

ALC-PROOF-GHK-CU-50-48 · Rev 1

**Catalog reference:** ghk-cu-50

**Search code:** ALC-PROOF-GHK-CU-50-48

**Received:** 2026-09-28

**Analyzed:** 2026-09-29

**Reported:** 2026-09-30

**Lot:** SYN-00048

### Sample Summary

**Product:** GHK-Cu - 50 mg

**Principal peak purity:** 99.59 % (area)

**Identity evidence:** Not established by this report

**Net content:** 50.104 mg

**Molecular formula:** C14H22CuN6O4 (reference)

**Neutral mass:** 401.09985 Da (monoisotopic; calculated)

**Appearance:** Lyophilized material

**Chemical reference:** [PubChem CID 165429100](#)

### Analytical Results

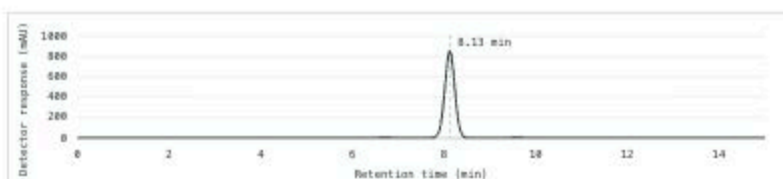
Review required

Profile profile-ghk-cu-50 v1.

| Determination / method                                                                                  | Result                          | Specification | Decision           |
|---------------------------------------------------------------------------------------------------------|---------------------------------|---------------|--------------------|
| <b>Principal peak purity</b><br>HPLC-01 · area basis<br>Peak area percent. This is not a mass fraction. | 99.59 %<br>U = 0.08 %, k = 2    | 98 to 100 %   | Pass<br>simple     |
| <b>Net content</b><br>QNT-01 · mass basis<br>Specification applies to the declared label claim.         | 50.104 mg<br>U = 0.75 mg, k = 2 | 45 to 55 mg   | Pass<br>guard-band |

**Methods:** Quantitative assay; RP-HPLC with UV detection. Conditions, limits and calculated checks are included in the supporting pages.

### Chromatogram



*Paul Gütse*

**Paul Gütse**

Reviewed by

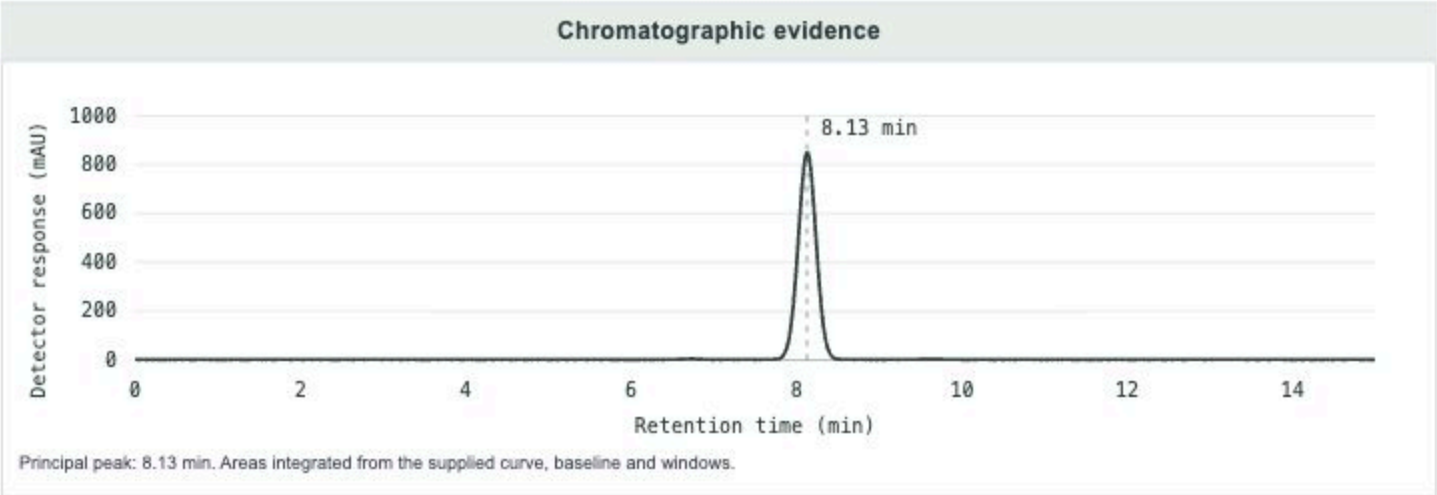
Scan report code

Local design proof  
ALC-PROOF-GHK-CU-50-48

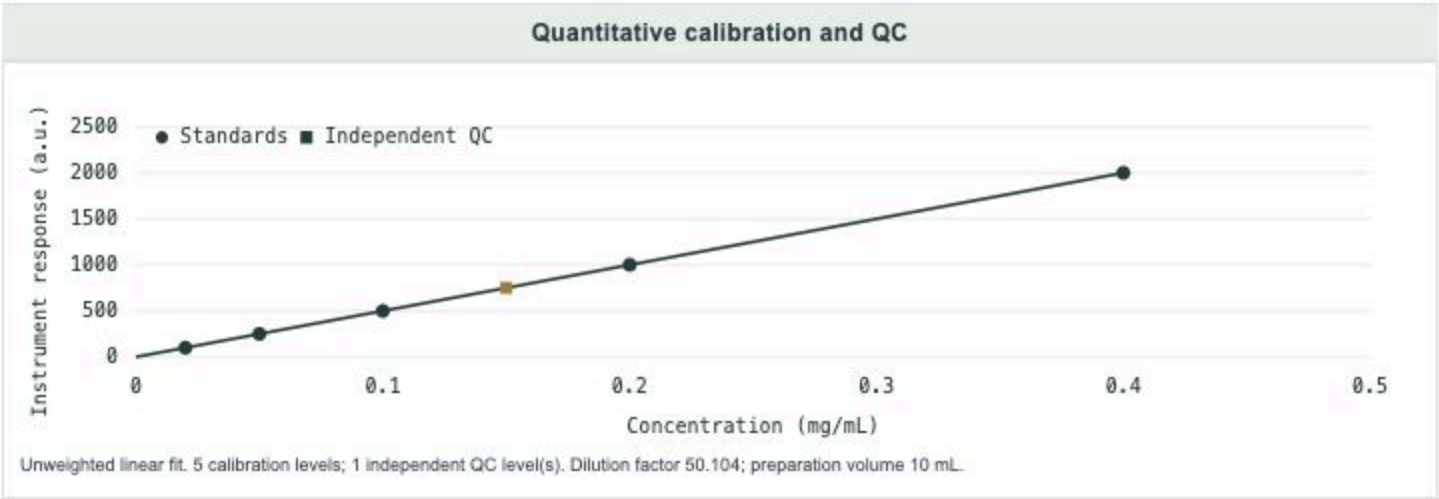


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Results apply only to the submitted sample and the methods listed in this report. Only the listed methods are covered. This report does not establish sterility, endotoxin content, biological activity or suitability for clinical use.



| Integrated peak | Area (detector unit x min) | Area % |
|-----------------|----------------------------|--------|
| Principal peak  | 219.022                    | 99.59  |
| Early impurity  | 0.58008                    | 0.26   |
| Late impurity   | 0.31516                    | 0.14   |



| Calculated checks and system suitability |               |                                                 |               |
|------------------------------------------|---------------|-------------------------------------------------|---------------|
| Analysis check                           | Value         | Configured criterion                            | Assessment    |
| Principal peak purity                    | 99.59 % area  | Minimum 98; caution below 99                    | pass          |
| Assay relative to label claim            | 100.208 %     | 90 to 110                                       | pass          |
| Total integrated impurities              | 0.4071 % area | Maximum 2                                       | pass          |
| Largest integrated impurity              | 0.2638 % area | Maximum 1.5                                     | pass          |
| Retention time                           | 8.13 min      | 8.13 +/- 0.2                                    | pass          |
| Principal peak width at half height      | 0.2432 min    | 0.2421 +/- 30%                                  | pass          |
| Theoretical plates                       | 6193          | Minimum 2000                                    | pass          |
| Resolution to Early impurity             | 3.787         | Minimum 1.5                                     | pass          |
| Resolution to Late impurity              | 3.939         | Minimum 1.5                                     | pass          |
| Tailing factor at 5% height              | 1.041         | Maximum 2                                       | pass          |
| Principal signal to baseline noise       | 19922.1       | Minimum 50                                      | pass          |
| Calibration R squared                    | 0.999999      | Minimum 0.995                                   | pass          |
| Independent QC bias                      | 0.028 %       | Absolute maximum 5                              | pass          |
| Calibration-derived content              | 50.104 mg     | Agrees with reported content within uncertainty | informational |

Assessment observations

WARNING · impurity-detected

Early impurity: 0.264% area meets the configured impurity reporting threshold 0.05%.

WARNING · impurity-detected

Late impurity: 0.143% area meets the configured impurity reporting threshold 0.05%.

Methods and decision rules

QNT-01 · Quantitative assay 1

**Instrument:** analytical balance  
Calibration and replicate measurement. Expanded uncertainty uses  $k = 2$ .  
Expanded measurement uncertainty uses a coverage factor of 2.

HPLC-01 · RP-HPLC with UV detection 1

**Instrument:** HPLC-UV  
C18 column, 150 x 4.6 mm, 5  $\mu$ m; 0.1% formic acid in water/acetonitrile; 5 to 60% B over 15 min; 1.0 mL/min; 25 C; 214 nm; 10  $\mu$ L injection.  
Trapezoidal integration against the declared baseline and windows.

Simple acceptance compares the result with the stated limits. Guard band acceptance requires the full expanded uncertainty interval to fall within the limits; overlap is indeterminate. A failed specification remains a reportable result.

Scope and observations

Neutral 1:1 copper complex reference, net formal charge 0. Copper-free GHK and cationic prezatide copper have different formulas and masses. Sample complex stoichiometry and protonation are not confirmed. Reference form: Neutral 1:1 GHK-Cu reference complex. Reference formula source: [PubChem CID 165429100](#).  
Only the listed methods are covered. This report does not establish sterility, endotoxin content, biological activity or suitability for clinical use.  
Sample reference: Catalog identity and nominal content supplied by the client.  
Chemical form: Chemical form and sequence require a laboratory reference.  
Chemical reference: [PubChem CID 165429100](#)  
Prepared by: alchemlabs