中析研究所
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Zhongxi Research Institute
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CMA Accredited · CNAS Accredited · ISO/IEC 17025

CERTIFICATE OF ANALYSIS

Issued by an ISO/IEC 17025-accredited laboratory · raw data appended (page 2)

PASS
QC released for dispatch

Scan to verify

Humanin — 50mg

Mitochondrial-derived Peptide

1. PRODUCT IDENTIFICATION

Synonym	Mitochondrial-derived Peptide	**Label claim**	50mg
Sequence / structure	MAPRGFSCLLLLTSEIDLPVKRRA	**Lot / Batch**	ZX260512-183 / B60272
Mol. formula	C119H204N34O32S2	**Manufacture date**	27 May 2026
Mol. weight	2687.22 g/mol	**Date of analysis**	2 Jun 2026
CAS number	330936-69-1	**Storage**	−20 °C, dark, desiccated
Salt form	Acetate salt		

2. ANALYTICAL TEST RESULTS

Test	Method	Specification	Result	Verdict
Appearance	Visual	White/off-white powder	White to off-white lyophilized powder	**PASS**
Identity (ESI-MS)	LC-MS	Matches 2687.22 Da	2687.25 Da (Δ 11 ppm)	**PASS**
Purity	RP-HPLC, UV 220 nm	≥ 98.0% area	99.01%	**PASS**
Related substances	RP-HPLC	Single ≤1.0 / Total ≤2.0%	0.61 / 0.99%	**PASS**
Water content	Karl Fischer (USP <921>)	≤ 8.0%	2.9%	**PASS**
Counter-ion: acetate	Ion chromatography	Report (3.0–15.0%)	9.1%	**PASS**
Net peptide content	Amino-acid analysis	≥ 80.0%	86.0%	**PASS**
Bacterial endotoxin	LAL kinetic (USP <85>)	< 5.0 EU/mg	0.14 EU/mg	**PASS**
Heavy metals	ICP-MS (ICH Q3D)	Conforms	Conforms	**PASS**

CONCLUSION
All tested parameters CONFORM to the acceptance specifications. The batch is of high chromatographic purity (≥ 98%) with an impurity profile, identity and residual/contaminant results meeting pharmaceutical-grade quality requirements. Material released. Supporting RP-HPLC chromatogram and ESI-MS spectrum are appended on page 2.

DLW.

Dr. Li Wenhua
Analyst · 2 Jun 2026 · Zhongxi Research Institute

DFH.

Dr. Fang Hong (QC Manager)
Approved by · 2 Jun 2026 · Zhongxi Research Institute

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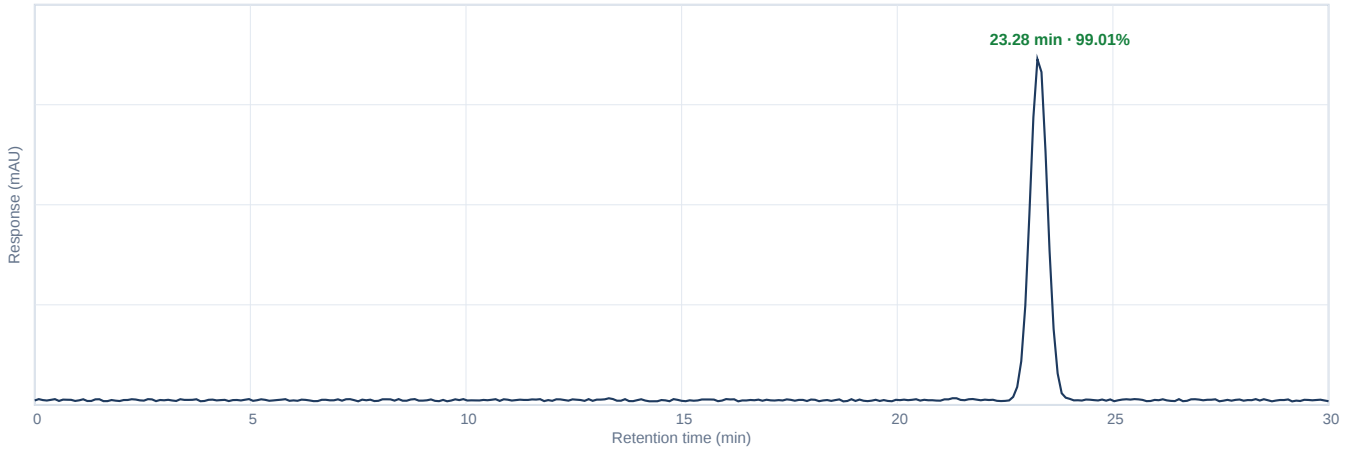
APPENDIX — ANALYTICAL RAW DATA

Humanin 50mg · Lot ZX260512-183 · Cert. ZXR-COA-2026-66851

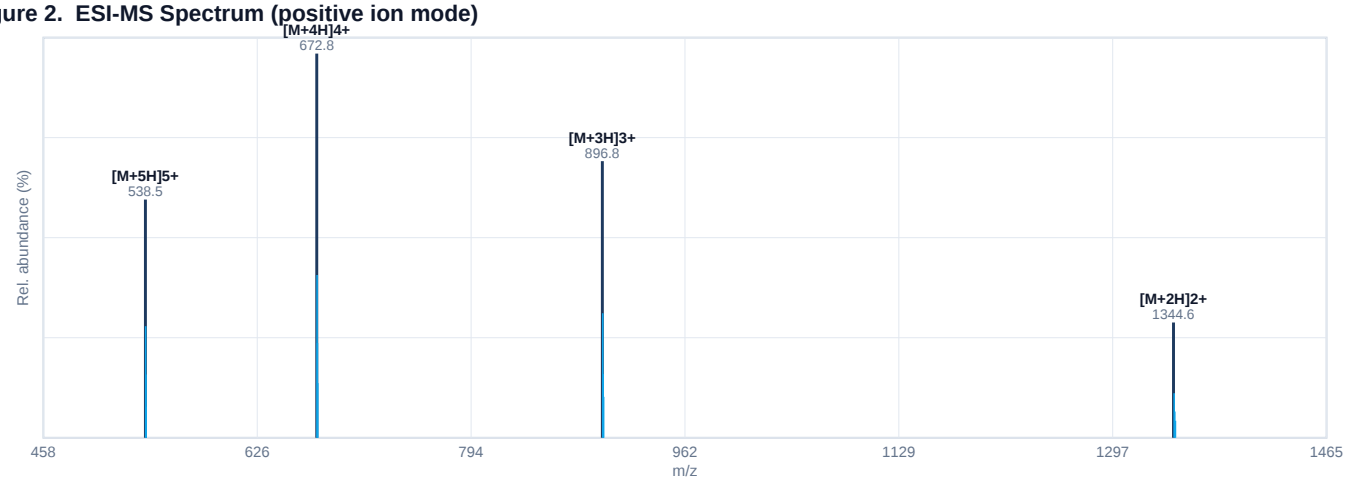
Scan to verify

Figure 1. RP-HPLC Chromatogram (UV 220 nm)



Peak #	RT (min)	Area (µV·s)	Area %	Assignment
1	23.28	1036874	99.01	Main (target)
2	13.24	4876	0.54	Impurity / related substance
3	21.30	4172	0.40	Impurity / related substance
4	21.75	523	0.05	Impurity / related substance

Figure 2. ESI-MS Spectrum (positive ion mode)



Interpretation

Identity confirmed by ESI-MS. Observed ions [M+2H]2+ 1344.6, [M+3H]3+ 896.8, [M+4H]4+ 672.8, [M+5H]5+ 538.5 deconvolute to a neutral monoisotopic-average mass of 2687.25 Da (theoretical 2687.22 Da; mass error 11 ppm), consistent with Humanin. No co-eluting species above 0.5% indicative of misidentification.

Methods — RP-HPLC: Agilent 1260 Infinity II; Zorbax SB-C18 4.6×250 mm, 5 µm; A: 0.1% TFA in water, B: 0.1% TFA in MeCN; 10–70% B over 30 min; 1.0 mL/min; 25 °C; 20 µL injection. MS: AB Sciex TripleTOF, ESI+, capillary 4.5 kV, deconvolution by Bio Tool Kit. KF: Metrohm 901. IC: Thermo Dionex ICS-6000. ICP-MS: Agilent 7900.