Alpha Tides

CERTIFICATE OF ANALYSIS · LOT RELEASE

alphatides.net

CERTIFICATE NO.
PL-26-00111

VERIFICATION KEY
4LHE2BU8

Scan or enter both at prymalab.net/testing/verify

CERTIFICATE OF ANALYSIS · LOT RELEASE · ISSUED FOR ALPHA TIDES

Tirzepatide 20 mg

Lot **PL-2609-111** · Lyophilized powder · Label claim **20 mg/vial**

TESTED IN-HOUSE BY PRYMALAB

In-house analytical result, not an independent third-party test

LOT / BATCH NUMBER	DATE MADE	DATE OF ANALYSIS	DATE ISSUED
PL-2609-111	2026-09-18	2026-09-19	2026-10-03

RETEST / EXPIRY	UNITS IN LOT / SAMPLED	STORAGE	CERTIFICATE TYPE
2028-09-18	400 / 2	−20 °C, desiccated, dark	Lot COA, 2 pages

COMPOUND	CAS NUMBER	MOLECULAR FORMULA	THEORETICAL MASS (AVG.)
Tirzepatide LY3298176; GIP/GLP-1 receptor dual agonist	2023788-19-2	$C_{225}H_{348}N_{48}O_{68}$	4813.5 Da

SEQUENCE

H-Y-Aib-EGTFTSDYSI-Aib-LDKIAQK(2×AEEA-γGlu-C20 diacid)AFVQWLIAGGPSSGAPPPS-NH_2 (39 residues; Aib2 and Aib13; Lys20 acylated with eicosanedioic acid via γ-Glu and two AEEA spacers; C-terminal amide)

PURITY · RP-HPLC, AREA %
99.23%
Specification 99.0% • main peak at 8.64 min

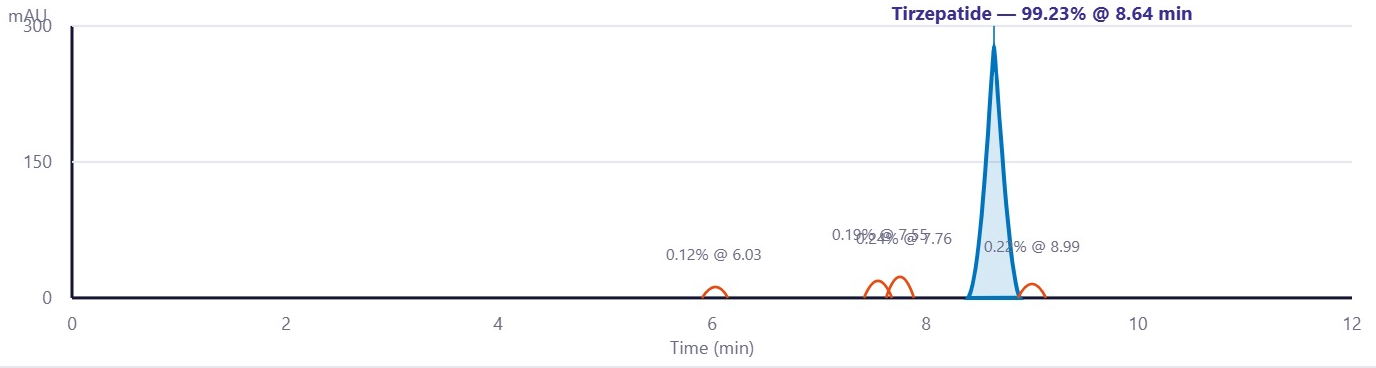
IDENTITY · OBSERVED MASS
4813.6 Da
Theoretical 4813.5 Da • +0.1 Da (21 ppm)

OVERALL CONCLUSION
PASS
Meets every specification for the tests performed

TEST	METHOD	SPECIFICATION	RESULT	CONCLUSION
Appearance	Visual inspection	White to off-white lyophilized powder	White lyophilized powder	PASS
Identity (mass)	LC-MS, ESI positive	Theoretical ± 1.0 Da	4813.6 Da	PASS
Purity	RP-HPLC, UV 214 nm, area%	99.0%	99.23%	PASS
Largest impurity	RP-HPLC, area%	1.0%	0.24% at 7.76 min (Trp 25 oxidation)	PASS
Water content	Karl Fischer	5.0%	1.8%	PASS
Bacterial endotoxin	LAL, kinetic	≤ 5.0 EU/mg	0.05 EU/mg	PASS
Sterility / bioburden	USP <71>, membrane filtration	No growth after 14 days	No growth; conforms	PASS

1 HPLC CHROMATOGRAM

Data file: TZP_PL-2609-111_20260919_01 · Column C18, 150 × 4.6 mm · UV 214 nm



Baseline uncropped; main peak and impurities labeled with retention times. Peak table on page 2.

Verify: prymalab.net/testing/verify · PL-26-00111 · key 4LHE2BU8

For laboratory research use only. Not for human or veterinary use.

2 HPLC METHOD · TZP_PL-2609-111_20260919_01

INSTRUMENT
Waters Alliance e2695, SN E2695B742

DATA SYSTEM
Empower 3, Build 3471

DETECTOR
Waters 2998 PDA

DETECTION WAVELENGTH
214 nm

COLUMN
C18, 150 × 4.6 mm, 3.5 µm

COLUMN PART / SERIAL
186003326 / USHX20500

MOBILE PHASE A
0.1% TFA in water

MOBILE PHASE B
0.1% TFA in MeCN

FLOW RATE
1.0 mL/min

COLUMN TEMPERATURE
40 °C

INJECTION VOLUME
20 µL

RUN TIME
12 min

SAMPLE DILUENT
0.1% TFA in 30% MeCN

SAMPLE CONCENTRATION
0.5 mg/mL

BLANK INJECTED
Yes

REFERENCE STANDARD
In-house Tirzepatide reference, lot PL-RS-TZP-01, RT 8.61 min

3 GRADIENT PROGRAM

TIME (MIN)	% A	% B
0.0	65	35
2.0	65	35
9.0	25	75
10.0	15	85
11.0	15	85
12.0	65	35

4 PEAK TABLE

PEAK	RT (MIN)	AREA	AREA %
1	6.03	5,776	0.12
2 (deamid.)	7.55	9,146	0.19
3 (Trp-ox)	7.76	11,553	0.24
4	**8.64**	**4,776,535**	**99.23**
5	8.99	10,590	0.22
Total		4,813,600	100.00

Threshold 0.05% area · Blank subtracted: Y · Purity = main peak area ÷ total integrated area × 100, to two decimals; main peak shaded.

5 IDENTITY BY MASS SPECTROMETRY

INSTRUMENT
Waters Acquity SQD

IONIZATION / MODE
ESI, positive

OBSERVED M/Z (CHARGE)
963.7 (5+ [M+5H]) · 803.3 (6+ [M+6H])

DECONVOLUTED MASS
4813.6 Da

THEORETICAL MASS
4813.5 Da

DIFFERENCE
+0.1 Da (21 ppm)

DATA FILE
TZP_PL-2609-111_MS_20260919_01

ACCEPTANCE
Within ± 1.0 Da

6 ADDITIONAL TESTS

TEST	PERFORMED BY	DATE	REPORT / FILE
Water content	PrymaLab	2026-09-19	RPT-KF-PL-2609-111
Endotoxin	PrymaLab	2026-09-19	RPT-ET-PL-2609-111
Sterility	PrymaLab	2026-09-19	RPT-ST-PL-2609-111

A test with no row here was not performed on this lot. Outside-laboratory reports, when used, are attached and named below.

7 REVIEW AND APPROVAL

D. Reynolds
Analyst · performed the testing
Date: 2026-09-19

S. Calloway
Reviewer · checked against raw data
Date: 2026-10-02

M. Phelps
Lab Director · approved for release
Date: 2026-10-03

Raw data retained at: Empower 3 (Build 3471), project PL-2609, archive PL-ARC-2026; 7 years. Outside laboratory reports attached: None

This certificate applies only to the lot named above and describes the units sampled from it; it is not a guarantee for any other lot. Results were obtained by PrymaLab LLC's own laboratory (PrymaLab Analytical) and are not an independent third-party test unless an outside report is attached. This copy is issued for Alpha Tides, a distributor of the lot; the brand shown does not change the laboratory, the method or the results. Reference values (CAS, formula, theoretical mass, sequence) are literature values for the named compound. Authenticity: scan the QR code or enter certificate number PL-26-00111 and key 4LHE2BU8 at prymalab.net/testing/verify; any copy that does not match the record shown there is not a PrymaLab certificate. PrymaLab LLC products are supplied for laboratory research use only and not for human or veterinary use.