# Talumer Sciences

**CERTIFICATE OF ANALYSIS · LOT RELEASE**

talumersciences.com

CERTIFICATE NO.
**PL-26-00035**

VERIFICATION KEY
**VR6BG3H2**

Scan or enter both at prymalab.net/testing/verify

**CERTIFICATE OF ANALYSIS · LOT RELEASE · ISSUED FOR TALUMER SCIENCES**

## GHK-Cu 50 mg

Lot **PL-2609-035** · Lyophilized powder · Label claim **50 mg/vial** · Distributed as **GHK-Cu**

**TESTED IN-HOUSE BY PRYMALAB**

In-house analytical result, not an independent third-party test

| LOT / BATCH NUMBER | DATE MADE | DATE OF ANALYSIS | DATE ISSUED |
|---|---|---|---|
| PL-2609-035 | 2026-09-17 | 2026-09-18 | 2026-10-03 |
| **RETEST / EXPIRY** | **UNITS IN LOT / SAMPLED** | **STORAGE** | **CERTIFICATE TYPE** |
| 2028-09-17 | 250 / 2 | −20 °C, desiccated, dark | Lot COA, 2 pages |

| COMPOUND | CAS NUMBER | MOLECULAR FORMULA | THEORETICAL MASS (AVG.) |
|---|---|---|---|
| **GHK-Cu**<br>Copper tripeptide-1; Gly-His-Lys · Cu(II) | 89030-95-5 | $C_{14}H_{22}CuN_6O_4$ | 401.9 Da |

**SEQUENCE**

`H-GHK-OH · Cu(II) (1:1 complex; copper bound by the Gly α-amine, the Gly–His amide nitrogen and the His imidazole)`

**PURITY · RP-HPLC, AREA %**
**99.81%**
Specification 99.0% • main peak at 2.20 min

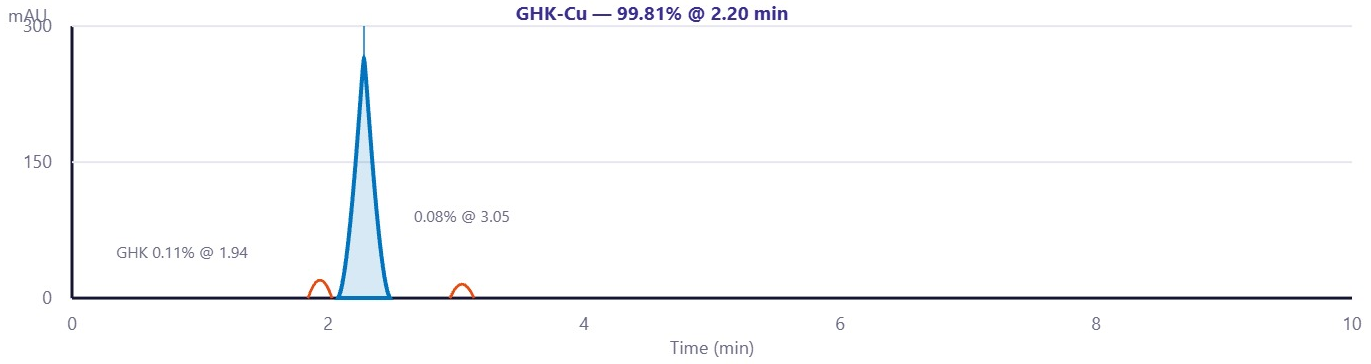
**IDENTITY · OBSERVED MASS**
**402.1 Da**
Theoretical 401.9 Da • +0.2 Da (498 ppm)

**OVERALL CONCLUSION**
**PASS**
Meets every specification for the tests performed

| TEST | METHOD | SPECIFICATION | RESULT | CONCLUSION |
|---|---|---|---|---|
| **Appearance** | Visual inspection | Blue to blue-violet lyophilized powder | Blue lyophilized powder | **PASS** |
| **Identity (mass)** | LC-MS, ESI positive | Theoretical ± 1.0 Da | 402.1 Da | **PASS** |
| **Purity** | RP-HPLC, UV 214 nm, area% | 99.0% | 99.81% | **PASS** |
| **Largest impurity** | RP-HPLC, area% | 1.0% | 0.11% at 1.94 min (free-GHK dissociation) | **PASS** |
| **Water content** | Karl Fischer | 5.0% | 1.9% | **PASS** |
| **Bacterial endotoxin** | LAL, kinetic | ≤ 5.0 EU/mg | 0.04 EU/mg | **PASS** |
| **Sterility / bioburden** | USP <71>, membrane filtration | No growth after 14 days | No growth; conforms | **PASS** |

### 1 HPLC CHROMATOGRAM

**Data file:** GHK_PL-2609-035_20260918_01 · Column C18, 150 × 4.6 mm · UV 214 nm




Baseline uncropped; main peak, free-GHK dissociation peak, and impurity labeled with retention times. Peak table on page 2.



Verify: prymalab.net/testing/verify · **PL-26-00035** · key **VR6BG3H2**

**For laboratory research use only.** Not for human or veterinary use.

## 2 HPLC METHOD · GHK_PL-2609-035_20260918_01

INSTRUMENT
Waters Alliance e2695, SN E2695B742

DATA SYSTEM
Empower 3, Build 3471

DETECTOR
Waters 2998 PDA

DETECTION WAVELENGTH
214 nm

COLUMN
C18, 150 × 4.6 mm, 3.5 µm

COLUMN PART / SERIAL
186003326 / USHX18211

MOBILE PHASE A
0.1% TFA in water

MOBILE PHASE B
0.1% TFA in MeCN

FLOW RATE
1.0 mL/min

COLUMN TEMPERATURE
30 °C

INJECTION VOLUME
20 µL

RUN TIME
10 min

SAMPLE DILUENT
Water, 0.1% TFA

SAMPLE CONCENTRATION
0.5 mg/mL

BLANK INJECTED
Yes

REFERENCE STANDARD
In-house GHK-Cu reference, lot PL-RS-GHK-01, RT 2.18 min (GHK reference, RT 1.92 min)

## 3 GRADIENT PROGRAM

| TIME (MIN) | % A | % B |
|---|---|---|
| 0.0 | 95 | 5 |
| 3.0 | 95 | 5 |
| 7.0 | 55 | 45 |
| 8.0 | 20 | 80 |
| 9.0 | 20 | 80 |
| 10.0 | 95 | 5 |

## 4 PEAK TABLE

| PEAK | RT (MIN) | AREA | AREA % |
|---|---|---|---|
| 1 (free GHK) | 1.94 | 4,730 | 0.11 |
| **2 (GHK-Cu)** | **2.20** | **4,291,830** | **99.81** |
| 3 | 3.05 | 3,440 | 0.08 |
| Total | | 4,300,000 | 100.00 |

Threshold 0.05% area · Blank subtracted: Y · Purity = main peak area ÷ total integrated area × 100, to two decimals; main peak shaded.

## 5 IDENTITY BY MASS SPECTROMETRY

INSTRUMENT
Waters Acquity SQD

IONIZATION / MODE
ESI, positive

OBSERVED M/Z (CHARGE)
402.8 (1+ [M+H]) · 424.8 (1+ [M+Na])

DECONVOLUTED MASS
402.1 Da

THEORETICAL MASS
401.9 Da

DIFFERENCE
+0.2 Da (498 ppm)

DATA FILE
GHK_PL-2609-035_MS_20260918_01

ACCEPTANCE
Within ± 1.0 Da

## 6 ADDITIONAL TESTS

| TEST | PERFORMED BY | DATE | REPORT / FILE |
|---|---|---|---|
| Water content | PrymaLab | 2026-09-19 | RPT-KF-PL-2609-035 |
| Endotoxin | PrymaLab | 2026-09-20 | RPT-ET-PL-2609-035 |
| Sterility | PrymaLab | 2026-10-02 | RPT-ST-PL-2609-035 |

A test with no row here was not performed on this lot. Outside-laboratory reports, when used, are attached and named below.

## 7 REVIEW AND APPROVAL

**D. Reynolds**
Analyst · performed the testing
Date: 2026-09-18

**S. Calloway**
Reviewer · checked against raw data
Date: 2026-10-02

**M. Phelps**
Lab Director · approved for release
Date: 2026-10-03

Raw data retained at: Empower 3 (Build 3471), project PL-2609, archive PL-ARC-2026; 7 years. Outside laboratory reports attached: None


This certificate applies only to the lot named above and describes the units sampled from it; it is not a guarantee for any other lot. Results were obtained by PrymaLab LLC's own laboratory (PrymaLab Analytical) and are not an independent third-party test unless an outside report is attached. This copy is issued for Talumer Sciences, a distributor of the lot; the brand shown does not change the laboratory, the method or the results. Reference values (CAS, formula, theoretical mass, sequence) are literature values for the named compound. Authenticity: scan the QR code or enter certificate number PL-26-00035 and key VR6BG3H2 at prymalab.net/testing/verify; any copy that does not match the record shown there is not a PrymaLab certificate. PrymaLab LLC products are supplied for laboratory research use only and not for human or veterinary use.