Committed to High Quality Products

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Reliable & steady infusion and detection system

Convenient & accessible appearance, humanized design

Visible & tangible high quality, leading craft among domestic peers

LC-1000

LC-1000 liquid chromatography system

Domestic leading processing techniques make every detail crafted, manifesting high quality from inside out

Appearance designed by famous foreign industrial design company best Ets our aesthetic taste with more humanized panel design.

The case is made of corrosion-resistant material to avoid corrosion caused by solvent leakage during long-term usage.

Wider varieties of liquid phase configurations provide multiple choices

The new LC-100 adds semi-prepared, prepared and quaternary low pressure gradient systems to the original isocratic and gradient conEgurations. Apart from UV detectors, UV-visible detectors, differential detectors, Luorescent detectors and evaporative light-scattering detectors are also available now.

Liquid phase conEguration of the automatic sample injector is further improved to offer both simpliEed and professional versions of workstations, providing customers with more space for diverse options.

Real-time display of unit operation & comprehensively humanized consumable replacement

The workstation reversely controls each unit operation (except for certain special detectors) and displays the performance of each component in real time. Replacement of consumables is comprehensively humanized. The deuterium lamp is equipped with an orientation module and can now be replaced without adjusting the light path. The plunger rod is self-retracted to avid damage during change of seal rings.

Software system of the chromatography workstation

Two versions of software are available for selection to meet the needs of different users.

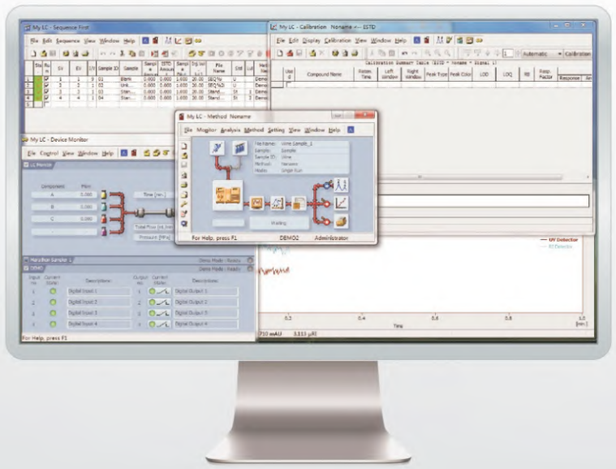
Workstation software–the Professional Version

This workstation is customized for Anaspec by a world famous chromatography professional software company. The company has supplied multiple internationally known chromatography manufacturers with professional chromatography software. The software is possessed with a variety of 24-bit signal acquisition patterns of high precision and has digital control over the chromatographic instrument as well as the automatic sample injector.

The workstation is in accordance with the data GMP certifcation and FDA certifcation. It also meets the requirements of data validity and safety, the system certiEcation tool (IQ/OQ) and system suitability test (SST). The highly efficient batch processing function enables the ongoing processing of instrument control, sequence collection by the automatic sample injector, automatic integral calibration and output report. Functions including robust post-processing, chromatogram comparison, recalibration, data input and output, and 3D chromatogram processing are all readily available.

The interface featured with multiple functions satisEes various analytical needs. The workstation makes the complex functions graphic and arranges the icons in the management window according to the instrument combination sequence in reality to make them clear and transparent.

The software is compatible to control instruments of more than 400 models and can acquire signals from one to four independent detectors simultaneously. It is a multi-channel, multi-user general chromatography workstation of high performance.



Workstation software–the Simplified Version

The WS100 chromatography workstation adopts the RS232 serial port or USB connection. It uses all-digital signal output to reversely control each part of the instrument comprehensively realizing automation and integration of the system. Functions on the interface are simpliEed. Besides those serving routine analysis, there are also common advanced functions including spectrum scanning and variable wavelength scanning. Professional integral processing can still be done to the chromatograph during post-processing. The simpliEed interface design is more accessible to users while satisfying the needs of the majority of them.

Gradient elution

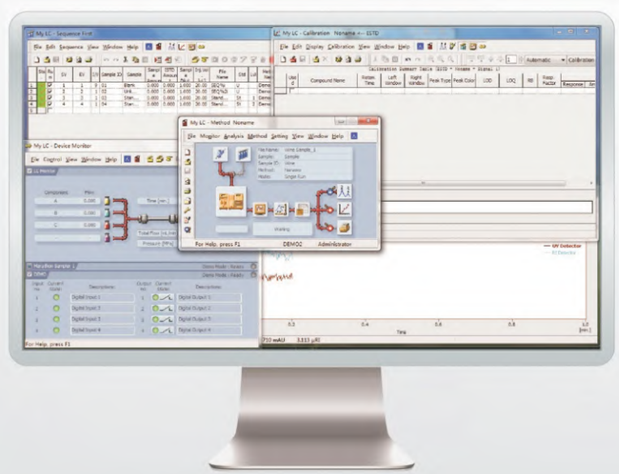
Users can perform gradient elution simply and accurately by entering mobile phase ratios, Low and transformation time into related lists. The software also provides corresponding pump Low curves to help users set the gradients and acquire more visualized gradient running progress.

Spectrum scanning

The software provides the function of spectrum scanning in order to test the deuterium lamp. Users can intuitively detect light intensities of the deuterium lamp under different wavelengths and determine whether replacement of the lamp is necessary. They can also judge the indication error of wavelength through positions of the 486nm and 656nm points.

Event relay

The event relay which adopts programmed control in time enables various functions users need, including shifting the conversion valve to isolate and recycle the mobile phase. These functions are not realized by any popular workstation at present.



Brand new P1000 high pressure constant flow pump

The P1000 high pressure constant flow pump is a product widely praised by its users.

- This upgrade reserves the classic design of reciprocating parallel pumps. It has the features of high Low precision and small pressure pulsation.
- Our original design of a one-way valve is an integral structure comprising a valve core, a gem ball seat and a gem ball. It is advantageous in its simple structure and good air-tightness.
- The upgraded plunger rod is self-retracted. The seal ring can now be changed easily without opening the instrument case.
- Pumps with the function of post-column cleaning are specially introduced to users using buffer salt systems. The design adopts two seal rings.
- The seal rings of the plunger rod and the core of the one-way valve can both be examined and repaired conveniently, which facilitates maintenance of the product.
- We provide our customers with more convenient service, smaller noise and higher reliability.
- Extended warranty periods and more comprehensive after-sales service facilitate your tests.

Parameter

Model:	P100 liquid delivery unit
Liquid delivery system:	Double-plunger parallel reciprocating transfusion, autopulse suppression system
Flow rate:	0.001~9.999ml/min
Maximum working pressure:	42MPa
Flow rate accuracy:	<±0.3%(water, 20C°， 1ml/min, 10MPa)
Qualitative reproducibility:	<0.1 %(1ml/min, 10MPa)
Quantitative reproducibility:	<0.3 %(1ml/min, 10MPa)

Wider varieties of liquid phase configurations provide multiple choices

Semi-prepared pumps, high-pressure semi-prepared and prepared pumps

The semi-prepared LC systems are compatible with the requirements of both analysis and preparation, while high-pressure prepared LC systems are mainly used for preparation puriEcation and reEnement of relatively small Low in laboratories.

LC systems

Parameter of semi-prepared LC systems

Model:	LC-100HP(40mL)semi-prepared
Flow rate:	0.01~40mL/min
Maximum working pressure:	0-25MPa
Flow accuracy:	±2%
Flow rate accuracy:	RSD＜0.1%

Parameter of high-pressure semi-prepared and prepared LC systems

Model	high-pressure semi-prepared system high-pressure prepared system
Flow rate	0.01~120mL/min 0.01~50mL/min
Maximum working pressure	0-40MPa
Flow accuracy	±2%
Flow rate accuracy	RSD ◁0.2%

Binary high-pressure system & quaternary low-pressure system

Applicable for gradient mixture of different types

The binary high-pressure system equipped with parallel pumps of high precision fully ensures infusion steadiness and meets the precision requirements of high-pressure gradient analysis.

The quaternary low-pressure system is equipped with all-imported four-channel online degasifcation and a proportional electromagnetic valve. It enables the replacement, mixture and washing of various mobile phases in a simple manner and makes the operation even more convenient.

Binary high-pressure system

Quaternary low-pressure system

ystem

Binary system Parameter

Model	LC1000HP Binary
Mixed number	2 solvent
Flow rate accuracy	<±1% (water, 20℃1ml/min, 10MPa)
Flow rate reproducibility	<0.2 % (1ml/min, 10MPa)
Qualitative reproducibility	<0.1 % (1ml/min, 10MPa)
Quantitative reproducibility	<0.3 % (1ml/min, 10MPa)

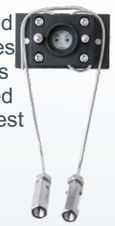
Quaternary low pressure system Parameter

Model	LC1000 HP Quaternary
Mixed number	2~4 solvent
Flow rate accuracy	<±2% (water, 20℃,1ml/min, 10MPa)
Flow rate reproducibility	<0.3 %(1ml/min, 10MPa)
Qualitative reproducibility	<0.2 %(1ml/min, 10MPa)
Quantitative reproducibility	<0.4 %(1ml/min, 10MPa)

UV-1000 UV detector / UV-VIS1000 UV-visible detector

This upgrade to the UV100 UV detector incorporates the design concept of Wufeng ultrahigh-pressure ultrafast LC instruments, avoiding distortion caused by system errors to the greatest extent.

- The all-digital exchange system avoids the signal distortion and interference associated with general UV detector signals caused by multiple analog-to-digital conversions.
- The Low cell adopts the patented design of parallel bipyramid holes. The signal-to-noise ratio is signiEcantly improved compared to conventional Low cells. The test result turns out even better.



- The deuterium lamps are fully upgraded to 2000h original imported deuterium lamps with longer service life and better detection sensitivity. The wavelength ranges from 190 to 680nm.
- Tungsten lamps are newly introduced as optional light sources. The wavelength ranges from 190 to 900nm, covering the entire range of visible light.
- The minimum detection concentration is as low as 3×10^{-9}g/ml. Superior detection sensitivity has been demonstrated.

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Parameter

Model	UV-1000 UV detector	UV-VIS1000 UV detector	UV-1000S UVdetector
Flow cell volume	8μL	8μL	6μL
Light source	D2 lamp	D2 lamp+ W lamp	D2 lamp
Wavelength Range	190nm~680nm	190nm~900nm	190nm~680nm
Spectral Bandwidth		8nm	
Noise		0.25×10- 5 AU *	
Drift		0.4×10- 4 AU/hr. *	
Wavelength Accuracy		±1nm	
Wavelength precision		<0.1nm	

Intelligent ARCUS 5 automatic sample inject or

- Arcus 5 has built-in control software. The operation is all on computer, which makes it is easy to learn and convenient to use. Multiple functions are readily available including sample analysis, attenuation and mixture, and all of them can be performed fast and conveniently.
- **The metering pump uses a gem rod to make the piston. The service life of the seal ring can be more than 1 million times, thus largely reducing the trouble of precision decrease and component replacement caused by consumable parts. In usual working conditions, it can last for at least 3 to 5 years without any replacement.**
- **Advanced self-protection makes immediate stop and warning possible in a faulty operation, thus reducing the serious damage to equipment caused by faulty operation.**
- The sample injection range is from 0.1 to 120μL, ensuring highly precise injection of samples of both large and small volumes.
- Its short injection period and high repetition efEciency contribute to fast and effective repetition of sample injection, time is saved as a result.
- Various optimization measures are adopted to reduce cross-contamination of samples.
- Arcus 5 automatic sample injector matches LC systems available in the market of various models and from different manufacturers

Patents: 2012.2.0010632.2
2012.2.0540207.4
2011.2.0431981.7
2013SR056355

Parameter of Arcus 5 Autosampler

Model	Arcus 5 Autosampler
Basic tray	2ml*54 (Factory standard equipment)
Upgrade tray	10ml*15 4ml*35
Vials height	<52mm
Volume	of metering pump:200μL
Injection mode	Full loop injection Partial loop EII injection μL pickup injection
Injection Volume	Full loop injection 0.1~120μL Partial loop EII injection0.1~100μL(Can be extended to 200μL) μL pickup injection 0.1~100μL(Can be extended to 200μL)
Quantitative Repeatability	Full loop injection RSD6≤0.3% Partial loop EII injection RSD6≤0.5%(injection volume≥5μL) μL pickup injection RSD6≤1.0%(injection volume≥10μL)
Memory effect	≤0.005%(according to designated washing program)
Maximum Pressure	(10000psi) 40MPa
Automatic Protection Function	Bottle lack alarm, Sample needle fault alarm, Pipeline jammed alarm, Leakage alarm Both sides of the tray can be placed in any standard. System can automatically identify the type of tray.
Voltage	115V~230V,50Hz~60Hz

Column oven

The temperature control parts and the solvent tray are designed as integrated. This creates more practical functions, nicer appearance, and more stable temperature control, the range of which is 5℃ to 80℃ at room temperature. Good retention time reproducibility is also demonstrated. Two columns can be placed simultaneously to perform series analysis. The whole system is under digital reverse control and all operations can be done on computer.

Parameter

Model	CO100
Temperature control principle	Air circulation heating
Temperature setting range	5℃~80℃(At room temperature)
Temperature stability	±0.1℃
Temperature accuracy	±2℃(At 35℃)
Column number	2
Voltage	115V~230V, 50Hz~60Hz

RI100 differential detector

The RI100 differential refractive index detector is a kind of general detector widely applied in LC analysis. It responds to all solutes and can therefore be used to detect ingredients such as macromolecular compounds, carbohydrates and fat saturated hydrocarbons, which cannot be detected with selective detectors. It can be widely used in combination with Wufeng LC system in Eelds such as chemical engineering, petroleum, medicine, and food industry to contribute to research and production. The RI100 differential refractive index detector is reliable in performance and easy to operate.

Parameter

Detection range	0.25~512μRIU	Flow cell volume	8μL
Maximum Low rate	10ml/min	Linear range	>600μRIU
Temperature control	30℃~50℃	Response time	0.1 , 0.25 , 0.5 , 1.0 , 1.5 , 2 , 3 , 6 sec
Drift	<200nRIU/hr. *	Sensitivity	DC 0~1V (2mV/μRIU, 8mV/μRIU)
Noise	<2.5nRIU *		

ELSD100 evaporative light-scattering detector

The evaporative light-scattering detector is a type of general detector. Its universal detection method diminishes the common hazards of conventional HPLC detection approaches. Unlike UV and Luorescent detectors, ELSD responds independently of the optical properties of samples. Any sample can be detected free from the inLuence of its functional groups as long as its volatility is lower than the mobile phase. Its application covers all compounds apart from those with low boiling points, and is currently commonly used to detect materials without UV absorption.
Light source Laser diodes, optical corrective lens, 670nm, maximum output less than 5mW, FCC safety standards

Parameter

Sensing element	Silicon photodiode
Temperature Range	Room temperature~110℃
Atomizing gas	Nitrogen is better, maximum 3.0L / min
Pressure operating range	15—90psi
Mobile phase Low rate	0—5mL/min
Analog Output	0-1 or 0-10mV full scale selection
Signal Communications	TTL / contact closure - error for LC pump shutdown
Select the operating parameters	Keyboard input operation parameters
Display	LCD

Other accessories

LC-1000
LC system

Chromatographic column

The instruments are all equipped with high-performance columns that have been rigorously tested and selected. They have a wide PH range, good separation result and high column efEciency. As a result, they can satisfy the needs of sample analysis under different conditions while ensuring the reliability and stability of equipment analysis to the greatest extent.

Guard column

With simple design, delicate fabrication and a general connector, it can match LC columns of any brands and effectively protect you chromatographic columns.

Stainless steel quantification ring

The quantiEcation ring is made of high-quality 316L stainless steel. It adopts Enger-tight high-pressure connector and is therefore tolerant to high pressure and easy to replace.

Filter head

It is designed according to international standards and the threads are tightly Etted. Therefore, it is not susceptible to fall off while easy to replace. The Elter area is adequately utilized to achieve Eltration of a great quantity of samples as well as producing good Eltration results.

High-pressure finger-tight connector

The stainless steel tube is tolerant to pressure as high as 80MPa and the PEEK tube can stand 45MPa. During installation, the brown ferrule (circled in the picture) is Exed at the Ettest position and can be connected to any chromatographic column without dead space.

In-line filter

The in-line Elter is made of stainless steel. A 0.45μm sieve plate is built in to effectively prevent particles in the solvent from entering the system. The sieve plate is also convenient to replace and clean.

Highly precise 1000UL mixer

This new generation of highly effective mixers has the characteristics of a small volume and high mixing uniformity. It enables the mobile phase to sufEciently mix in a shorter timeframe. The mixing result is comparable to internationally advanced mixers.

Semi-preparative pump mixer

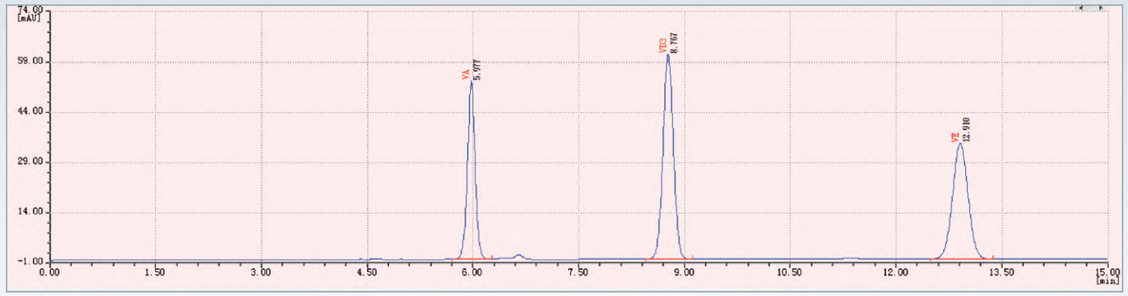
The 2000μL static mixer equipped with the standard gradient can mix liquids uniformly in a shortest time while providing excellent linearity and reproducibility.

Micro-volume mixer

This new generation of micro-volume mixers is available in two models - 80μL and 150μL. Its volume is minute and the mixing uniformity is high. Two or three of them can be selected to use in series.

Application examples in various areas

Food industry (Vitamin analysis)

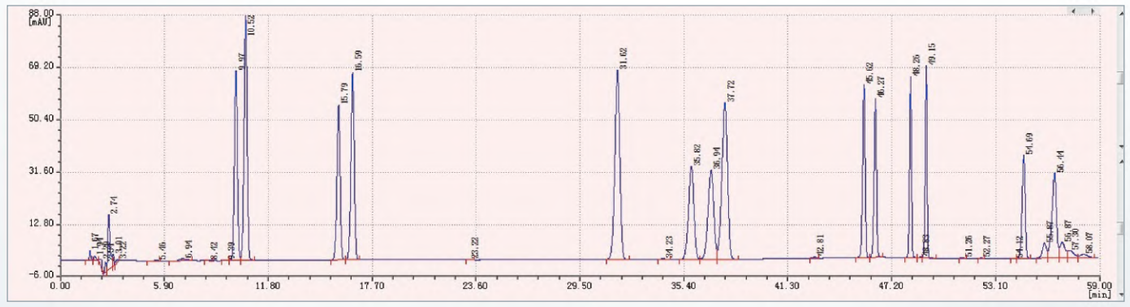


Sample Name: Vitamin A, D, E Standard
column: SHODEX C18
Column length: 250mm
temperature: 30 ℃
Detection wavelength: 0-7.5-10.5min, 326-264-285nm

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

vitamin A vitamin D3 Vitamin E

Industrial products(Plasticizer analysis)



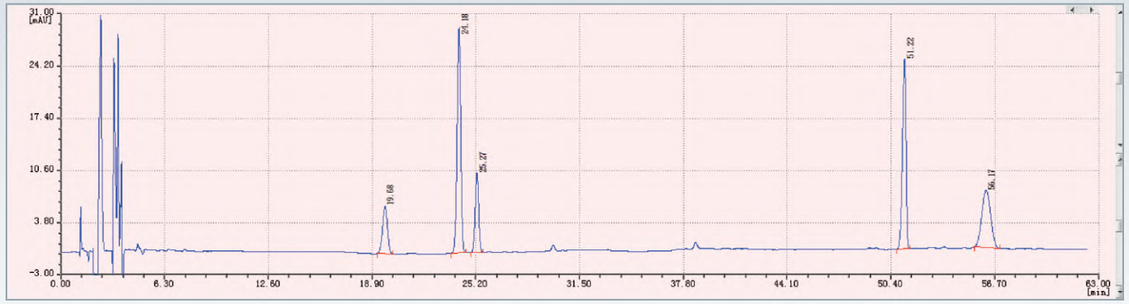
Application (plasticizer analysis)
in the detection of industrial products
Sample Name: plasticizer standard
Chromatographic column: Pntulips BP-C18, 5um, 4.6 × 250mm
Wavelength: UV 242 nm
Temperature: 30 ℃
Injection volume: 10μL
Gradient mode:

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

By elution order:

No.	Retention time (min)	Component	Abbreviation
01	9.97	Dimethyl phthalate	DMP
02	10.52	Diethyl phthalate	DEP
03	15.79	Diisobutyl phthalate	DIBP
04	16.59	Dibutyl phthalate	DBP
05	31.62	Bis(2-methoxyethyl) phthalate	DMEP
06	35.82	Bis(4-methyl-2-pentyl)phthalate	BMPP
07	36.94	Bis(2-ethoxyethyl) phthalate	DEEP
08	37.72	Dipentyl phthalate	DPP
09		Dihexyl phthalate	DHXP
10	45.62	Benzyl butyl phthalate	BBP
11	46.27	Bis(2-n-butoxyethyl)phthalate	DBEP
12	48.26	Dicyclohexyl phthalate	DCHP
13	49.15	Bis(2-ethylhexyl) phthalate	DEHP
14	54.69	Diphenyl phthalate	–
15	56.44	Di-n-octyl phthalate	DNOP
16		Dinonyl phthalate	DNP

Application in the analysis of natural medicine(Natural medicine)



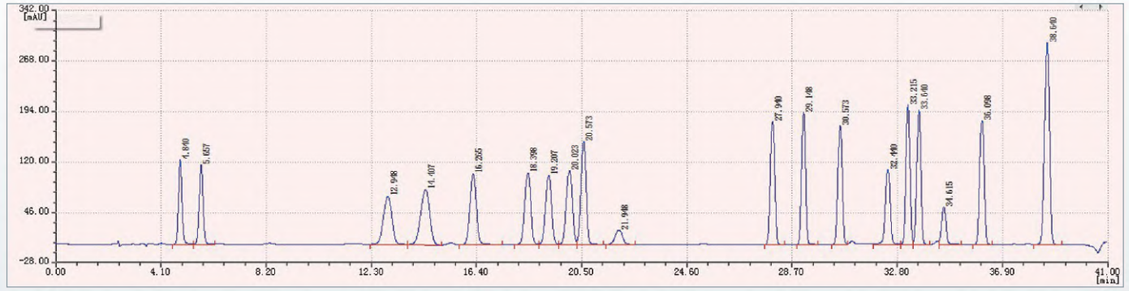
Sample name: Notoginsenoside, ginsenosides
Column: Pntulips RSZG-C18,5um, 4.6 × 250mm, 5GEIC0125;
Temperature 30 ℃
Flow rate: 1.0mL / min
Wavelength: 203nm

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 ginsenosides Rg1 3 ginsenosides Re 4 ginsenoside Rb1 5 ginsenoside Rd

Feed industry (AA)



Sample name: standard amino acids
Chromatographic column: EXFORMMA, 5μm, 4.6 × 250mm;
Flow rate: 1.0mL / min
Column temperature: 40 ℃
Wavelength: 254nm
Injection volume: 5μL
Mobile phase: A: 0.1mol / L sodium acetate solution (pH 6.5): acetonitrile = 93: 7
B: water: acetonitrile = 80:20

Gradient mode:

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