



CERTIFICATE OF ANALYSIS

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

PASS

QC released for dispatch



Scan to verify

Thymalin — 20mg

Thymic Peptide

1. PRODUCT IDENTIFICATION

Synonym	Thymic Peptide	Label claim	20mg
Sequence / structure	Polypeptide complex	Lot / Batch	ZX260512-592 / B15410
Mol. formula	C33H54N12O15	Manufacture date	19 May 2026
Mol. weight	858.92 g/mol	Date of analysis	27 May 2026
CAS number	63958-90-7	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 858.92 Da	858.92 Da (Δ 0 ppm)	PASS
Purity	RP-HPLC, UV 220 nm	$\geq 98.0\%$ area	99.58%	PASS
Related substances	RP-HPLC	Single ≤ 1.0 / Total $\leq 2.0\%$	0.23 / 0.42%	PASS
Water content	Karl Fischer (USP <921>)	$\leq 8.0\%$	3.3%	PASS
Counter-ion: acetate	Ion chromatography	Report (3.0–15.0%)	5.2%	PASS
Net peptide content	Amino-acid analysis	$\geq 80.0\%$	90.2%	PASS
Bacterial endotoxin	LAL kinetic (USP <85>)	< 5.0 EU/mg	0.09 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 ($\geq 98\%$) 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.

DHR.

Dr. Huang Rui

Analyst · 27 May 2026 · Zhongxi Research Institute

DFH.

Dr. Fang Hong (QC Manager)

Approved by · 27 May 2026 · Zhongxi Research Institute



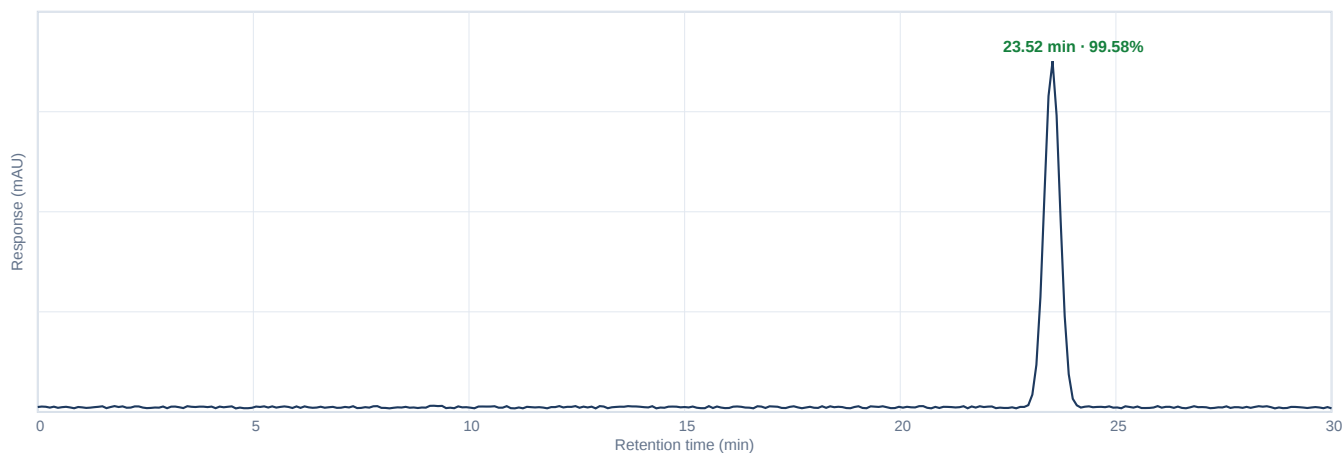
APPENDIX — ANALYTICAL RAW DATA

Thymalin 20mg · Lot ZX260512-592 · Cert. ZXR-COA-2026-14334



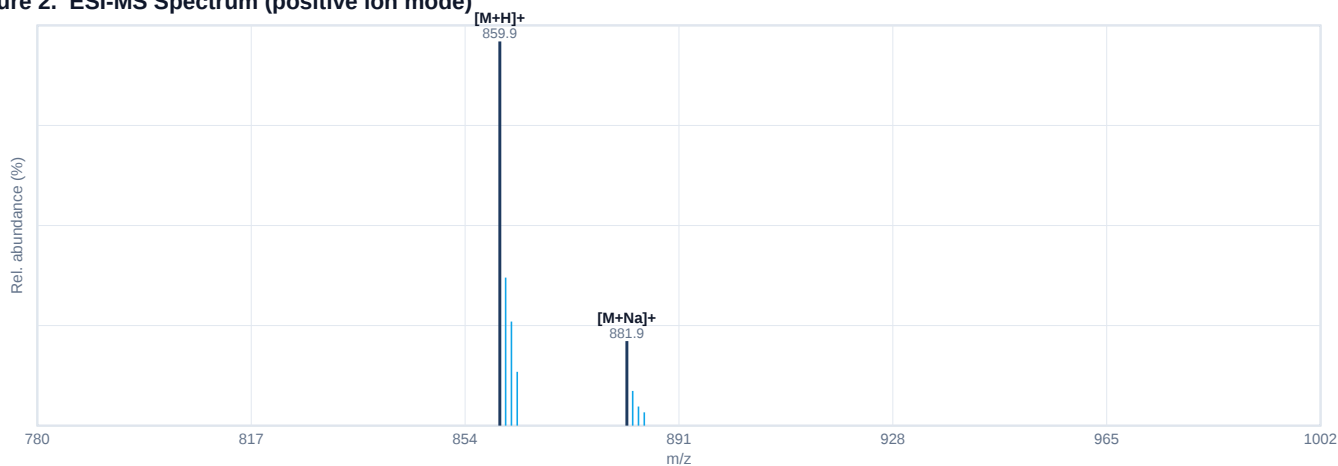
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Figure 1. RP-HPLC Chromatogram (UV 220 nm)



Peak #	RT (min)	Area (μV·s)	Area %	Assignment
1	23.52	1082356	99.58	Main (target)
2	9.08	2399	0.23	Impurity / related substance
3	21.89	878	0.08	Impurity / related substance

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



Interpretation

Identity confirmed by ESI-MS. Observed ions [M+H]⁺ 859.9, [M+Na]⁺ 881.9 deconvolute to a neutral monoisotopic-average mass of 858.92 Da (theoretical 858.92 Da; mass error 0 ppm), consistent with Thymalin. 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.