

RESEARCH DOSAGE MANUAL

BPC-157 + TB-500 Blend FlexPen

Dual Tissue Repair Peptide Blend · 20 mg / 3 ml · Research Grade

Synergistic BPC-157 + Thymosin Beta-4 blend — Manufactured in the Netherlands under cGMP

INN / Code	BPC-157 (pentadecapeptide) + TB-500 (Thymosin β4 fragment 17-23)
CAS Numbers	137525-51-0 (BPC-157) · 77591-33-4 (TB-500)
Class	Gastric Pentadecapeptide + Actin-Sequestering Peptide (tissue repair blend)
Molecular Weight	~1,419 Da (BPC-157) + ~4,963 Da (TB-500)
Concentration	20 mg / 3 ml cartridge (10 mg BPC-157 + 10 mg TB-500) — 6.67 mg/ml combined
Pen Dose Scale	1 unit = 0.01 ml = 66.7 mcg combined (33.3 mcg each) 8 units ≈ 500 mcg 11 units ≈ 750 mcg
Total Pen Doses	300 units per cartridge (20 mg total combined)
Purity	≥ 99.0% HPLC · Endotoxin < 1 EU/mg (each component independently verified)
Storage	2–8 °C · protect from light · do not freeze
Batch / Expiry	NL-2026-G · Expires 10/2029
Administration	Subcutaneous injection (research)

1. Compound Overview

BPC-157 (Body Protection Compound-157) is a synthetic 15-amino-acid fragment of the gastric juice protein BPC, originally discovered in human gastric secretions. It has demonstrated remarkable tissue-protective and regenerative properties across multiple organ systems in preclinical research, including acceleration of tendon, ligament, muscle, and gut mucosal healing. BPC-157 is stable in gastric juice and does not require a carrier protein — a unique property among peptides.

TB-500 is a synthetic 7-amino-acid fragment (residues 17-23) of Thymosin Beta-4, a 43-amino-acid peptide naturally present in virtually all human cells. TB-500 retains the actin-binding domain responsible for cell migration, wound healing, and anti-inflammatory activity. It is one of the most studied

peptides in tissue repair and regeneration research.

The VitalPep Pro BPC-157 + TB-500 Blend FlexPen combines both peptides at equal 10 mg doses in a single 3 ml cartridge, providing a synergistic formulation that targets complementary tissue repair pathways. This eliminates the need for separate reconstitution and administration of each peptide.

2. Mechanism of Action

The BPC-157 + TB-500 blend acts through complementary but distinct tissue repair mechanisms. Key pathways:

- **BPC-157 — Angiogenesis & vascular repair:** Upregulates VEGF, CD34+, and eNOS (endothelial nitric oxide synthase) expression, promoting formation of new blood vessels at injury sites and restoring blood supply to damaged tissues.
- **BPC-157 — FAK-paxillin signalling:** Activates the focal adhesion kinase (FAK)-paxillin pathway critical for tendon-to-bone healing, fibroblast migration, and extracellular matrix remodeling during tissue repair.
- **BPC-157 — Nitric oxide system modulation:** Interacts with the NO system to mediate cytoprotective effects across the GI tract, liver, and cardiovascular system, contributing to anti-ulcer and organ-protective properties.
- **TB-500 — Actin sequestration & cell migration:** Sequesters G-actin monomers to promote actin polymerization and lamellipodia formation, enabling endothelial cells, keratinocytes, and myoblasts to migrate to wound sites.
- **TB-500 — NF- κ B-mediated anti-inflammation:** Downregulates NF- κ B nuclear translocation, reducing pro-inflammatory cytokine production (TNF- α , IL-1 β , IL-6) and attenuating the inflammatory phase of tissue injury.
- **Synergistic effect:** BPC-157 establishes vascular supply to injury sites while TB-500 drives cellular migration and proliferation within those sites — producing faster and more complete tissue repair than either peptide alone.

3. FlexPen Operating Instructions

The VitalPep Pro FlexPen is a reusable multi-dose injection pen pre-filled with BPC-157 + TB-500 Blend (20 mg / 3 ml). Each unit on the dose dial delivers exactly 0.01 ml (10 µl) of solution. The pen accepts standard 31-gauge or 32-gauge pen needles (4–8 mm). Follow the steps below before every injection.

■ Step 1 — Prepare the pen

Remove the pen cap. Inspect the cartridge window: the solution should be clear and colourless. Do not use if particulates are visible or if the solution appears cloudy or discoloured. Attach a new sterile pen needle by screwing it clockwise until firmly seated. Remove both the outer and inner needle caps and set aside.

■ Step 2 — Prime the needle

Select 2 units on the dose dial by turning the dial clockwise. Point the pen needle upward and tap the cartridge gently to collect any air bubbles at the top. Press the injection button fully until it clicks and a small stream (or droplet) appears at the needle tip. Repeat if no flow is seen. Priming removes air and confirms the pen is working correctly.

■ Step 3 — Set your dose

Dial your required dose by turning the dose selector clockwise. For example, to inject 500 mcg combined dose, dial to 8 units; for 750 mcg, dial to 11 units. The current dose is displayed in the dose window. You can turn anti-clockwise to reduce the dose before injecting — the pen will not dispense solution while dialling.

■ Step 4 — Choose the injection site

Subcutaneous injection sites: abdomen (at least 5 cm from the navel), outer thigh, or upper arm. Rotate sites with each injection to avoid lipohypertrophy. Wipe the skin with an alcohol swab and allow to air-dry for 10 seconds before injecting.

■ Step 5 — Inject

Pinch a fold of skin with two fingers. Insert the needle at a 45–90° angle (use 90° for a 4 mm needle, 45° for longer needles). Press the injection button slowly and firmly until it stops. Hold the button down and count to 10 seconds before withdrawing — this ensures full dose delivery and prevents backflow.

■ Step 6 — Withdraw and recap

Withdraw the needle at the same angle it was inserted. Do not rub the injection site. Replace the outer needle cap using the one-hand scoop method, then unscrew and safely dispose of the used needle in a sharps container. Replace the pen cap. Never store the pen with the needle attached.

■ Step 7 — Storage after use

Store the pen at 2–8 °C (refrigerated) when not in active use. Do not freeze. The pen may be kept at room temperature (up to 25 °C) for a maximum of 28 days during an active dosing cycle. Record the date of first use on the pen label.

■ Always use a new sterile needle for each injection. Sharing pens or needles poses a serious infection risk. The cartridge is pre-filled and sealed — do not attempt to refill or modify the pen.

4. Research Dosing Protocol

Concentration 6.67 mg/ml combined — 1 unit on the pen dial = 0.01 ml = 66.7 mcg combined (33.3 mcg BPC-157 + 33.3 mcg TB-500) | 8 units ≈ 500 mcg | 11 units ≈ 750 mcg

BPC-157 + TB-500 is administered by daily subcutaneous injection during active tissue repair protocols. The dosing schedule below follows standard reference frameworks documented in preclinical peptide research literature. Daily administration maintains consistent tissue exposure levels for optimal repair signaling.

Daily Dose Protocol

Phase	Daily Dose (combined)	BPC-157 per dose	TB-500 per dose	Units to Dial	Frequency
Loading Phase (Week 1-2)	250 mcg	125 mcg	125 mcg	4 units	Once daily
Standard Dose (Week 3-8)	500 mcg	250 mcg	250 mcg	8 units	Once daily
Enhanced Dose (if needed)	750 mcg	375 mcg	375 mcg	11 units	Once daily

Pen longevity: At 500 mcg/day standard dose (8 units), the 20 mg cartridge provides approximately 37 daily doses per pen (approximately 5 weeks). At 750 mcg/day enhanced dose (11 units), the cartridge provides approximately 27 daily doses (approximately 4 weeks).

Injection timing: Administer at the same time each day, ideally 15-30 minutes before physical activity or in the morning on rest days. For targeted tissue repair, injections may be administered as close to the injury site as practical.

■ Do not exceed 750 mcg combined per daily injection (11 units). BPC-157 and TB-500 are synergistic — lower combined doses produce comparable tissue repair effects to higher single-peptide doses.

■ This blend is for research use only. The interaction profile of combined BPC-157 and TB-500 at suprathreshold doses has not been fully characterized. Adhere to the recommended dosing protocol.

5. Storage & Handling

In-use storage	Up to 25 °C for a maximum of 28 days during active dosing cycle
Between-use	2–8 °C (refrigerated) · do not freeze
Light protection	Keep pen cap on at all times when not injecting

Inspection	Solution must be clear, colourless, and free of particles before each use
Expiry	Do not use after printed expiry date or 28 days after first puncture

6. Key References

Sikiric P et al. (2018). Brain-gut axis and pentadecapeptide BPC 157: theoretical and practical implications. *Curr Neuropharmacol.* 16(5):566-583.

Chang CH et al. (2011). BPC 157 enhances tendon-to-bone healing via upregulation of growth hormone receptors. *J Orthop Res.* 29(6):811-818.

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Goldstein AL et al. (2012). Thymosin β 4: actin-sequestering protein moonlights to repair injured tissues. *Trends Mol Med.* 18(7):408-416.

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