Certificate of Analysis

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Analytical services

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Verify Results Online

Sample Identification

Sample Name	Thymosin Alpha 5 mg
Batch Number	NTA-022
Date Published	2026-08-25 15:59

Results for LYO-0624

Peptides	Result	Unit	Uncertainty	Acceptable Range
Thymosin Alpha-1 Assay Peptide Screening 0.1% TFA	4.88	*mg*	[± 0.02]	
Thymosin Alpha-1 Purity Peptide Screening 0.1% TFA	99.6	*%*	[± 0.5]	
Thymosin Alpha-1 Identification by Spectrum Peptide Screening 0.1% TFA	982		[± 5]	
Thymosin Alpha-1 Identification by RT Peptide Screening 0.1% TFA	0.997		[± 0.005]	

Microbiology	Result	Unit	Uncertainty	Acceptable Range
Bacterial Endotoxin Chromgenic USP<85>/ Eur. Ph. 2.6.14. Bacterial Endotoxin Chromgenic Test	0.517	*EU/mg*	[± 0.01]	

Elemental Impurities	Result	Unit	Uncertainty	Acceptable Range
Arsenic Elemental Impurities screening USP ⟨232⟩ / Ph. Eur. 5.20 / 2.4.20	< 0.001	*ppm*		
Cadmium Elemental Impurities screening USP ⟨232⟩ / Ph. Eur. 5.20 / 2.4.20	< 0.001	*ppm*		
Quicksilver Elemental Impurities screening USP ⟨232⟩ / Ph. Eur. 5.20 / 2.4.20	< 0.001	*ppm*		
Lead Elemental Impurities screening USP ⟨232⟩ / Ph. Eur. 5.20 / 2.4.20	< 0.001	*ppm*		
Nickel Elemental Impurities screening USP ⟨232⟩ / Ph. Eur. 5.20 / 2.4.20	< 0.001	*ppm*		
Vanadium Elemental Impurities screening USP ⟨232⟩ / Ph. Eur. 5.20 / 2.4.20	< 0.001	*ppm*		
Cobalt Elemental Impurities screening USP ⟨232⟩ / Ph. Eur. 5.20 / 2.4.20	< 0.001	*ppm*		

Mass Spectrometry	Result	Unit	Uncertainty	Acceptable Range
Molecular Ion Mass Identification (MS Deconvolution) Mass Spectrometry Identity	3108	*Da*	[± 1]	

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1. Content Assesment

1.1. Instrumentation

Module	Name	Serial Number
System Controller	Shimadzu CBM-40 Lite	L221226351398
Degassing Unit	Shimadzu DGU-403	NA
Pump	Shimadzu LC-40B XR	L22146350580
Autosampler	Shimadzu SIL-40C XR	L22216351622
Colum Thermostat	Shimadzu CTO-40S	L22236351602
PDA Detector	Shimadzu SPD-M40	L22276352808
SQ MS Detector	Shimadzu LCMS-2050	O12476200760

1.2. Chromatographic conditions

Chromatographic conditions	
Eluent A	0.1% DFA in Water (HPLC, Gradient Grade)
Eluent B	0.1% DFAin Acetonitrile (HPLC, Gradient Grade)
Flow rate	0.8 mL/min
Program	Gradient elution
Injection volume	2 µL
Colum Temperature	60°C
Column	Waters XSelect CSH C18, 100x2.1mm 2.5µm
Detection wavelength	225nm

Gradient Program		
Time [min]	A [%]	B [%]
1	98	2
13.99	35	65
14	5	95
15	5	95
15.01	98	2
19	end	

1

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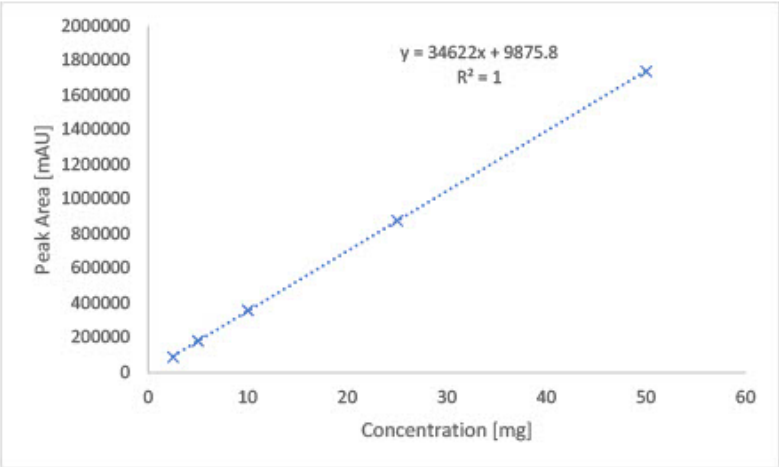
1.3. Sample preparation

Whole amount of container was dissolved in 2mL of water (LCMS Grade). 100 µL of sample was transferred to HPLC vial and diluted by 900 µL water (LCMS Grade) and submitted for analysis.

1.4. Calibration curve

Calibration curve detail	
Quantitative method	External Standard
Calibration Type	Linear
Number of calibration points	5
Force through Zero	Enabled
Weighting Method	None



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2. Purity assessment

2.1 Instrumentation

Module	Name	Serial Number
System Controller	Shimadzu CBM-40 Lite	L221226351398
Degassing Unit	Shimadzu DGU-403	NA
Pump	Shimadzu LC-40B XR	L22146350580
Autosampler	Shimadzu SIL-40C XR	L22216351622
Colum Thermostat	Shimadzu CTO-40S	L22236351602
PDA Detector	Shimadzu SPD-M40	L22276352808
SQ MS Detector	Shimadzu LCMS-2050	O12476200760

2.2 Chromatographic conditions

Chromatographic conditions	
Eluent A	0.1% DFA in Water (HPLC, Gradient Grade)
Eluent B	0.1% DFAin Acetonitrile (HPLC, Gradient Grade)
Flow rate	0.8 mL/min
Program	Gradient elution
Injection volume	2 µL
Colum Temperature	60°C
Column	Waters XSelect CSH C18, 100x2.1mm 2.5µm
Detection wavelength	225nm

Gradient Program		
Time [min]	A [%]	B [%]
1	98	2
13.99	35	65
14	5	95
15	5	95
15.01	98	2
19	end	

2.3 Purity assesment

Purity of compound assesed by area normalization method, comparing area of each peak to sum of area of all peaks detected at wavelenght of 225 nm.

3

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3. Identity Assessment

3.1 Instrumentation

Module	Name	Serial Number
System Controller	Shimadzu CBM-40 Lite	L221226351398
Degassing Unit	Shimadzu DGU-403	NA
Pump	Shimadzu LC-40B XR	L22146350580
Autosampler	Shimadzu SIL-40C XR	L22216351622
Colum Thermostat	Shimadzu CTO-40S	L22236351602
PDA Detector	Shimadzu SPD-M40	L22276352808
SQ MS Detector	Shimadzu LCMS-2050	O12476200760

3.2 Chromatographic conditions

Chromatographic conditions	
Eluent A	0.1% DFA in Water (HPLC, Gradient Grade)
Eluent B	0.1% DFAin Acetonitrile (HPLC, Gradient Grade)
Flow rate	0.8 mL/min
Program	Gradient elution
Injection volume	2 µL
Colum Temperature	60ºC
Column	Waters XSelect CSH C18, 100x2.1mm 2.5µm
Detection wavelength	280nm

Gradient Program		
Time [min]	A [%]	B [%]
1	98	2
13.99	35	65
14	5	95
15	5	95
15.01	98	2
19	end	

3.3 Molecular Ion Mass evaluation

Molecular ion mass was determined by deconvolution of multiply charged ESI-MS spectra to calculate the average neutral (zero-charge) molecular mass by equation:

$$M(neutral) = (z_i((mz_i) - H)) - ME$$

Where:
mz_i - Measured mass of charged particle
z_i - charge
H - proton mass (1.0076 Da)
ME – mass error

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Analysis Report

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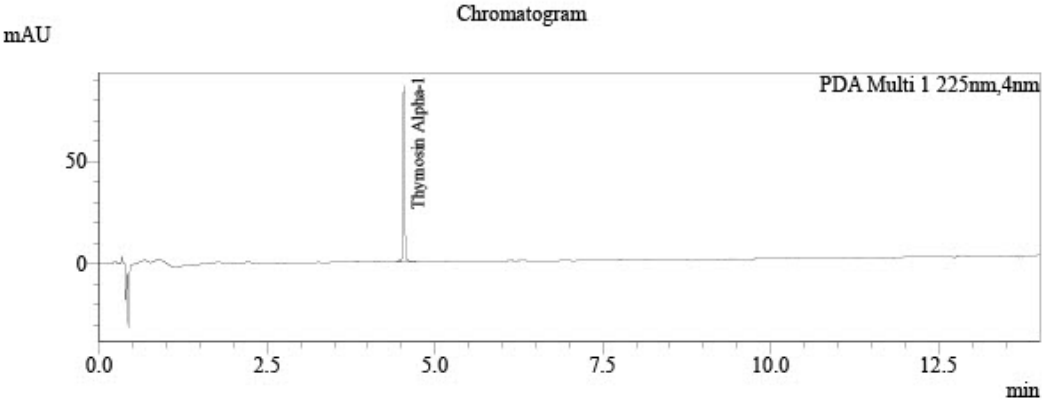
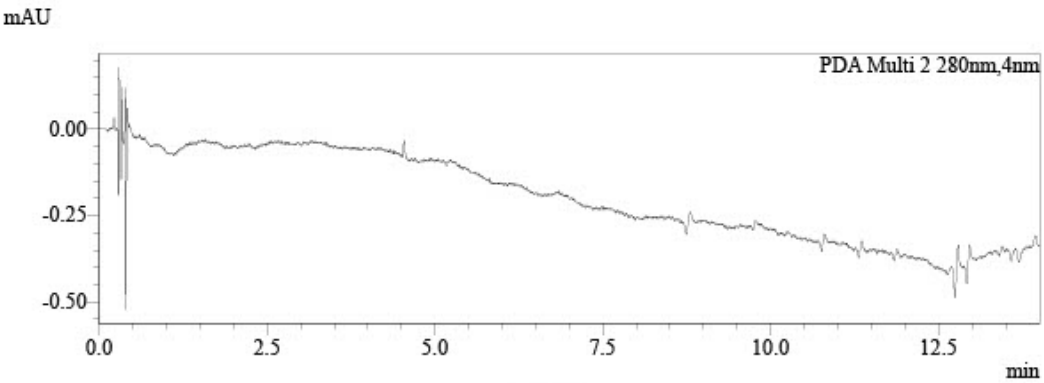
Analysis of quantity of active ingredient by UHPLC with MS detection

Sample Information

Injection Volume	: 2
Data File	: LYO-0624__008.lcd
Method File	: Peptide Screening_DFA_Group C.lcm
Date Acquired	: 8/20/2026 6:49:36 PM

Chromatogram





Peak Table

PDA Ch1 225nm

Peak#	Name	Ret. Time	Area	Area%	Conc.	Unit
1		4.463	256	0.207	0.000	
2	Thymosin Alpha-1	4.536	123041	99.626	4.903	mg
3		4.648	54	0.044	0.000	
4		4.692	152	0.123	0.000	
Total			123503	100.000		

Peak Table

PDA Ch2 280nm

Peak#	Name	Ret. Time	Area	Area%	Conc.	Unit
1		14.241	2611	100.000	0.000	
Total			2611	100.000		

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Analysis Report

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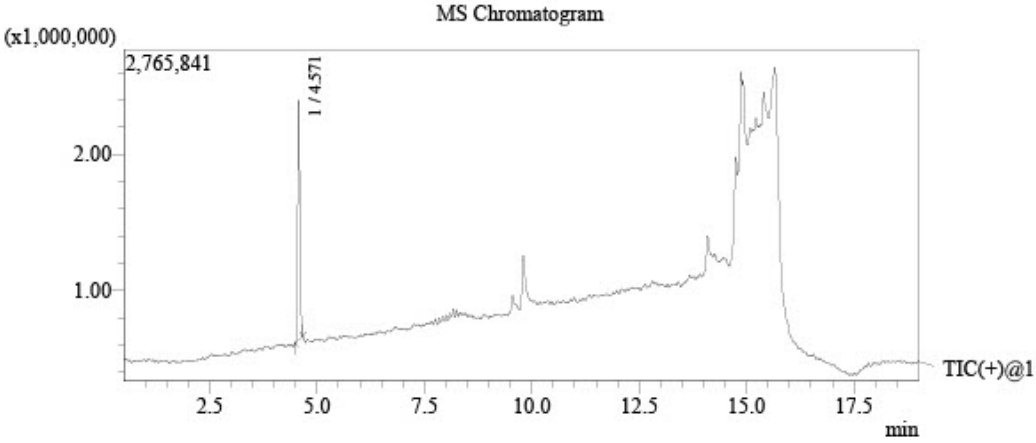
Identification of active ingredient by UHPLC Mass Spectrometr

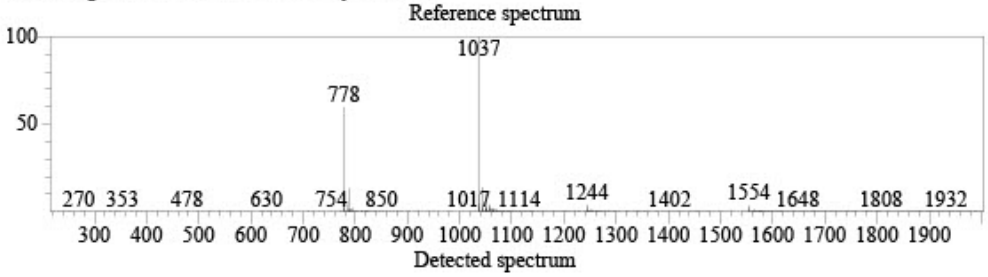
MS Chromatogram



Library Search

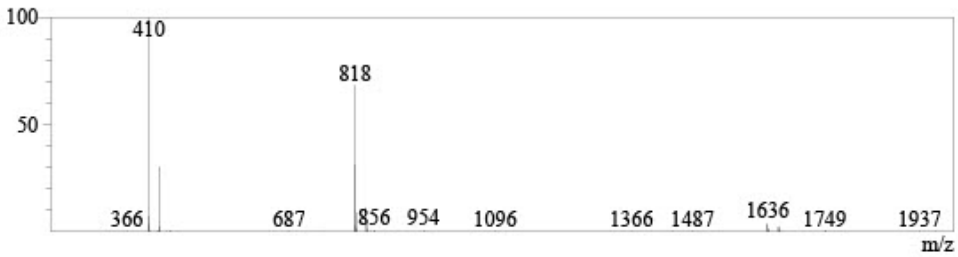
Base Peak: 1037(517454)
Scan Range: 220.00 - 2000.00 Porality: Positive

Reference spectrum



Detected spectrum

Library: Peptide screening.lib
Formula: C45H55N9O6 CAS: 158861-67-7 Mol.Weight: 817(0!=)
Compound Name: GHRP2



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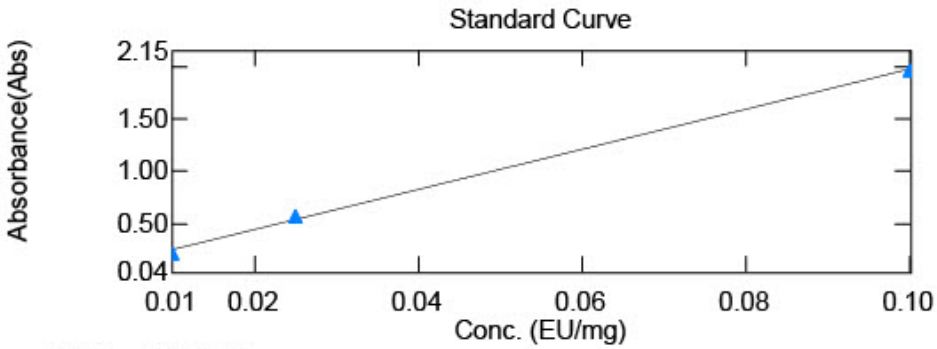
Endotoxin Determination Report

File Information
Filename: C:\UVVis-Data\Data\File_260820_135540.vqud
Date/Time: 08/20/2026 03:18:46 PM

Instrument Information
Instrument Type: UV-1900 Series
Model (S/N): UV-1900i (A12536253123)



y = 19.2242 x + 0.0569806
r2 = 0.99866

	Sample Name	Conc	Raw_WL545.0	Dilution Rate
1	LIQ-0055	0.003	0.1086	1.00
2	LIQ-0056	0.734	1.4685	10.00
3	LYO-0620	5.092	1.0358	100.00
4	LYO-0621	0.032	0.0880	20.00
5	LYO-0622	0.906	0.9279	20.00
6	LYO-0623	0.057	0.1122	20.00
7	LYO0624	2.521	1.2687	40.00
8	LYO-0625	0.073	0.1270	20.00
9	LYO-0626	0.043	0.0981	20.00
10	LYO-0627	0.394	0.4356	20.00
11	LYO-0628	0.051	0.1056	20.00
12	LIQ-0057	0.056	0.1113	20.00
13	LYO-0629	2.182	1.1055	40.00
14	LYO-0630	0.053	0.1084	20.00
15	LYO-0631	1.632	0.8411	40.00
16	LYO-0645	1.560	0.8067	40.00
17	LYO-0646	0.058	0.1130	20.00
18	LYO-0647	0.155	0.2056	20.00
19	LYO0648	2.452	1.2354	40.00
20	LYO-0649	1.360	0.7105	40.00

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	Sample Name	Conc	Raw_WL545.0	Dilution Rate
21	LYO-0650	0.043	0.0986	20.00
22	LYO-0651	2.908	1.4546	40.00
23	LYO-0652	0.129	0.1805	20.00
24	LYO-0653	0.156	0.0870	100.00

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Responsibles

Mr. Ján Galbavý
CEO

Analysis results relate only to the samples tested.
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