

Certificate of Analysis

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Sample Identification

Sample Name GHK-Cu 50 mg
Batch Number 4330988
Date Published 2026-07-27 16:19

Results for LYO-0398

Peptides	Result	Unit	Uncertainty	Acceptable Range
GHK-Cu Assay Peptide Screening 0.1% TFA	44.4	mg	[± 0.2]	
GHK-Cu Purity Peptide Screening 0.1% TFA	> 99.8	%		
GHK-Cu Identification by Spectrum (FTIR) Peptide Screening 0.1% TFA	987		[± 5]	
GHK-Cu Identification by RT Peptide Screening 0.1% TFA	1.000		[± 0.005]	
Microbiology	Result	Unit	Uncertainty	Acceptable Range
Bacterial Endotoxin Chromgenic USP<85>/ Eur. Ph. 2.6.14. Bacterial Endotoxin Chromgenic Test	0.004	EU/mg	[± 0]	0 - 0.5
Mass Spectrometry	Result	Unit	Uncertainty	Acceptable Range
Molecular Ion Mass Identification (MS Deconvolution) Mass Spectrometry Identity	341	Da	[± 1]	

	Method Specification	
Determination of identity, content and purity of GHK-Cu		
<i>Document number</i> GHKCu_006_2026	<i>Superseded document</i> -	<i>Number of pages</i> 4

1. Content Assessment

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% TFA in Water (HPLC, Gradient Grade)
Eluent B	0.1% TFA in Acetonitrile (HPLC, Gradient Grade)
Flow rate	0.4 mL/min
Program	Gradient elution
Injection volume	2 µL
Colum Temperature	60°C
Column	Phenomenex Biozen Peptide Polar C18, 150x2.1mm 3µm
Detection wavelength	225nm

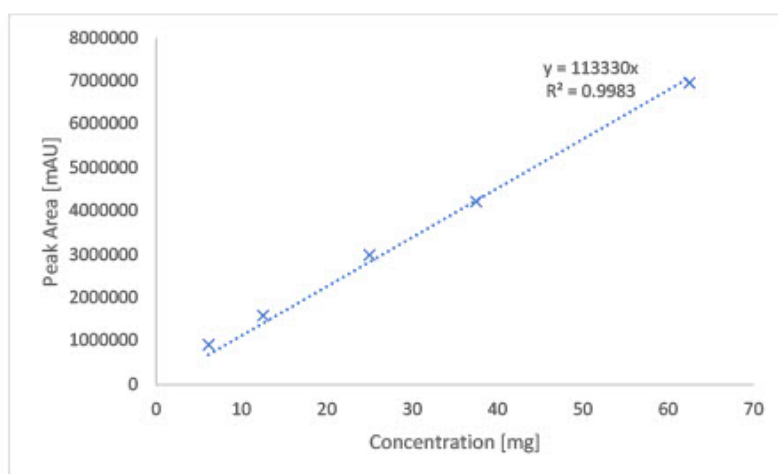
Gradient Program		
Time [min]	A [%]	B [%]
3	100	0
18	45	55
20	1	99
21	1	99
21.01	100	0
26	end	

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



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% TFA in Water (HPLC, Gradient Grade)
Eluent B	0.1% TFA in Acetonitrile (HPLC, Gradient Grade)
Flow rate	0.4 mL/min
Program	Gradient elution
Injection volume	2 µL
Colum Temperature	60°C
Column	Phenomenex Biozen Peptide Polar C18, 150x2.1mm 3µm
Detection wavelength	225nm

Gradient Program		
Time [min]	A [%]	B [%]
3	100	0
18	45	55
20	1	99
21	1	99
21.01	100	0
26	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 225nm.

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% TFA in Water (HPLC, Gradient Grade)
Eluent B	0.1% TFA in Acetonitrile (HPLC, Gradient Grade)
Flow rate	0.4 mL/min
Program	Gradient elution
Injection volume	2 µL
Colum Temperature	60°C
Column	Phenomenex Biozen Peptide Polar C18, 150x2.1mm 3µm
Mass spectrometry	Scan: positive 280-2000 Da

Gradient Program		
Time [min]	A [%]	B [%]
3	100	0
18	45	55
20	1	99
21	1	99
21.01	100	0
26	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:

$$M(\text{neutral}) = (z_i((mz_i) - H)) - ME$$

Where:

mz_i - Measured mass of charged particle

z_i - charge

H - proton mass (1.0076 Da)

ME – mass error

Analysis Report



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Analytical services

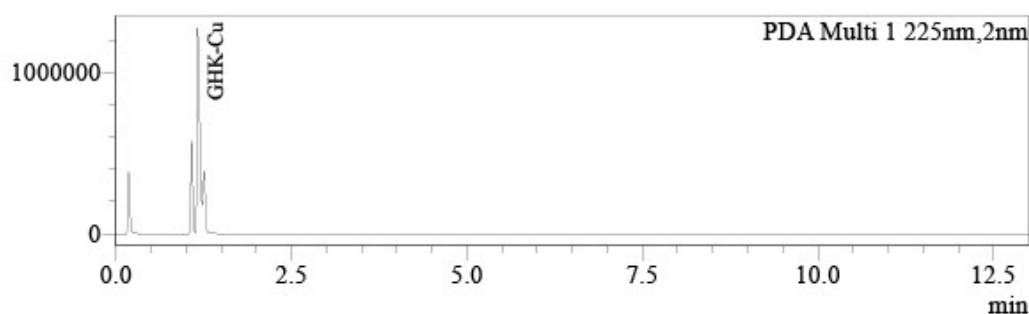
Analysis of quantity and purity of active ingredient by UHPLC with UV detection

Sample Information

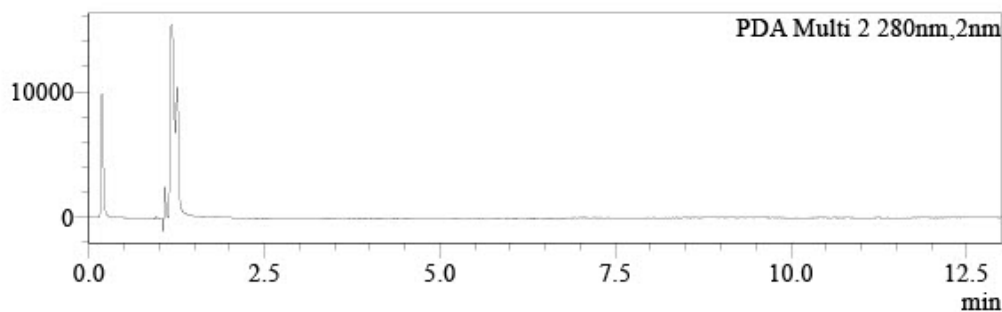
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Data File : LYO-0398__001.lcd
Method File : Peptide screening polar_KLOW.lcm
Date Acquired : 7/23/2026 1:20:34 PM

Chromatogram

uAU



uAU



Peak Table

PDA Ch1 225nm

Name	Ret. Time	Area	Conc.	Unit	Area%
GHK-Cu	1.162	4577766	44.389	mg	100.000
		4577766			100.000

Peak Table

PDA Ch2 280nm

Name	Ret. Time	Area	Conc.	Unit
	1.173	59843	0.000	

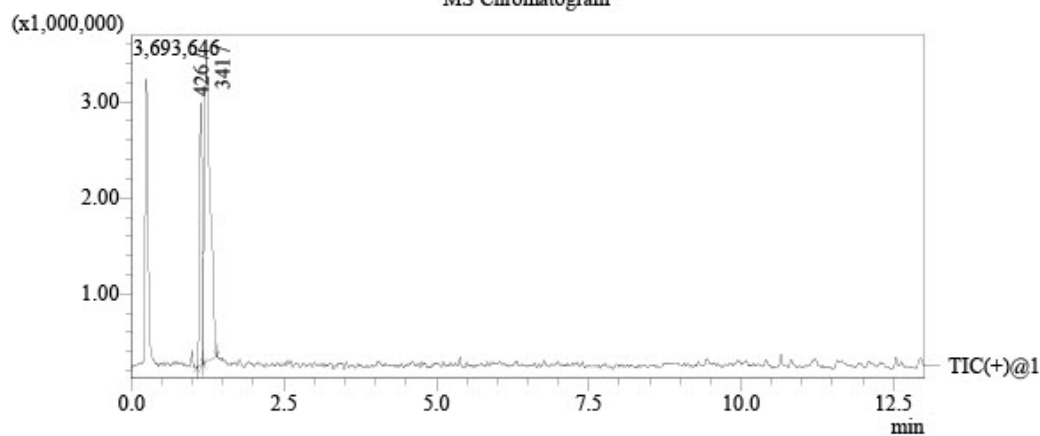
Name	Ret. Time	Area	Conc.	Unit
	1.254	30869	0.000	
		90712		

Analysis Report



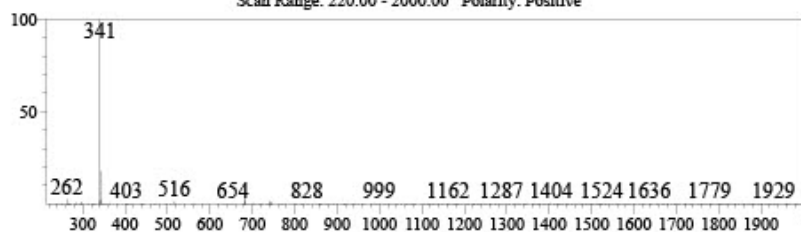
Analysis of identity of active ingredient by UHPLC with mass spectrometric detection

MS Chromatogram

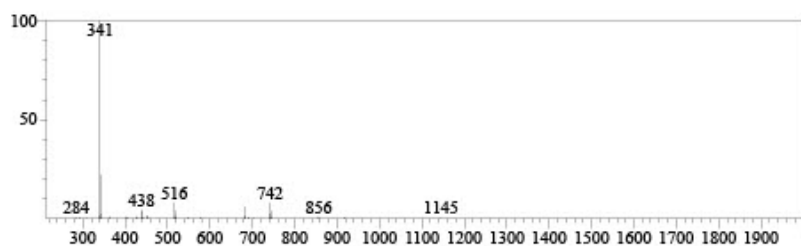


Library Search

Detected compound
Ret. Time: 1.182 Base Peak: 341
Scan Range: 220.00 - 2000.00 Polarity: Positive



Library: Peptide screening lib
Formula: C₁₄H₂₄CuN₆O₄ CAS: 49557-75-7 Mol. Weight: 401 Ret. Index: 0
Compound Name: GHK-Cu



Endotoxin Determination Report

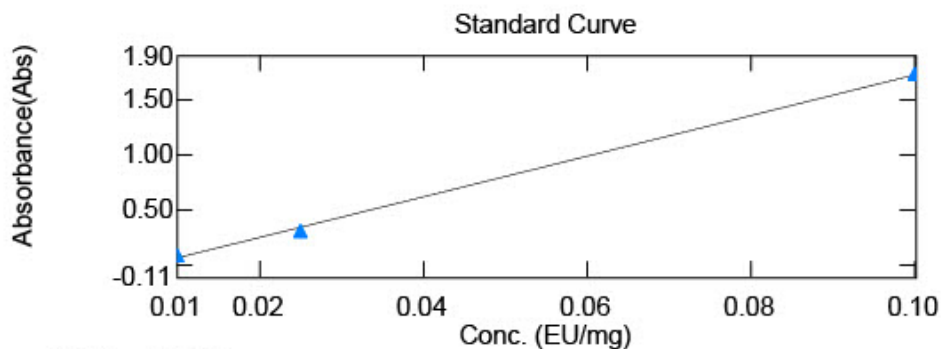


File Information

Filename: C:\UVVis-Data\Data\File_260723_122453.vqud
Date/Time: 07/23/2026 01:13:01 PM

Instrument Information

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



$$y = 18.5422x - 0.127539$$
$$r^2 = 0.99855$$

	Sample Name	Conc	Raw_WL545.0	Dilution Rate
1	LYO-0389	0.756	0.5732	20.00
2	LYO-0390	0.211	0.0677	20.00
3	LYO-0391	0.802	0.6164	20.00
4	LYO-0392	0.275	0.1271	20.00
5	LYO-0393	0.231	0.0863	20.00
6	LYO-0394	0.171	0.0309	20.00
7	LYO-0395	0.285	0.1364	20.00
8	LYO-0396	0.199	0.0569	20.00
9	LYO-0397	0.209	0.0660	20.00
10	LYO-0398	0.159	0.0201	20.00
11	LYO-0399	0.174	0.0337	20.00
12	LYO-0400	0.360	0.2067	20.00
13	LYO-0401	0.203	0.0605	20.00
14	LYO-0404	0.204	0.0613	20.00
15	LYO-0405	1.231	1.0135	20.00
16	LYO-0406	0.160	0.0206	20.00
17	LIQ-0039	0.008	0.0270	1.00

Responsibles



Mr. Ján Galbavý
CEO

Analysis results relate only to the samples tested.

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