



CERTIFICATE NO.
PL-26-00011

VERIFICATION KEY
UJWEQS9S

Scan or enter both at
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CERTIFICATE OF ANALYSIS · LOT RELEASE · ISSUED FOR VIRSTELLIS

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

Lot PL-2609-011 · Lyophilized co-blend powder · Label claim 20 mg/vial · Distributed as BPC-157 / TB-500

TESTED IN-HOUSE BY PRYMALAB

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

LOT / BATCH NUMBER
PL-2609-011

DATE MADE
2026-09-17

DATE OF ANALYSIS
2026-09-19

DATE ISSUED
2026-10-03

RETEST / EXPIRY
2028-09-17

UNITS IN LOT / SAMPLED
250 / 2

STORAGE
-20 °C, desiccated, dark

CERTIFICATE TYPE
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 β 4))

COMPOSITION AND SEQUENCES

BPC-157 10 mg: H-GEPPPGKPADDAGLV-OH (15 residues; free N- and C-termini) · **TB-500 (Thymosin β 4) 10 mg:** Ac-SDKPDMAEIEKFDKSKLKKTTETQKCNPLPSKETIEQE KQAGES-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

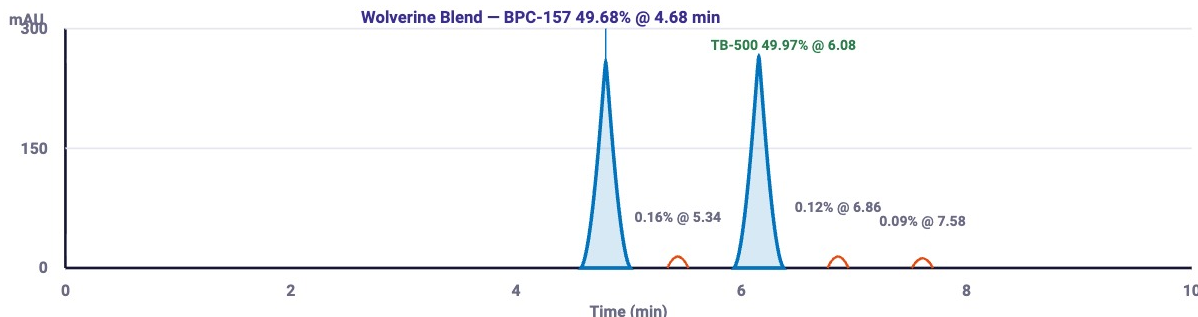
PASS

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: WLW_PL-2609-011_20260919_01 · Column C18, 150 $\times$ 4.6 mm · UV 214 nm



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

**2 HPLC METHOD · WLV_PL-2609-011_20260919_01**

INSTRUMENT

Waters Alliance e2695, SN E2695B742

DETECTION WAVELENGTH

214 nm

MOBILE PHASE A

0.1% TFA in water

COLUMN TEMPERATURE

30 °C

SAMPLE DILUENT

Water, 0.1% TFA

REFERENCE STANDARD

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

DATA SYSTEM

Empower 3, Build 3471

COLUMN

C18, 150 × 4.6 mm, 3.5 µm

MOBILE PHASE B

0.1% TFA in MeCN

INJECTION VOLUME

20 µL

SAMPLE CONCENTRATION

0.5 mg/mL (blend)

DETECTOR

Waters 2998 PDA

COLUMN PART / SERIAL

186003326 / USHX18211

FLOW RATE

1.0 mL/min

RUN TIME

10 min

BLANK INJECTED

Yes

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 Virstellis, 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.