Gold Standard Analytics

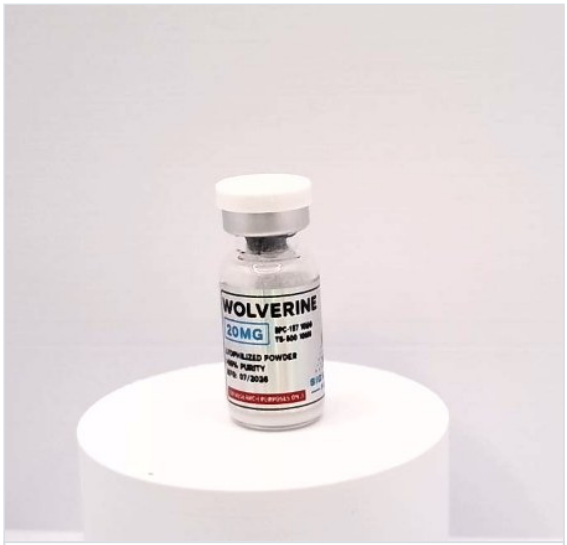
Gold Standard Analytics LLC, Houston, TX

CERTIFICATE OF ANALYSIS

Report GSA-COA-000098-09801-20261124-2 · issued Nov 24, 2026

Jeremy D Hughes

PRODUCT	ORDER	SAMPLE
BPC-157 / TB-500 blend	GSA-2026-000098	098-01
LOT	**ISSUED**	
SMP-BPTB-001	Nov 24, 2026	



THE SAMPLE AS RECEIVED

IDENTITY ✓

BPC-157, TB-500

2 declared components found

PURITY ✓

98.68 %

HPLC-UV, 214 nm

BPC-157 ✓

Found

by mass; comes off together with TB-500

TB-500 ✓

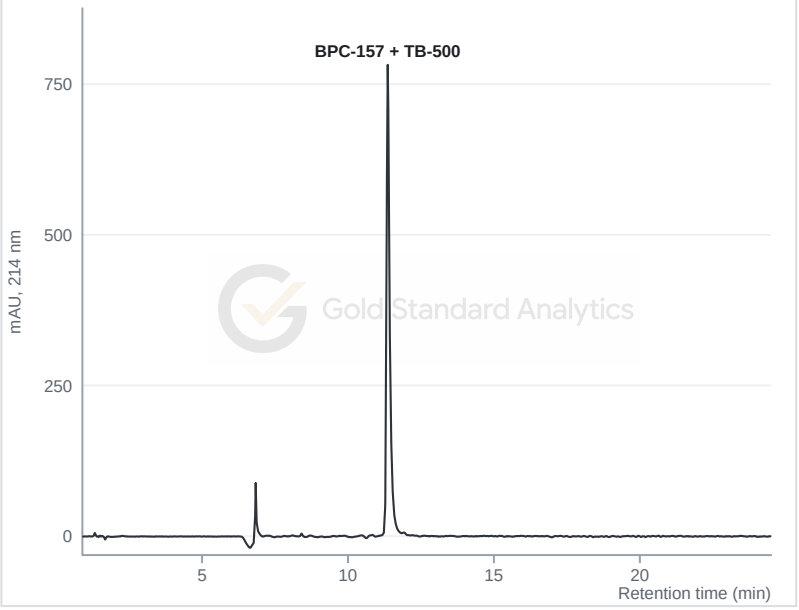
Found

by mass; comes off together with BPC-157

○ **Net content** per vial, BPC-157 + TB-500 together; 108 % of the declared 20 mg **21.5 mg**

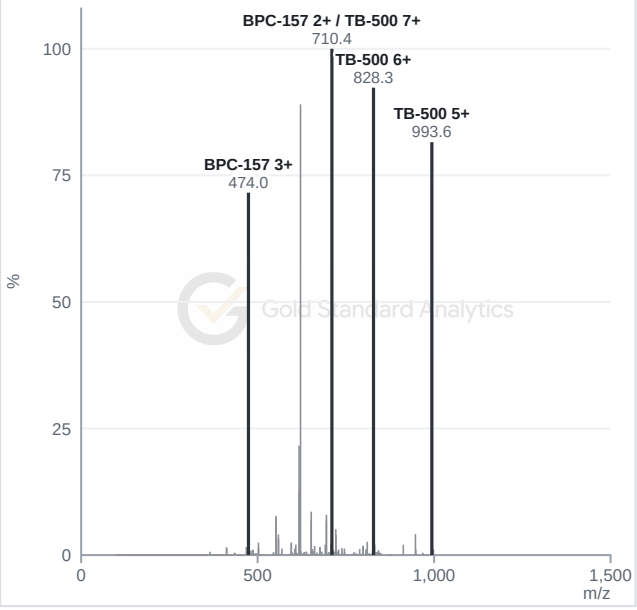
HPLC CHROMATOGRAM

UV, 214 nm



MASS SPECTRUM

main peak (11.36 min)



RELEASED BY

Ian Ebert

Laboratory Director · Nov 24, 2026

Scan to verify

goldstandardanalytics.com/coa/

Results are not covered by ISO/IEC 17025 accreditation. Results relate only to the sample as received and tested.

The sample

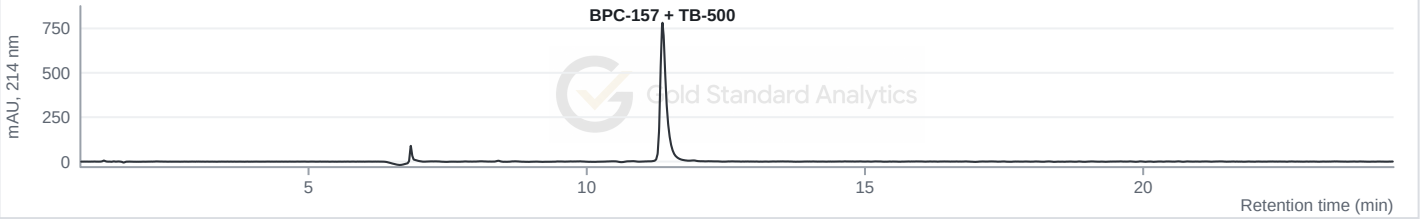
Order GSA-2026-000098 · Sample 098-01 · Jeremy D Hughes

Customer	**Jeremy D Hughes**	Lot	**SMP-BPTB-001**
Order	**GSA-2026-000098**	Prepared	**23 Nov 2026**
Sample	**098-01**	Tested	**24 Nov 2026**
Label	**Wolverine, 20 mg (BPC-157 / TB-500)**	Tests	**Identity, Purity, Net content**

Graphs

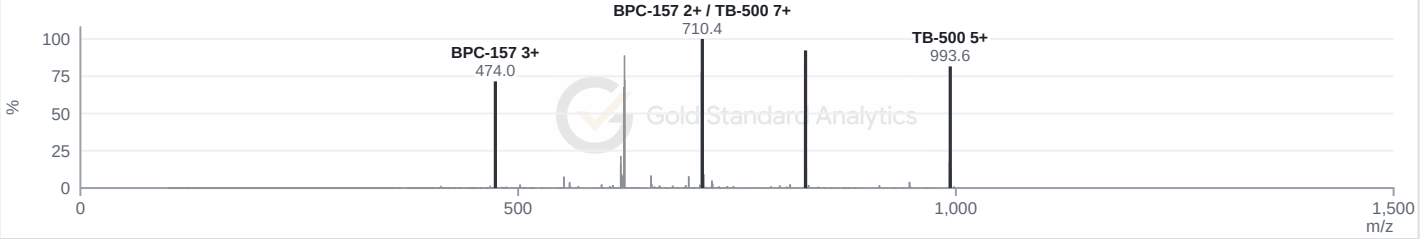
HPLC CHROMATOGRAM

HPLC chromatogram (UV, 214 nm) · mAU, 214 nm against Retention time (min)



MASS SPECTRUM

Mass spectrum of the main peak (11.36 min) · Counts against m/z



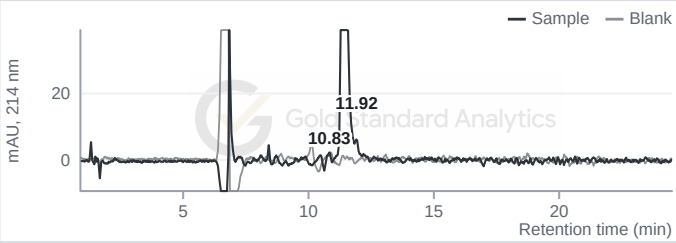
Results

Identity	**All declared components found** by their molecular mass: BPC-157 at 11.36 min (m/z 710.4 and m/z 474.0; measured mass 1,418.9, expected 1,419.5); TB-500 as full-length thymosin beta-4 at 11.36 min (m/z 993.6 and m/z 828.3; measured mass 4,964.1, expected 4,963.4). BPC-157 and TB-500 come off the column together. A small amount of TB-500's fragment Ac-LKKTETQ (thymosin beta-4, residues 17-23) was also found, at 8.41 min.
Purity	**98.68 %** by HPLC with UV detection at 214 nm (share of the total peak area), counting all declared components together. 2 impurities were found and are listed below. Unexplained peaks count above about 0.5 % of the peptide peak's height; forms of the peptides identified by mass count down to about 0.4 % of it. The peptide peak was too strong to measure in a 2 µL injection, so its area is taken from this 1 µL injection of the same solution, scaled by the injection volumes, and the impurities are counted in the 2 µL injection; peaks within 0.3 min of the peptide peak could not be judged. The vial also contains arginine (a common vial ingredient), seen by mass at the start of the run; it is not a peptide and is not counted. The large peak at about 6.8 min comes from the instrument, not the sample: it also appears in blank runs.
Composition	Share of the declared-peptide UV area at 214 nm: BPC-157 + TB-500 together 99.60 %, the TB-500 fragment 0.40 %. These are shares of UV signal, not of weight. BPC-157 and TB-500 come off together, so their individual shares cannot be measured by UV.
Net content	**21.5 mg per vial** , BPC-157 and TB-500 together (108 % of the declared 20 mg).

Zoomed views

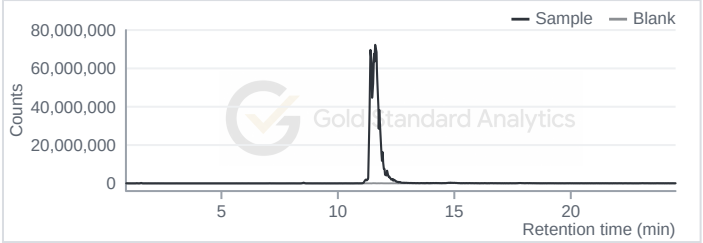
HPLC, SMALL PEAKS

Zoomed in on the small peaks (5 % of the main peak) · mAU, 214 nm against Retention time (min)



ION TRACE

Ion trace, m/z 474.0 (BPC-157 [M+3H]3+): sample vs blank · Counts against Retention time (min)



Impurities

Every peak other than the declared peptides that was counted:

PEAK (MIN)	AMOUNT	WHAT IT IS
10.83	0.90 %	TB-500 with one extra oxygen atom (mass about 4,979 instead of 4,963). This fits oxidation, a common change during storage.
11.92	0.41 %	BPC-157 that has lost one water molecule (mass about 1,402 instead of 1,420). A common by-product of peptide synthesis or storage.

> Amounts are each peak's share of the total UV peak area at 214 nm.

How it was tested

Liquid chromatography with UV and mass-spectrometry detection: Agilent 1290 Infinity II LC with a 6490 triple-quadrupole mass spectrometer. Column Polaris C18-A, 2.0 x 150 mm, 45 °C; water and acetonitrile, each with 0.1 % formic acid. Purity: UV peak area at 214 nm, after subtracting a blank run in the same sequence. Identity: molecular mass from the mass spectrum. 1 µL and 2 µL injected; autosampler at 12 °C. Net content: the UV peak area at 214 nm of BPC-157 and TB-500 together, against a BPC-157 reference standard run in the same sequence and expressed as BPC-157. The two peptides come off the column together, so they are not measured separately; TB-500 absorbs less per mg than BPC-157, so the true total is not lower than this figure. Scaled by the volumes used: the whole vial dissolved in 1.0 mL, and 0.10 mL of that diluted to 1.0 mL; its uncertainty is roughly ±10 %.

Notes

Results apply only to the sample as received and tested.

Release

This report is signed electronically at release. The signature is printed on page 1, and the release record, added as the last page, gives the date and the verification code.

Gold Standard Analytics

goldstandardanalytics.com

Release record

Report GSA-COA-000098-09801-20261124-2 · Certificate GSA-2026-464775

Customer and order	Jeremy D Hughes · GSA-2026-000098
Sample and report	098-01 · BPC-157 / TB-500 blend Certificate of Analysis
Report reference	GSA-COA-000098-09801-20261124-2
Certificate accession	GSA-2026-464775
Released and signed by	Ian Ebert, Laboratory Director
Date and time (UTC)	2026-11-24 21:47:22Z
Signature meaning	Approved for release. The signer reviewed this report and approved its release to its customer.
Approval reference	075b063e-56bc-4c8c-b27f-9823d2ccfd6c
Electronic signature	Signed electronically in a signed-in GSA staff account.
Original report SHA-256	1f1c565695a1c0eb07f8e00426a1fa59e9e1619b63812eb7f13ebc0ecc0d0375
Verify this certificate	https://goldstandardanalytics.com/coa/GSA-2026-464775

Scan to view this certificate online

Signature



Ian Ebert, Laboratory Director

Results are not covered by ISO/IEC 17025 accreditation.
Results relate only to the sample as received and tested.