

CERTIFICATE OF ANALYSIS

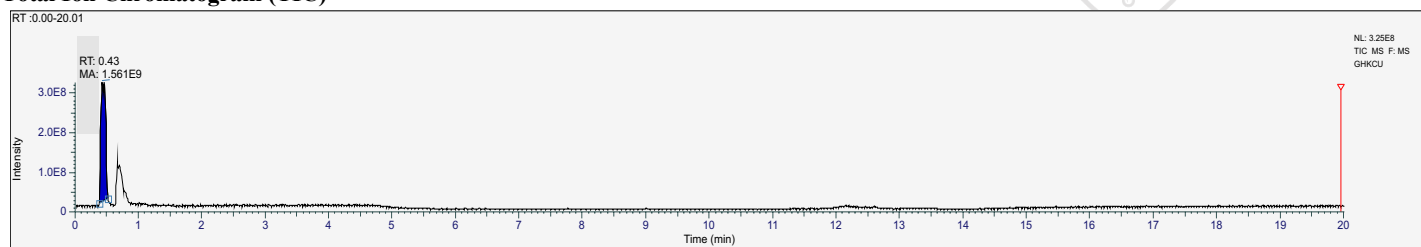
Client / Lot ID	LIVVMORE / GHK-Cu – B10002	Report Date	09/12/2026
Molecular Formula	C ₁₄ H ₂₂ N ₆ O ₄	Mass Error	2.51 ppm
Estimated Purity	100%	Identity	Confirmed
Analytical Platform	Vanquish UHPLC – Q Exactive	Acquisition	Positive HRMS

Conclusion

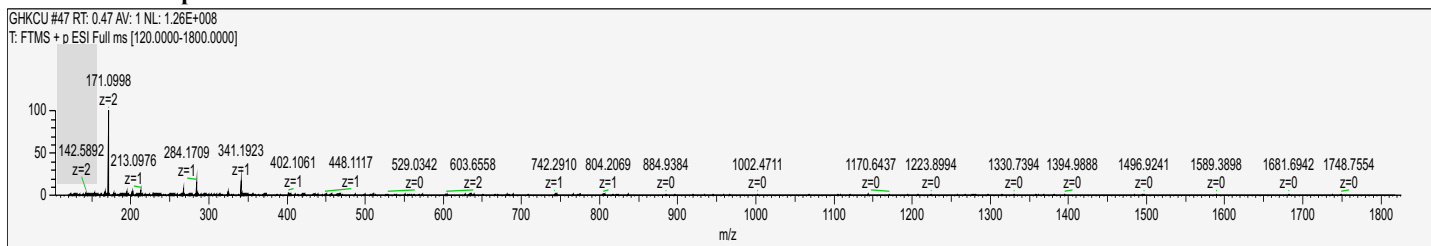
GHK-Cu was detected with an accurate mass consistent with the expected molecular formula (2.51 ppm mass error), supporting analyte identity. The estimated LC-MS area purity was ~100%, indicating high analytical purity.

Analytical Evidence

Total Ion Chromatogram (TIC)



Observed Mass Spectrum



Analytical Method

The analyte was solubilized in water at 20 mg/mL and 5 μ L was injected onto an Acclaim PepMap RSLC column (1 $\times$ 150 mm, 2 μ m) using a Vanquish UHPLC at 150 μ L/min. Mobile phases were water/0.1% formic acid (A) and acetonitrile/0.1% formic acid (B). Gradient: 0–1 min, 0% B; 1–10 min to 100% B; 10–10.5 min, 100% B; 10.5–11 min to 0% B; 11–20 min, 0% B. Detection was performed on a Q Exactive quadrupole-Orbitrap in positive ESI mode over m/z 120–1,800 at 140,000 resolving power (AGC 3 $\times$ 10⁶; maximum injection time 200 ms). Raw data were evaluated in FreeStyle v1.5. Identity was assessed by accurate mass and chromatographic peaks were manually integrated to estimate LC-MS area purity. Identified background/excipient signals were excluded; unassigned components were retained. Identified background/excipient signals were excluded; unassigned components were retained. This certificate reports analytical purity under the described LC-MS conditions and is subject to differences in ionization efficiency and the potential non-detection of poorly ionizing components.

Certification

The analytical results presented in this certificate were generated by the USC Alfred E. Mann Multi-Omics Mass Spectrometry Core using the methods described above.

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Date: 09/12/26

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