Alpha Tides

CERTIFICATE OF ANALYSIS · LOT RELEASE

alphatides.net

CERTIFICATE NO.
PL-26-00011

VERIFICATION KEY
UJWEQS9S

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

CERTIFICATE OF ANALYSIS · LOT RELEASE · ISSUED FOR ALPHA TIDES

Wolverine Blend (BPC-157 10 mg + TB-500 10 mg)

Lot **PL-2609-011** · Lyophilized co-blend 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-2609-011	2026-09-17	2026-09-19	2026-10-03
RETEST / EXPIRY	**UNITS IN LOT / SAMPLED**	**STORAGE**	**CERTIFICATE TYPE**
2028-09-17	250 / 2	−20 °C, desiccated, dark	Lot COA, 2 pages

COMPOUND
Wolverine Blend
BPC-157 + TB-500 co-lyophilized 1:1 blend

CAS NUMBER
137525-51-0 · 77591-33-4

MOLECULAR FORMULA
$C_{62}H_{98}N_{16}O_{22}$ · $C_{212}H_{350}N_{56}O_{78}S$

THEORETICAL MASS (AVG.)
1419.6 · 4963.5 Da (BPC-157 / TB-500 (Thymosin β4))

COMPOSITION AND SEQUENCES

BPC-157 10 mg: `H-GEPPPGKPADDAGLV-OH (15 residues; free N- and C-termini)` · **TB-500 (Thymosin β4) 10 mg**: `Ac-SDKPDMAEIEKFDKSKLKKTETQEKNPLPSKETIEQEKQAGES-OH (43 residues; N-acetyl; free C-terminus)`

PURITY · RP-HPLC, AREA %
99.65%
Specification 99.0 % (blend, sum of both component peaks)

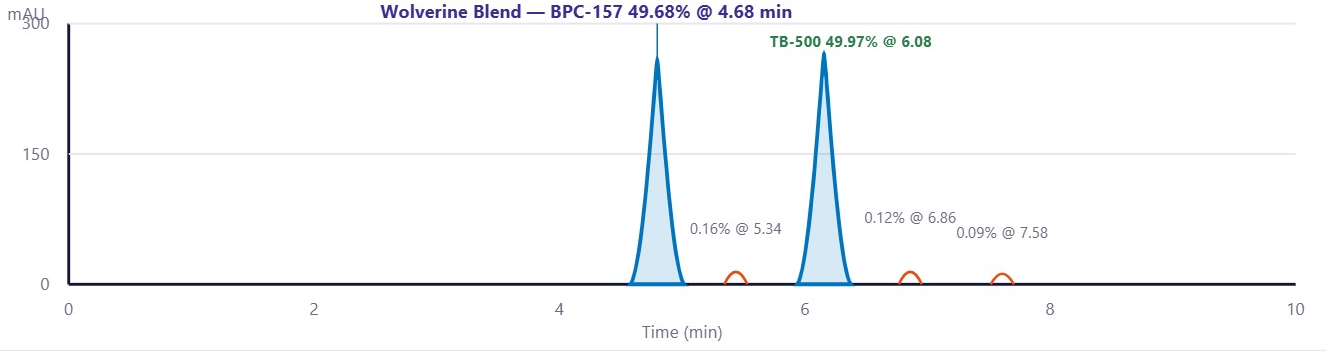
IDENTITY · OBSERVED MASS
2 / 2
Components confirmed by LC-MS within ± 1.0 Da: 1419.8 / 4963.7 Da

OVERALL CONCLUSION
PASS
Meets every specification for the tests performed

TEST	METHOD	SPECIFICATION	RESULT	CONCLUSION
Appearance	Visual inspection	White to off-white lyophilized powder or cake	White lyophilized powder	**PASS**
Identity (mass)	LC-MS, ESI positive	Theoretical ± 1.0 Da, each component	1419.8 Da (BPC-157) · 4963.7 Da (TB-500)	**PASS**
Purity	RP-HPLC, UV 214 nm, area%	99.0 % (blend)	99.65 %	**PASS**
Largest impurity	RP-HPLC, area%	1.0 %	0.16 % at 5.34 min	**PASS**
Water content	Karl Fischer	5.0 %	2.0 %	**PASS**
Bacterial endotoxin	LAL, kinetic	≤ 5.0 EU/mg	0.12 EU/mg	**PASS**
Sterility / bioburden	USP <71>, membrane filtration	No growth after 14 days	No growth; conforms	**PASS**

1 HPLC CHROMATOGRAM

Data file: WLV_PL-2609-011_20260919_01 · Column C18, 150 × 4.6 mm · UV 214 nm



Baseline uncropped; both component peaks and impurities labeled with retention times. Peak table on page 2.

Verify: prymalab.net/testing/verify · PL-26-00011 · key UJWEQS9S

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

2 HPLC METHOD · WLV_PL-2609-011_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 / USHX18211

MOBILE PHASE A
0.1% TFA in water

MOBILE PHASE B
0.1% TFA in MeCN

FLOW RATE
1.0 mL/min

COLUMN TEMPERATURE
30 °C

INJECTION VOLUME
20 µL

RUN TIME
10 min

SAMPLE DILUENT
Water, 0.1% TFA

SAMPLE CONCENTRATION
0.5 mg/mL (blend)

BLANK INJECTED
Yes

REFERENCE STANDARD
In-house Wolverine blend reference, lot PL-RS-WLV-01, component RTs 4.66 / 6.06 min

3 GRADIENT PROGRAM

TIME (MIN)	% A	% B
0.0	95	5
3.0	95	5
7.0	55	45
8.0	20	80
9.0	20	80
10.0	95	5

4 PEAK TABLE

PEAK	RT (MIN)	AREA	AREA %
1 (BPC-157)	4.68	2,136,240	49.68
2	5.34	6,880	0.16
3 (TB-500)	6.08	2,148,710	49.97
4	6.86	5,160	0.12
5	7.58	3,870	0.09
Total		4,300,000	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)
1420.3 (1+ [M+H]) · 1442.2 (1+ [M+Na], BPC-157) · 1241.9 (4+ [M+4H]) · 993.7 (5+ [M+5H], TB-500)

DECONVOLUTED MASS
1419.8 / 4963.7 Da (by component)

THEORETICAL MASS
1419.6 / 4963.5 Da (BPC-157 / TB-500)

DIFFERENCE
≤ +0.2 Da (per component)

DATA FILE
WLV_PL-2609-011_MS_20260919_01

ACCEPTANCE
Within ± 1.0 Da (each component)

6 ADDITIONAL TESTS

TEST	PERFORMED BY	DATE	REPORT / FILE
Water content	PrymaLab	2026-09-20	RPT-KF-PL-2609-011
Endotoxin	PrymaLab	2026-09-21	RPT-ET-PL-2609-011
Sterility	PrymaLab	2026-10-02	RPT-ST-PL-2609-011

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-26-00011 and key UJWEQS9S 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.