nm	190-900 nm	190-680 nm
Spectrum Bandwidth	8 nm		
Wavelength Accuracy	±1 nm		
Wavelength Precision	Below 0.1 nm		
Noise	≤0.25 × 10^{-5}AU (static)/± 1x10^{-5}AU (dynamic, under given conditions)		
Drift	≤ 0.4×10^{-4}AU/h (static) / ≤ 2 × 10^{-4}AU/h (dynamic, under given conditions)		
Minimum Detectable Concentration	3x10^{-9} g/mL (naphthalene/methanol solution)		

RI Detector

Model	RI 100
Effective range for refractive	1.00 – 1.75 RIU
Temperature control optical bench	7°C above ambient temperature 35 °C up to 55 °C in 1 °C steps
Noise（Analog signal）	7 nRIU (± 7 μV)
Noise（Digital output）	3 nRIU (± 3 μV)
Drift	< 1 μRIU/h (< 1mV/h)
Signal range（recorder）	Selectable: 10 mV, 100 mV, 1000 mV
Flower cell volume	4 μL / Micro 9 μL / Analytically 13 μL / Semi-preparative
Max Pressure	6 bar (0.6 MPa)
Max Flow rate	0.1 – 3.0 mL/min

ELSD Detector

Model	ELSD 100
Light Source	Laser diode with correction optical mirror, 670 nm, and maximum output being less than 5mW, in compliance with FCC safety standards
Detection Element	Silicon photoelectric diode
Temperature Range	Room temperature to 110°C
Nebulizer Gas	Nitrogen is optimal, maximum 3.0L/min
Pressure Range	15-90 psi
Mobile Phase Flow Rate	0-5 mL/min
Analog Output	0-1 V or 0-10 mV
Parameter	Use keyboard to enter operation parameters
Display	LCD

DAD100 Detector

Wavelength Range	200-900nm (200-600*) Above 600 nm just for W lamp
Arrays	512
Spectrum Bandwidth	10nm
Light Source	D2 lamp + W lamp
Noise	±5×10^{-5}AU
Drift	5×10^{-4}AU
Sample Rate	max 100Hz
Interface	LAN USB R232

FLD100 Detector

Flow Cell Volume	16μL
Excitation Wavelength	200-890 nm
Emission Wavelength	210-900 nm
Wavelength Precision	3nm
S/N	＞720

According to the application requirements, other special detectors can be selected by users.

Column Oven

The integrated temperature control and solvent tray makes the unit both attractive and practical. The oven temperature is highly stable with a temperature range from 5°C greater than room temperature to 80°C. The oven ensures good retention time reproducibility, and it can accommodate up to two HPLC columns for series analysis. The system is controlled with digital technology, and all operations can be conducted via computer.

Product Specifications

Model	CO100 column oven
Temperature control principle	Air circulation heating
Temperature range	5°C above room temperature -80°C
Temperature accuracy	±0.2°C (test at 35°C)
Temperature stability	± 0.1 °C
HPLC columns installed	2 (Maximum 250mm)
Power supply	220V/110V

Intelligent ARCUS 5 Auto-sampler

- Arcus 5 is equipped with control software can easily operate via PC. Sample analysis, dilution and mixing, and other steps in processing can be performed conveniently and quickly by the user-friendly design facilitates.
- The use of the internationally advanced metering pump with non-wearing materials enables the number of sampling to reach 1 million times, ensures the long-term stability of the analysis data, and avoids the troubles of regularly replacing the accessories.
- Advanced self-protection functions with a variety of sensors completely avoid wrong operation, wrong puncture, leakage, pipe blockage and other problems. Arcus 5 give early warning to operators to avoid damage to equipment.
- The 0.1 - 1000μL injection volume ensures that both large and small volume samples can be injected with high precision.
- It employs short highly efficient injection cycle consisting of rapid repetitive injections to save time.
- Various optimizations reduce cross contamination among samples.
- Arcus5 auto-sampler is compatible with most types of HPLC systems from different suppliers.

Patent No.:
2012.2.0010632.2
2012.2.0540207.4
2011.2.0431981.7
2013SR056355

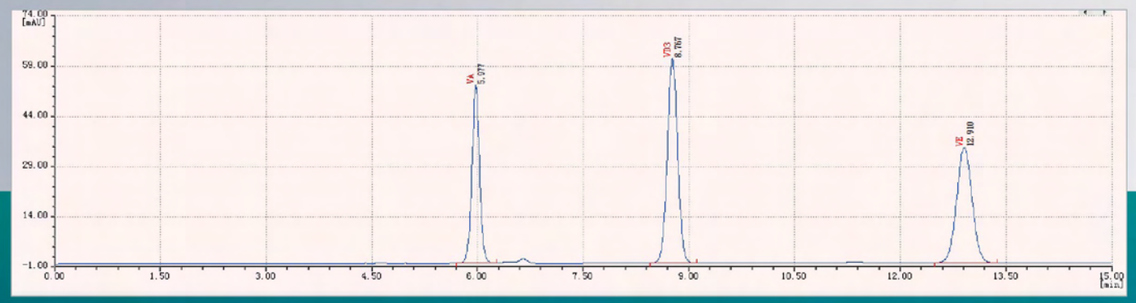
Specifications of the ARCUS 5 Auto-sampler

Model	ARCUS-5 Analytical (I)
Sample Loading	Standard tray (1) 2 ml x 54 vials (default standard configuration) Expanded tray (2) 10 ml x 15 vials (3) 4 ml x 35 vials Each side could be set with one of the tray types and the tray in one side could be different from the other side; the system could automatically identify the tray type; maximum108 vials are available (2 mL vial)
Vial Height	H≤ 52mm (including septa and cap-mat)
Metering Pump Volume	200μL (precision: 0.1μL)
Injection Mode	Full loop injection Partial loop injection No waste injection
Automatic Protection	Vial-missing alarm, sample needle fault alarm, pipeline jammed alarm, and leakage alarm
Power Supply	AC 115-230V, 50/60Hz
System Test Quantitative Repeatability	Full loop injection: $RSD_6 \leq 0.3\%$ Partial loop injection: $RSD_6 \leq 0.5\%$ (injection volume≥ 10μL) No waste injection: $RSD_6 \leq 1.0\%$ (injection volume≥ 10μL)
Memory Effect	≤ 0.005% (designated washing procedure)
Maximum Pressure	40 Mpa (conventional) 69 Mpa (ultra-high performance system)

Application Examples in Various Fields

Application in Food Industry (Vitamin Analysis)

Recommended configuration:Isotropic



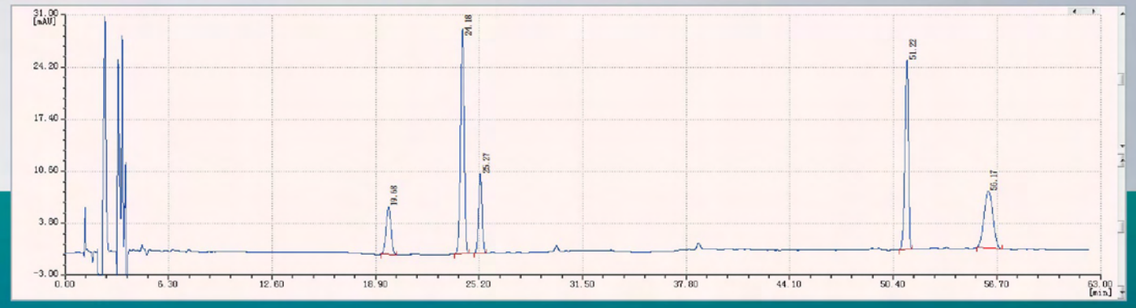
Sample: Vitamin A, D andE standards
HPLC column: EXFORMMA C18, 5μm, 4.6×250mm
Temperature: 30°C
Detection wavelength: 0-7.5-10.5min,326-264-285nm

Injection volume: 20μL
Mobile phase: Methanol
Flow Rate: 1.000 mL/min

1. Vitamin A 2. Vitamin D3 3. Vitamin E

Application in Natural Medicine Analysis (Panax Notoginsenoside)

Recommended configuration:Binary gradient system



Sample: Notoginsenoside, ginsenoside
HPLC column: EXFORMMA RSZG-C18, 5μm, 4.6×250mm, 5GEIC0125
Temperature: 30°C
Flow rate: 1.0mL/min
Detection wavelength: 203nm

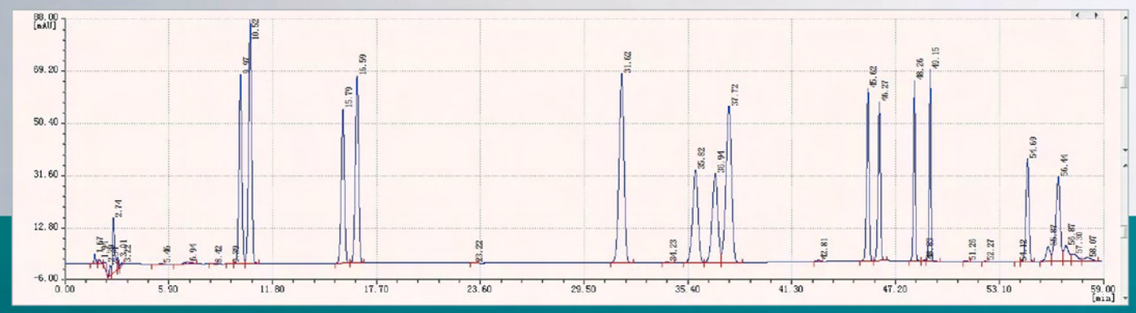
Injection volume: 10 μL
Mobile phase: A: acetonitrile B: water
Gradient mode:

Time (min)	A%	B%
0	19	81
12	19	81
60	36	64

1. Notoginsenoside R1 2. Ginsenoside Rg1 3. Ginsenoside Re
4. Ginsenoside Rb1 5. Ginsenoside Rd

Application in Industry Product Test (Plasticizer Analysis)

Recommended configuration:Binary gradient system



Sample: Plasticizer standard
HPLC column: EXFORMMA BP-C18, 5μm, 4.6×250mm
Wavelength: UV 242 nm
Temperature: 30°C
Injection volume: 10μL
Gradient mode:

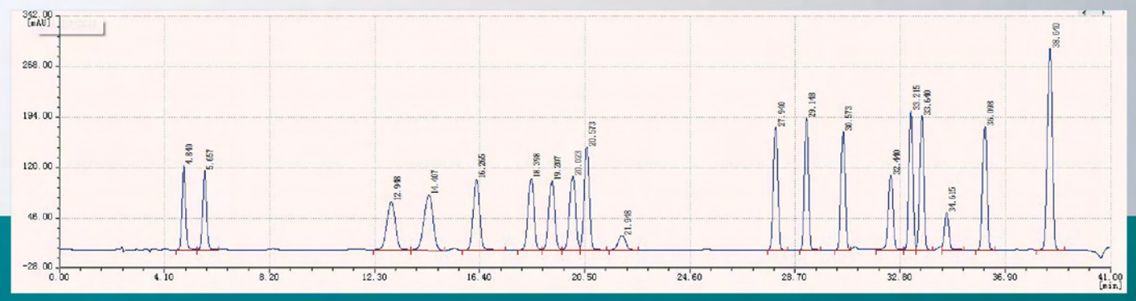
Time (min)	A: water	B: 100% acetonitrile
0	60	40
14	42	58
35	30	70
45	0	100
55	0	100
56	60	40

Peak time:

No.	Peak time (min)	Chinese Name	English Name	Abbr.
01	9.97	邻苯二甲酸二-(2-甲氧基)乙酯	Dimethyl phthalate	DMP
02	10.52	邻苯二甲酸二甲酯	Diethyl phthalate	DEP
03	15.79	邻苯二甲酸二-(2-乙氧基)乙酯	Diisobutyl phthalate	DIBP
04	16.59	邻苯二甲酸二乙酯	Dibutyl phthalate	DBP
05	31.62	邻苯二甲酸二苯酯	Bis(2-methoxyethyl) phthalate	DMEP
06	35.82	邻苯二甲酸二异丁酯	Bis(4-methyl-2-pentyl)phthalate	BMPP
07	36.94	邻苯二甲酸丁基苄基酯	Bis(2-ethoxyethyl) phthalate	DEEP
08	37.72	邻苯二甲酸二丁酯	Dipentyl phthalate	DPP
09		邻苯二甲酸二-(2-丁氧基)乙酯	Dihexyl phthalate	DHXP
10	45.62	邻苯二甲酸二戊酯	Benzyl butyl phthalate	BBP
11	46.27	邻苯二甲酸二环己酯	Bis(2-n-butoxyethyl)phthalate	DBEP
12	48.26	邻苯二甲酸二-(4-甲基-2-戊基)酯	Dicyclohexyl phthalate	DCHP
13	49.15	邻苯二甲酸二己酯	Bis(2-ethylhexyl) phthalate	DEHP
14	54.69	邻苯二甲酸二-(2-乙基)己酯	Diphenyl phthalate	-
15	56.44	邻苯二甲酸二正辛酯	Di-n-octyl phthalate	DNOP
16		邻苯二甲酸二壬酯	Dinonyl phthalate	DNP

Application in Feed Industry (Amino Acid Analysis)

Recommended configuration:Binary gradient system



Sample Name: Amino acid standards
HPLC column: EXFORMMA, 5μm, 4.6×250mm;
Flow rate: 1.0mL/min
Temperature: 40°C
Wavelength: 254nm
Injection volume: 5μL
Mobile phase: A: 0.1mo/L sodium acetate solution (pH 6.5): acetonitrile = 93:7
B: = 20:80

Gradient mode:

Time (min)	A%	B%
0.01	100.0	0.0
11	93.0	7.0
13.9	88.0	12.0
14	85.0	15.0
29	66.0	34.0
32	30.0	70.0
35	0.0	100.0
42	0.0	100.0
45	100.0	0.0
60	100.0	0.0

1 aspartate 2 glutamic 3 serine 4 glycine 5 histidine 6 arginine 7 threonine 8 alanine 9 proline 10 tyrosine 11 valine 12 methionine 13 cystine 14 isoleucine 15 leucine 16 norleucine 17 phenylalanine 18 lysine