LAB CENTRO
ANALYTICAL TESTING LABORATORY

CERTIFICATE OF ANALYSIS

Tirzepatide

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CERTIFICATE NO.
COA-2026-0818-TIRZ-7126

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)
Tirzepatide	2023788-19-2	C225H348N48068	4813.53
SUBSTANCE CLASS	**REFERENCE-DATA CONFIDENCE**	**LOT NUMBER**	**LABELED CONTENT**
Lipidated peptide, 39-mer	High	TIRZ-2026-0731-2790	20 mg
ACCESSION NO.	**SAMPLE MATRIX**	**APPEARANCE**	**STORAGE**
ACC-2026-0818-TIRZ-7126	Lyophilized	Conforms	-20 °C, protected from light
MANUFACTURED	**RETEST / EXPIRY**	**DATE RECEIVED**	**DATE ANALYZED**
07/31/2026	07/31/2028	08/14/2026	08/15/2026
RECONSTITUTION VOLUME	**DISPOSITION**		
1.0 mL	RELEASED		

PURITY	IDENTITY	NET PEPTIDE	MOISTURE
99.12% PASS	**Confirmed** PASS	**20.07 mg** REPORTED	**3.35%** PASS

STERILITY	ENDOTOXIN	HEAVY METALS
No Growth PASS	**0.063** PASS	**ND** PASS

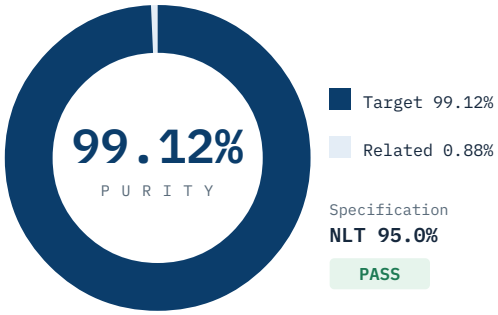
2 PURITY, QUANTITATION & IDENTITY

HPLC · HPLC-RTM · LC-MS

PARAMETER	METHOD	SPECIFICATION	RESULT	UNIT	STATUS
Peptide purity (HPLC)	RP-HPLC-UV 214 nm	NLT 95.0%	99.12	%	PASS
Net peptide content	HPLC / AAA	Report only	20.07	mg	REPORTED
Identity (HPLC-RTM)	Retention-time match	Co-elution	Confirmed	—	PASS
Fentanyl screen	Immunoassay 50 ng/mL	Not Detected	Not Detected	—	PASS

Chromatographic purity of 99.12% is measured against a not-less-than 95.0% release criterion. Net peptide content of 20.07 mg is reported against a nominal 20 mg label claim.

FIGURE 1 · PURITY



HPLC area normalization. Target 99.12%, related substances 0.88%.

3 REPRESENTATIVE CHROMATOGRAM

RP-HPLC-UV

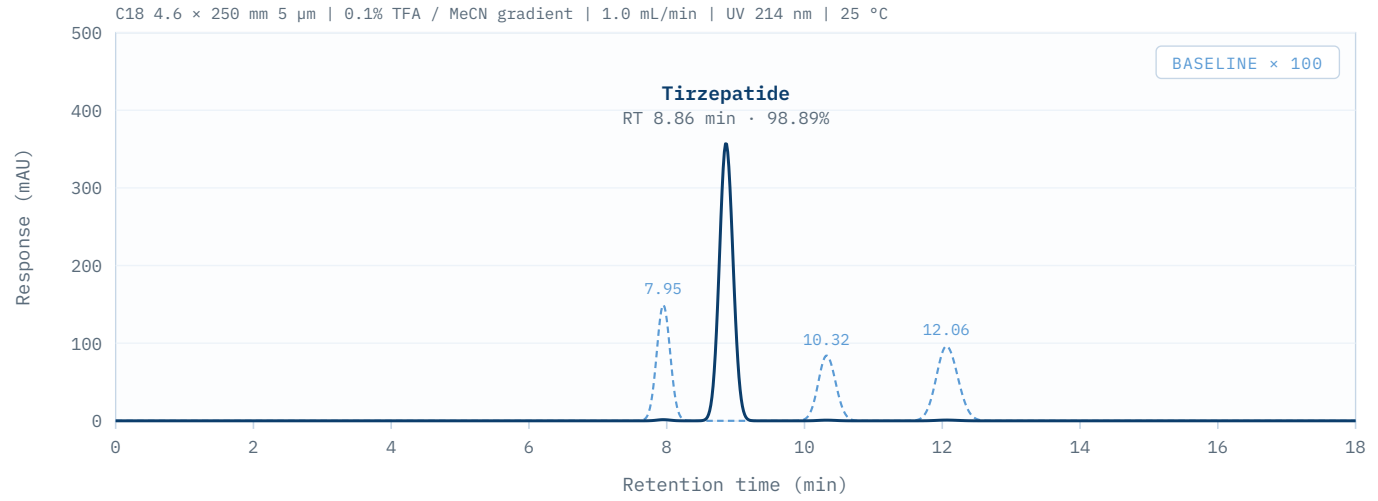


Figure 2. Trace reconstructed from the reported peak table — retention time, area, plate count and tailing factor define each peak envelope ($\sigma = t_R/\sqrt{N}$). Related substances shown magnified as the dashed trace, at the factor marked on the plot.

PEAK	RT (MIN)	AREA (µAU·S)	AREA %	PLATES (N)	TAILING
Tirzepatide (principal)	8.86	4,944,500	98.89	9,308	1.07
Related substance 1 (RRT 0.88)	7.95	20,729	0.41	7,425	1.05
Related substance 2 (RRT 1.17)	10.32	14,711	0.29	7,863	1.10
Related substance 3 (RRT 1.37)	12.06	20,500	0.41	7,228	1.13
Total	–	**5,000,440**	**100.00**	–	–

4 MASS CONFIRMATION

LC-MS, ESI positive

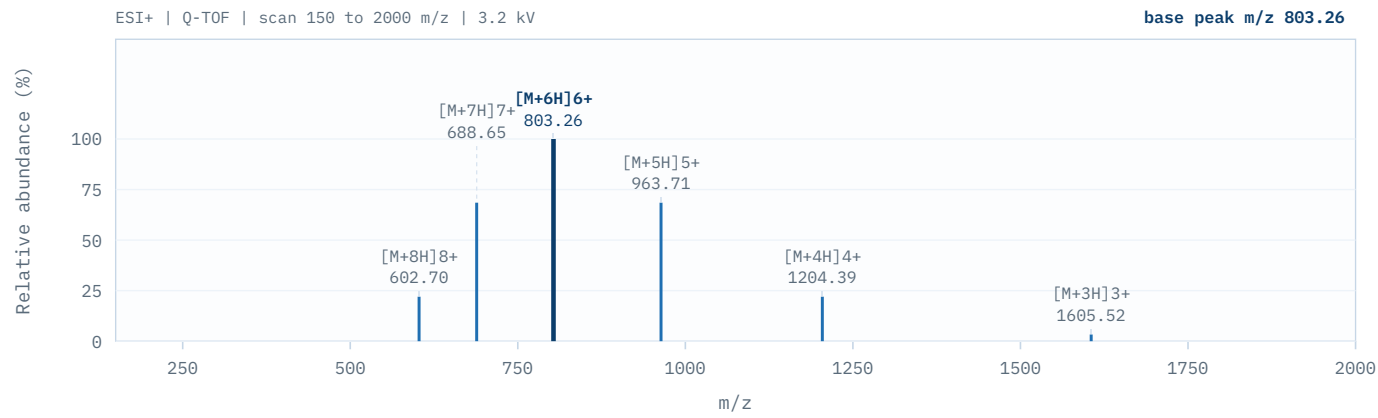


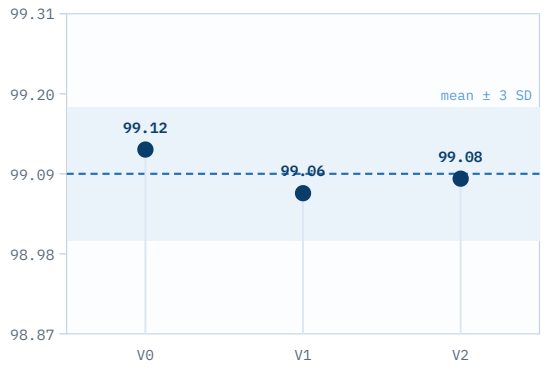
Figure 3. Theoretical ESI(+) charge-state ladder computed from 4813.53 Da. Replace with the acquired spectrum before issue.

5 BATCH CONFORMITY

three independently sampled units

UNIT	PURITY (%)	NET CONTENT (MG)	IDENTITY	STATUS
V0 (dedicated)	99.12	20.07	Confirmed	PASS
V1	99.06	20.05	Confirmed	PASS
V2	99.08	20.15	Confirmed	PASS

FIGURE 4 · CONFORMITY



Mean 99.09% · SD 0.031%
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	20.07	mg	REPORTED
Water (Karl Fischer)	USP <921>	NMT 8.0% w/w	3.35	% w/w	PASS
Counterion (acetate)	Ion chromatography	Report only	6.94	% w/w	REPORTED
Residual solvents (TFA)	USP <467> headspace GC	Not Detected	ND	—	PASS
Gross fill weight	Gravimetric	Report only	22.45	mg	REPORTED

7 MASS BALANCE PER VIAL

components must sum to the gross fill

Gross fill 22.45 mg

Active (Tirzepatide)	20.07 mg · 89.4%	Acetate counterion	1.39 mg · 6.2%
Water (Karl Fischer)	0.75 mg · 3.4%	Related substances	0.18 mg · 0.8%
Balance / matrix	0.05 mg · 0.2%		

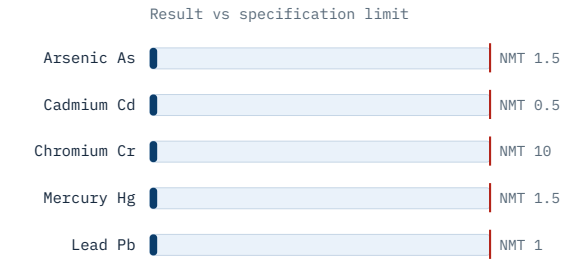
Figure 5. Mass balance of the lyophilized cake. Components sum to 22.45 mg against a gross fill of 22.45 mg.

8 SAFETY & CONTAMINATION CONTROLS

ICP-MS · USP <71> <61> <85>

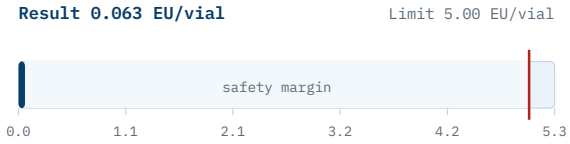
PARAMETER	SPECIFICATION	RESULT	STATUS
Arsenic (As)	NMT 1.5 ppm	Not Detected	PASS
Cadmium (Cd)	NMT 0.5 ppm	Not Detected	PASS
Chromium (Cr)	NMT 10 ppm	Not Detected	PASS
Mercury (Hg)	NMT 1.5 ppm	Not Detected	PASS
Lead (Pb)	NMT 1 ppm	Not Detected	PASS
Sterility	No Growth (USP <71>)	No Growth	PASS
Bioburden	< 10 CFU/mL (USP <61>)	< 1	PASS
Bacterial endotoxin	NMT 5.00 EU/vial (derived)	0.063	PASS

FIGURE 6 · ELEMENTAL HEADROOM



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

FIGURE 7 · ENDOTOXIN MARGIN



Result is 1% of the limit · ~79.4× 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, derived from the declared reconstitution volume.	**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 at −20 °C, protected from light. Reconstituted solution is stable at 2–8 °C; use within 30 days. **Reconstitution.** Add bacteriostatic or sterile water down the vial wall, swirl gently, do not shake. **Handling.** Research use only; not for human or veterinary use.

11 AUTHORIZATION

Laboratory Director
Name: Alejandro Navarro
Date: 08/18/2026

Quality Assurance
Name: Oliver Bennett
Date: 08/19/2026

AUTHENTICATE THIS CERTIFICATE

Scan the code or verify at https://labcentro.com/coa-verification/?cert=COA-2026-0818-TIRZ-7126&code=LOTQSKTY
Verification ID: LOTQSKTY