COMPOUND GUIDE

TB-500 — Thymosin Beta-4 Fragment (Ac-LKKTETQ)

7-AA peptide · SubQ injection · Loading + maintenance protocol

Quick Start

TB-500 ≠ FULL THYMOSIN BETA-4

TB-500 is a 7-amino acid fragment of the full 43-AA Thymosin Beta-4 protein, corresponding to amino acids 17–23 (Ac-LKKTETQ). It is NOT the same compound as full-length Thymosin Beta-4. Research on the two compounds is not interchangeable. Most research vials sold as "TB-500" contain the fragment sequence.

WHAT IT IS

TB-500 is a synthetic 7-amino acid peptide fragment (Ac-LKKTETQ, residues 17–23 of Thymosin Beta-4). It is studied for effects on actin regulation, cell migration, angiogenesis, and inflammation modulation. The Thymosin Beta-4 protein is naturally found in high concentrations in blood platelets and wound fluid.

PROTOCOL STRUCTURE

TB-500 research protocols use a **loading phase** followed by a **maintenance phase**. Loading: higher doses more frequently to build up tissue levels. Maintenance: lower frequency to sustain effects. This two-phase structure is common to most published TB-500/Tβ4 research.

REGULATORY STATUS

FDA removed TB-500 from Category 2 bulk substance list effective **April 15, 2026**. PCAC review scheduled July 23, 2026 (wound healing indication). WADA banned (S0) with a detection window of approximately 30–45 days. Not approved for human therapeutic use in any major jurisdiction. For research purposes only.

Dosing Protocol

PHASE	DOSE	FREQUENCY	DURATION	NOTES
Loading	2.0–2.5 mg	2× per week (e.g. Mon + Thu)	4–6 weeks	Build tissue levels; SubQ anywhere
Maintenance	2.0–2.5 mg	Once per week	Ongoing	Reduce frequency once loading complete
Wash-out	—	—	4+ weeks	Allow off-cycle before restarting

INJECTION SITE — SYSTEMIC VS LOCAL

Unlike BPC-157 (which is often injected near the affected area), TB-500 is generally studied as a systemic compound — SubQ injection anywhere (abdomen, thigh) is considered equivalent, as it works through systemic actin regulation and cell migration signalling rather than local depot effects.

Supplies & Reconstitution

Reconstitution Math — 5 mg Vial (3 mL BAC)

TARGET DOSE	UNITS (U-100)	DOSES / VIAL
1 mg	**60.0 units**	5
2 mg	**120.0 units**	2.5
2.5 mg	**150.0 units**	2
5 mg	**300.0 units**	1

Reconstitute the 5 mg vial with **3.0 mL bacteriostatic water** → 1.67 mg/mL. U-100 syringe = 100 units per mL. Swirl gently — do not shake. Refrigerate 2–8°C.

Vial Planning Guide

DOSE PER INJECTION	FREQUENCY	INJECTIONS PER 10 MG VIAL	VIALS — 6 WK LOADING	VIALS — 8 WK MAINTENANCE
2.5 mg	2× / week (loading)	4 injections	**3 vials**	2 vials

2.0 mg	2× / week (loading)	5 injections	**2–3 vials**	2 vials
2.5 mg	1× / week (maint.)	4 injections	—	2 vials

Reconstitution Steps

01 **Gather supplies**
TB-500 vial, BAC water, U-100 insulin syringes, alcohol swabs. Remove peptide vial from freezer 10–15 min before use.

02 **Swab rubber tops**
Wipe both rubber stoppers (BAC water vial and peptide vial) with separate alcohol swabs. Allow to air-dry fully.

03 **Draw BAC water**
Draw 3.0 mL of BAC water into a syringe. For larger vial sizes or different concentrations, adjust volume accordingly.

04 **Inject along the vial wall**
Insert the needle at an angle into the peptide vial and let the BAC water run slowly down the inside glass wall. Never jet directly onto the powder — this degrades the peptide.

05 **Swirl — do not shake**
Gently swirl the vial in slow circles until the powder is fully dissolved and the solution is clear. Do not shake or vortex.

06 **Refrigerate**
Store reconstituted vial upright in the refrigerator at 2–8°C. Use within 30 days. Do not freeze after reconstitution.

Mechanism of Action

The active region of TB-500 (Ac-LKKTETQ) binds G-actin (unpolymerised actin monomers). This interaction underlies the key mechanisms studied in preclinical research:

G-ACTIN SEQUESTRATION

TB-500 binds free G-actin monomers, regulating the balance between G-actin and F-actin (polymerised). This modulates cytoskeletal dynamics in cells involved in tissue repair — including fibroblasts, endothelial cells, and keratinocytes.

CELL MIGRATION

By regulating actin polymerisation, TB-500 promotes directional migration of repair cells to damaged tissue. Studied in endothelial cell migration assays and wound-healing animal models.

ANGIOGENESIS

Promotes formation of new blood vessels into damaged tissue, studied in cardiac ischaemia and wound-healing models. Proposed to work synergistically with BPC-157's VEGFR2 pathway.

ANTI-INFLAMMATORY

Modulates inflammatory cytokine activity at injury sites. Studied in models of chronic wound healing and ischaemia-reperfusion injury. Mechanism not fully characterised for TB-500 fragment specifically.

Research Status & Evidence

⚠ **NO HUMAN RCT EVIDENCE FOR TB-500 FRAGMENT**

Published human clinical data exists for full-length Thymosin Beta-4 (43 AA) in wound healing and cardiac contexts. TB-500 (the 7-AA fragment Ac-LKKTETQ) does not have published human RCTs as of mid-2026. Research on the full-length protein cannot be directly applied to the fragment compound.

Regulatory Timeline

DATE	EVENT
April 15, 2026	FDA removed TB-500 from 503A/503B Category 2 bulk substance list
July 23, 2026	PCAC scheduled review for wound healing indication
2022–present	WADA S0 banned; detection window ~30–45 days in urine/blood

Storage

STATE	TEMPERATURE	DURATION	NOTES
Lyophilised (powder)	−20°C (freezer)	Up to 24 months	Protect from light and moisture
Reconstituted (liquid)	2–8°C (refrigerator)	Up to 30 days	Keep upright; do not re-freeze

Short-term (travel)	<25°C	Up to 72 hours	Avoid direct sunlight and heat

⚠ **DISCLAIMER**

This document is an educational research reference only. It is not medical advice, not a treatment plan, and not a recommendation to use TB-500 outside of a qualified research or clinical context. TB-500 is banned by WADA for competitive athletes. By purchasing from LA LAB you confirm you are 18+ and that products are for research purposes only.