LAB CENTRO
ANALYTICAL TESTING LABORATORY

CERTIFICATE OF ANALYSIS

Thymosin Alpha-1

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CERTIFICATE NO.
COA-2026-0824-TA1-5370

PREPARED FOR	CLIENT WEBSITE	DISTRIBUTION
H&J Pharma	vietnam-peptides.com	Client confidential

1 SAMPLE & ACCESSION

ANALYTE / IDENTITY	CAS NUMBER	MOLECULAR FORMULA	MOLECULAR MASS (DA)
Thymosin Alpha-1	62304-98-7	C129H215N33055	3108.30
SUBSTANCE CLASS	**REFERENCE-DATA CONFIDENCE**	**LOT NUMBER**	**LABELED CONTENT**
Peptide, 28-mer	High	TA1-2026-0803-6035	10 mg
ACCESSION NO.	**SAMPLE MATRIX**	**APPEARANCE**	**STORAGE**
ACC-2026-0824-TA1-5370	Lyophilized	Conforms	-20 °C, protected from light
MANUFACTURED	**RETEST / EXPIRY**	**DATE RECEIVED**	**DATE ANALYZED**
08/03/2026	08/03/2028	08/18/2026	08/22/2026
RECONSTITUTION VOLUME	**DISPOSITION**		
1.0 mL	RELEASED		



PURITY	IDENTITY	NET PEPTIDE	MOISTURE
99.43%	Confirmed	10.15 mg	2.33%
PASS	PASS	REPORTED	PASS

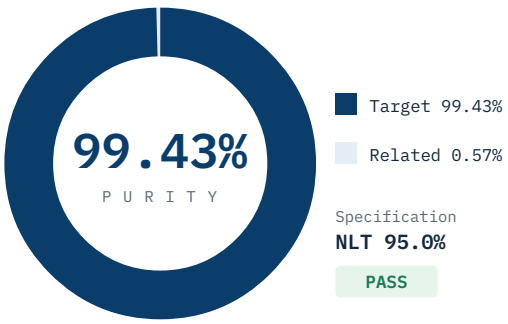
STERILITY	ENDOTOXIN	HEAVY METALS
No Growth	0.117	ND
PASS	PASS	PASS

2 PURITY, QUANTITATION & IDENTITY

HPLC · HPLC-RTM · LC-MS

PARAMETER	METHOD	SPECIFICATION	RESULT	UNIT	STATUS
Peptide purity (HPLC)	RP-HPLC-UV 214 nm	NLT 95.0%	99.43	%	PASS
Net peptide content	HPLC / AAA	Report only	10.15	mg	REPORTED
Identity (HPLC-RTM)	Retention-time match	Co-elution	Confirmed	—	PASS
Targeted adulterant / unexpected analyte screen	LC-MS/MS full-scan review	No unexpected exogenous analyte detected	Not Detected	—	PASS

FIGURE 1 · PURITY



HPLC area normalization. Target 99.43%, related substances 0.57%.

Chromatographic purity of 99.43% is measured against a not-less-than 95.0% release criterion. Net peptide content of 10.15 mg is reported against a nominal 10 mg label claim.

3 REPRESENTATIVE CHROMATOGRAM

RP-HPLC-UV

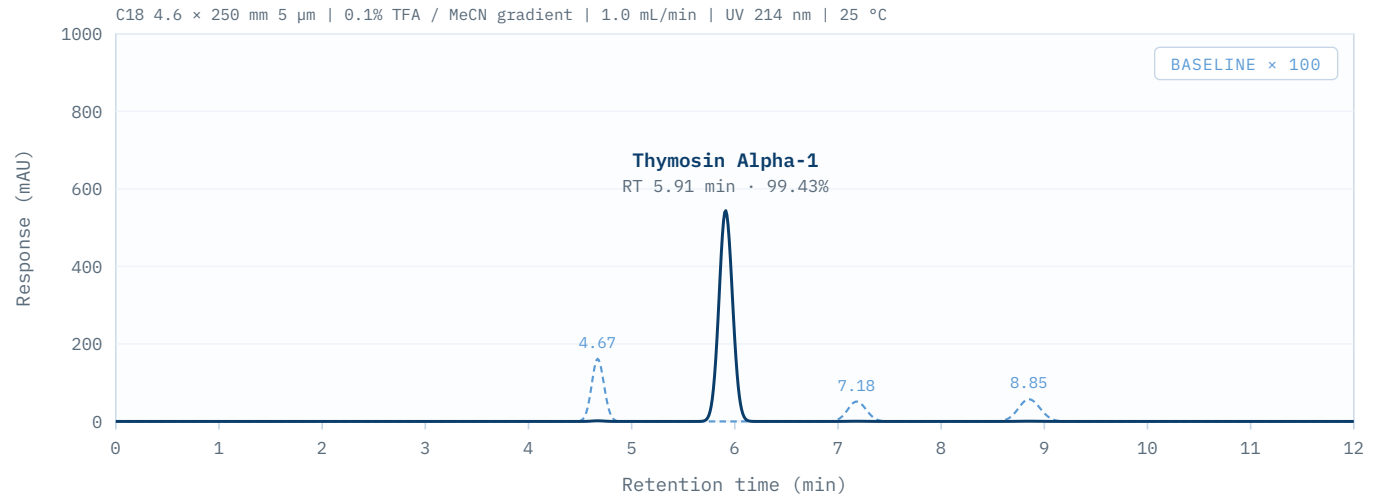


Figure 2. Chromatogram exported from the HPLC data system. — retention time, area, plate count and tailing factor define each peak envelope ($\sigma = t_R/\sqrt{N}$). Related substances shown magnified as the dashed trace, at the factor marked on the plot.

PEAK	RT (MIN)	AREA (µAU·S)	AREA %	PLATES (N)	TAILING
Thymosin Alpha-1 (principal)	5.91	4,971,500	99.43	9,473	1.07
Related substance 1	4.67	13,500	0.27	7,043	1.08
Related substance 2	7.18	6,500	0.13	7,279	1.08
Related substance 3	8.85	8,500	0.17	8,056	1.08
Total	–	**5,000,000**	**100.00**	–	–

4 MASS CONFIRMATION

LC-MS, ESI positive

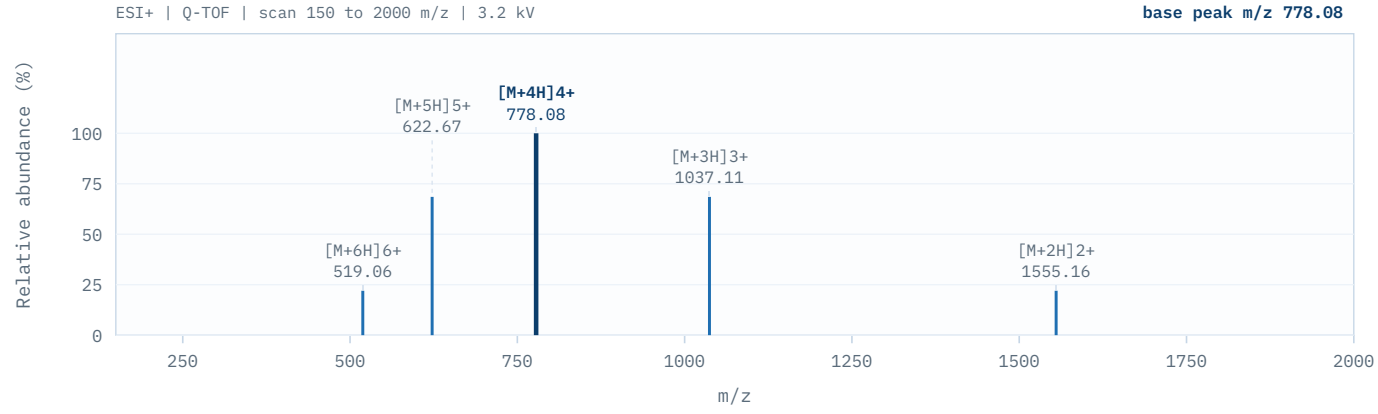


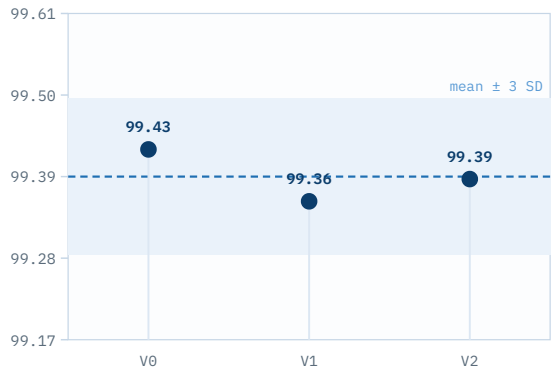
Figure 3. Acquired ESI(+) mass spectrum of the analyzed sample.

5 BATCH CONFORMITY

three independently sampled units

UNIT	PURITY (%)	NET CONTENT (MG)	IDENTITY	STATUS
V0 (dedicated)	99.43	10.15	Confirmed	PASS
V1	99.36	10.17	Confirmed	PASS
V2	99.39	10.14	Confirmed	PASS

FIGURE 4 · CONFORMITY



Mean 99.39% · SD 0.035%
Lower spec limit 95.0% (off scale)

6 COMPOSITION, MOISTURE & COUNTERION

KF · IC · USP <467>

PARAMETER	METHOD	SPECIFICATION	RESULT	UNIT	STATUS
Net peptide content	HPLC / AAA	Report only	10.15	mg	REPORTED
Water (Karl Fischer)	USP <921>	NMT 8.0% w/w	2.33	% w/w	PASS
Counterion	—	Not applicable	N/A	—	REPORTED
Residual solvents (TFA)	USP <467> headspace GC	Not Detected	ND	—	PASS
Gross fill weight	Gravimetric	Report only	10.47	mg	REPORTED

7 MASS BALANCE PER VIAL

components must sum to the gross fill

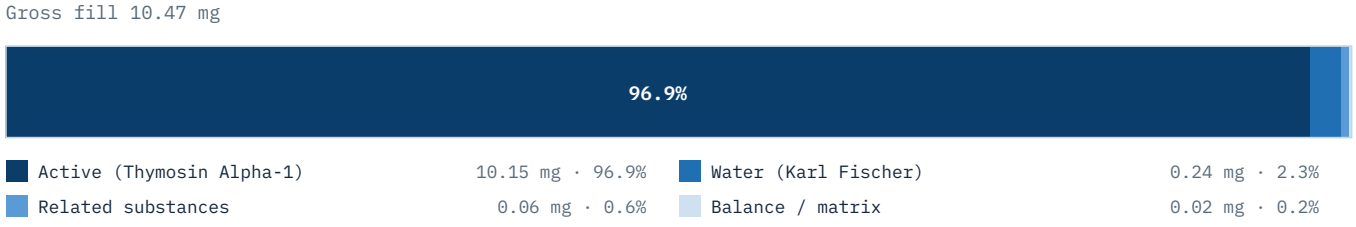


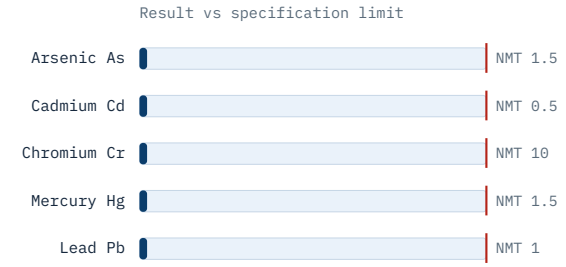
Figure 5. Mass balance of the lyophilized cake. Components sum to 10.47 mg against a gross fill of 10.47 mg.

8 SAFETY & CONTAMINATION CONTROLS

ICP-MS · USP <71> <61> <85>

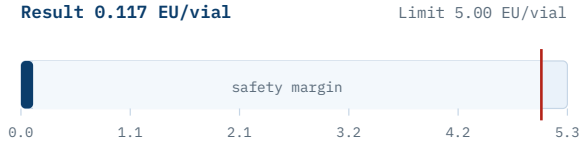
PARAMETER	SPECIFICATION	RESULT	STATUS
Arsenic (As)	NMT 1.5 ppm	Not Detected	PASS
Cadmium (Cd)	NMT 0.5 ppm	Not Detected	PASS
Chromium (Cr)	NMT 10 ppm	Not Detected	PASS
Mercury (Hg)	NMT 1.5 ppm	Not Detected	PASS
Lead (Pb)	NMT 1 ppm	Not Detected	PASS
Sterility	No Growth (USP <71>)	No Growth	PASS
Bioburden	< 10 CFU/mL (USP <61>)	< 1	PASS
Bacterial endotoxin	NMT 5.00 EU/vial	0.117	PASS

FIGURE 6 · ELEMENTAL HEADROOM



ND = below LOQ (0.01 – 0.05 ppm)
red rule = specification limit

FIGURE 7 · ENDOTOXIN MARGIN



Result is 2% of the limit · ~42.7× margin

9 FOR THE RECIPIENT — plain-language summary

Purity (HPLC)	Percent of the main peak relative to all detected peaks.	**Net peptide content**	Measured mass of active, separate from water and salt.
NMT / NLT	Not more than / not less than — an acceptance limit.	**Not Detected**	Below the method limit of quantitation (LOQ).
EU/vial	Endotoxin units per vial; acceptance limit is 5.00 EU/vial.	**RRT**	Relative retention time; an impurity position versus the main peak.
Counterion	The salt partner of the peptide.	**Karl Fischer**	Titration for residual water (USP <921>).

Storage. Store the sealed lyophilized vial according to the product storage specification. Reconstituted solution should be handled according to the applicable product specification. **Handling.** Research use only; not for human or veterinary use.

11 AUTHORIZATION



Laboratory Director
Name: Alejandro Navarro
Date: 08/24/2026



Quality Assurance
Name: Oliver Bennett
Date: 08/26/2026

AUTHENTICATE THIS CERTIFICATE

Scan the code or verify at https://labcentro.com/coa-verification/?cert=COA-2026-0824-TA1-5370&code=ZXYHZMEB
Verification ID: ZXYHZMEB

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