**pepdream**
CERTIFICATE OF ANALYSIS · LOT RELEASE
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CERTIFICATE NO.
**PL-26-00101**
VERIFICATION KEY
**FFRYK68V**
Scan or enter both at prymalab.net/testing/verify

CERTIFICATE OF ANALYSIS · LOT RELEASE · ISSUED FOR PEPDREAM

# TB-500 (Thymosin β4) 5 mg

Lot **PL-2609-101** · Lyophilized powder · Label claim **5 mg/vial** · Distributed as **TB-500**

**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-2609-101 | 2026-09-18 | 2026-09-19 | 2026-10-03 |

| RETEST / EXPIRY | UNITS IN LOT / SAMPLED | STORAGE | CERTIFICATE TYPE |
|---|---|---|---|
| 2028-09-18 | 250 / 2 | −20 °C, desiccated, dark | Lot COA, 2 pages |

| COMPOUND | CAS NUMBER | MOLECULAR FORMULA | THEORETICAL MASS (AVG.) |
|---|---|---|---|
| **TB-500 (Thymosin β4)**<br>N-acetyl thymosin β4, full-length 43-residue peptide | 77591-33-4 | $C_{212}H_{350}N_{56}O_{78}S$ | 4963.5 Da |

SEQUENCE

`Ac–SDKPDMAEIEKFDKSKLKKTETQEKNPLPSKETIEQEKQAGES–OH (43 residues; N–acetyl; free C–terminus)`

PURITY · RP-HPLC, AREA %
**99.74%**
Specification 99.0% • main peak at 6.08 min

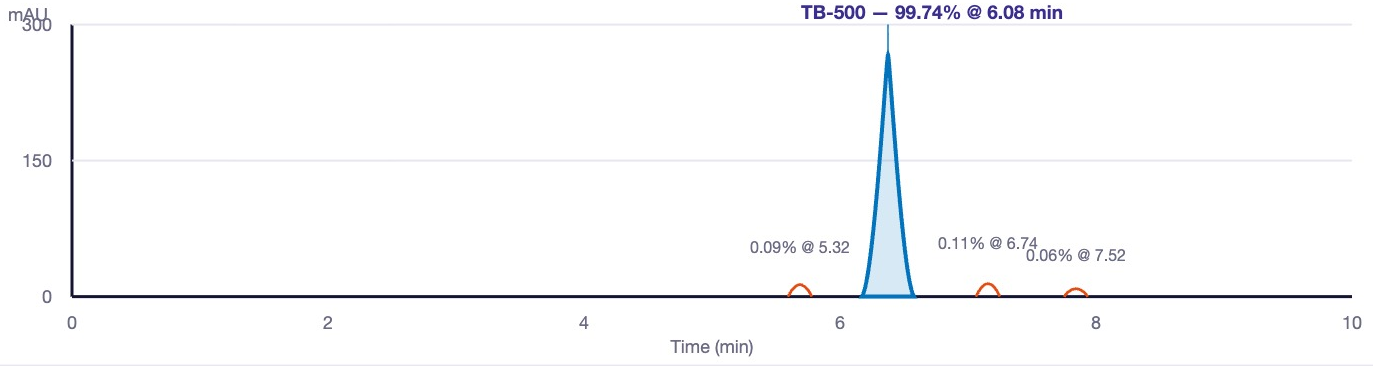
IDENTITY · OBSERVED MASS
**4963.7 Da**
Theoretical 4963.5 Da • +0.2 Da (40 ppm)

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 | 4963.7 Da | PASS |
| **Purity** | RP-HPLC, UV 214 nm, area% | 99.0% | 99.74% | PASS |
| **Largest impurity** | RP-HPLC, area% | 1.0% | 0.11% at 6.74 min (des-acetyl species) | PASS |
| **Water content** | Karl Fischer | 5.0% | 1.8% | PASS |
| **Bacterial endotoxin** | LAL, kinetic | ≤ 5.0 EU/mg | 0.06 EU/mg | PASS |
| **Sterility / bioburden** | USP <71>, membrane filtration | No growth after 14 days | No growth; conforms | PASS |

## 1 HPLC CHROMATOGRAM

**Data file:** TB5_PL-2609-101_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.


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

## 2 HPLC METHOD · TB5_PL-2609-101_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

**BLANK INJECTED**
Yes

**REFERENCE STANDARD**
In-house TB-500 reference, lot PL-RS-TB5-01, RT 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 | 5.32 | 3,870 | 0.09 |
| **2** | **6.08** | **4,288,820** | **99.74** |
| 3 (des-acetyl) | 6.74 | 4,730 | 0.11 |
| 4 | 7.52 | 2,580 | 0.06 |
| 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)**
1241.9 (4+ [M+4H]) · 993.7 (5+ [M+5H])

**DECONVOLUTED MASS**
4963.7 Da

**THEORETICAL MASS**
4963.5 Da (N-acetylated 43-mer)

**DIFFERENCE**
+0.2 Da (40 ppm)

**DATA FILE**
TB5_PL-2609-101_MS_20260919_01

**ACCEPTANCE**
Within ± 1.0 Da

## 6 ADDITIONAL TESTS

| TEST | PERFORMED BY | DATE | REPORT / FILE |
|---|---|---|---|
| Water content | PrymaLab | 2026-09-20 | RPT-KF-PL-2609-101 |
| Endotoxin | PrymaLab | 2026-09-21 | RPT-ET-PL-2609-101 |
| Sterility | PrymaLab | 2026-10-02 | RPT-ST-PL-2609-101 |
| Peptide content | PrymaLab | 2026-09-20 | RPT-AA-PL-2609-101 |

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 pepdream, 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-26-00101 and key FFRYK68V 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.