

TB-500

TB-500 is a research name most often applied to a short synthetic N-acetylated fragment of thymosin β 4, Ac-LKKTETQ, but it is also used loosely for full-length thymosin β 4. There are no direct human studies of the fragment.



■ Hydrophobic ■ Acidic ■ Basic ■ Polar ■ Gly, Pro, Cys ■ Non-standard

Length	7 residues
Formula	$C_{38}H_{68}N_{10}O_{14}$
Average mass	889.01 g/mol
Monoisotopic mass	888.4916 Da
Evidence	Preclinical (animal and cell studies)
US status	Not FDA-approved; PCAC recommended 503A listing (July 2026), FDA action pending
WADA	Prohibited (S2)

Shown: the N-acetylated heptapeptide most often meant by 'TB-500'. The same name is also applied to full-length thymosin β 4 — confirm which one a COA describes.

Expected ions (monoisotopic)

$[M+H]^+$	$[M+2H]^{2+}$	$[M+3H]^{3+}$	$[M+4H]^{4+}$
889.4989	445.2531	297.1712	223.1302

What the COA should show

The first question for any TB-500 sample is which compound it is. A good certificate of analysis should state the exact sequence and terminal modifications and confirm identity by mass spectrometry, with the observed mass matching the expected mass shown on this page for Ac-LKKTETQ; a full-length thymosin β 4 sample will give an entirely different mass. HPLC purity should be reported with the chromatogram. Check for the presence or absence of the N-terminal acetyl group, since a non-acetylated fragment differs by 42 Da. The counter-ion should be named and net peptide content reported, because short basic peptides can carry several TFA or acetate counter-ions per molecule.

Storage and stability

Store lyophilized material sealed at -20 °C or colder, protected from light and moisture, and equilibrate to room temperature before opening. The fragment contains no cysteine, methionine or tryptophan, so oxidation risk is low, but the C-terminal glutamine can undergo deamidation and the peptide may hydrolyze in solution over time. Prepare solutions fresh where possible, refrigerate for short-term lab use, aliquot for frozen storage, and avoid repeated freeze-thaw cycles. If the sample is full-length thymosin β 4, its methionine residue makes oxidation a relevant concern.