SAFETY DATA SHEET (SDS / MSDS)

TB-500 (Thymosin Beta-4 Fragment)

Doc No: VEL-SDS-TB500 | Rev: 1.0 | 22 Feb 2026

SECTION 1 — PRODUCT IDENTIFICATION	
Product Name	TB-500 (Thymosin Beta-4 Fragment)
CAS Number	107761-42-2
Molecular Formula	C212H350N56O78S
Molecular Weight	4963.5 g/mol
Catalog / SKU	VEL-TB500
Intended Use	In vitro laboratory research only. Not for therapeutic, diagnostic, or human/veterinary use.
Supplier	Vial & Error Labs · www.vialanderrorlabs.com · info@vialanderrorlabs.com
Emergency Phone	+1-800-535-5053 (CHEMTREC — North America)
Issue / Revision	22 Feb 2026 - Revision 1.0 - Compliant with GHS Rev. 8 / OSHA HCS 29 CFR 1910.1200

SECTION 2 — HAZARD IDENTIFICATION (GHS / OSHA HCS)	
GHS Classification	Not classified as hazardous per GHS criteria at research-grade quantities.
Signal Word	WARNING (precautionary for dust/powder handling)
Hazard Statements	H302: Harmful if swallowed (precautionary). H315/H319: May cause skin/eye irritation.
Precautionary Statements	P260: Do not breathe dust. P264: Wash hands after handling. P270: Do not eat, drink, or smoke when using this product. P280: Wear gloves/eye protection. P301+P312: IF SWALLOWED and unwell, call a POISON CENTER.
GHS Pictogram	GHS07 — Exclamation mark (general hazard)
HMIS Rating	Health 1 · Flammability 0 · Physical Hazard 0 · PPE B
Other Hazards	Peptide/compound of unknown acute toxicity in humans. Exercise standard laboratory precautions at all times.

SECTION 3 — COMPOSITION / INFORMATION ON INGREDIENTS	
Substance / Mixture	Pure substance
Chemical / IUPAC Name	TB-500 (Thymosin Beta-4 Fragment)
CAS Number	107761-42-2
Molecular Formula	C212H350N56O78S
Molecular Weight	4963.5 g/mol
Amino Acid Sequence	Ac-Lys-Lys-Thr-Glu-Thr-Gln (43 AA fragment)
Nominal Purity	≥98% (HPLC)
Impurities / Additives	Trace residuals ≤2–5% by HPLC. No known hazardous impurities at research quantities.
EC Number	Not assigned (research compound)

SECTION 4 — FIRST AID MEASURES

Inhalation	Remove person to fresh air. Rest in a position comfortable for breathing. If symptoms persist or breathing is difficult, seek immediate medical attention.
Skin Contact	Remove contaminated clothing and shoes immediately. Wash affected area thoroughly with soap and copious water for ≥15 minutes. Seek medical attention if irritation develops or persists.
Eye Contact	Immediately flush eyes with large amounts of water for ≥15 minutes, holding eyelids open. Remove contact lenses if easily possible. Seek urgent medical attention.
Ingestion	Rinse mouth with water. Do NOT induce vomiting unless directed by medical personnel. Give water to drink if conscious. Seek immediate medical attention. Provide this SDS to treating physician.
Notable Symptoms	Irritation of mucous membranes, skin, and eyes. No compound-specific antidote known.
Medical Note	Symptomatic and supportive treatment. No specific antidote. Provide treating physician with this SDS.

SECTION 5 — FIRE-FIGHTING MEASURES

Flash Point	Not applicable (non-volatile lyophilized/crystalline solid)
Autoignition Temperature	Not determined
Flammability Classification	Not classified as flammable. May form combustible dust clouds in large quantities.
Suitable Extinguishing Media	Dry chemical, carbon dioxide (CO2), water mist, or foam. Avoid solid water jets on burning material.
Hazardous Combustion Products	Carbon monoxide (CO), carbon dioxide (CO2), nitrogen oxides (NOx), hydrogen sulfide (if S-containing residues present).
Special Protective Equipment	Wear self-contained breathing apparatus (SCBA) and full protective clothing for firefighting.

SECTION 6 — ACCIDENTAL RELEASE MEASURES

Personal Precautions	Evacuate non-essential personnel. Wear full PPE (Sec. 8). Avoid inhalation of powder/dust. Ensure adequate ventilation before re-entering.
Environmental Precautions	Prevent discharge to drains, surface water, or groundwater. Notify relevant environmental authorities if large-scale release occurs.
Containment & Cleanup	Carefully collect powder by sweeping or vacuuming with HEPA-filtered vacuum. Transfer to sealed, labeled waste containers for disposal per Sec. 13. Decontaminate area with water and detergent.
Reference Sections	See Section 7 (Handling/Storage), Section 8 (PPE), and Section 13 (Disposal) for further guidance.

SECTION 7 — HANDLING AND STORAGE

Safe Handling Precautions	Handle under BSL-1 conditions minimum. Avoid generating aerosols or dust. Use in well-ventilated laboratory or fume hood. Avoid contact with eyes, skin, and clothing. Wash hands thoroughly after handling.
Recommended Storage Conditions	-20°C, desiccated, protected from light

Container Requirements	Keep in original sealed vial. Ensure container is tightly closed when not in use. Do not transfer to unlabeled secondary containers.
Incompatible Materials	Strong oxidizers, strong acids (pH <2), strong bases (pH >12). Avoid prolonged exposure to moisture, humidity, or UV light.
Specific Use Restrictions	For laboratory research use only. Not for resale to consumers or use in food, drug, medical device, or cosmetic products.
Shelf Life	24 months from manufacture date when stored as specified. Refer to lot-specific COA for confirmed expiry.

SECTION 8 — EXPOSURE CONTROLS / PERSONAL PROTECTION	
Occupational Exposure Limits	No OSHA PEL, ACGIH TLV, or established OEL for this compound. Apply ALARP principle.
Engineering Controls	Laboratory fume hood or biosafety cabinet preferred. General dilution ventilation acceptable for small quantities.
Respiratory Protection	N95 or P100 particulate respirator when handling bulk powder or generating aerosols.
Hand Protection	Chemical-resistant gloves (nitrile, ≥0.1 mm thickness). Inspect for defects before each use. Change gloves immediately if contaminated.
Eye / Face Protection	Safety glasses with side shields minimum; chemical splash goggles for larger quantities or high-hazard operations.
Skin / Body Protection	Laboratory coat, long pants, and closed-toe footwear. Remove contaminated clothing immediately.
Hygiene Measures	Wash hands and forearms with soap and water before breaks, eating, or leaving the laboratory. Do not eat, drink, or smoke in laboratory areas.

SECTION 9 — PHYSICAL AND CHEMICAL PROPERTIES	
Physical State	Solid (lyophilized powder)
Appearance	White lyophilized powder
Odor	Odorless to very faintly characteristic
pH (1% aq. solution)	Approximately 4.0–8.0 (compound-dependent)
Melting / Decomp. Pt.	Decomposes on heating (no sharp melting point typical of peptides)
Solubility	Soluble in water (≥1 mg/mL)
Partition Coefficient	Not determined
Vapor Pressure	Negligible at 20°C (non-volatile solid)
Relative Density	~1.2–1.5 g/cm3 (estimated)
Bulk Density	~0.1–0.4 g/cm3 (lyophilized, estimated)

SECTION 10 — STABILITY AND REACTIVITY	
Chemical Stability	Stable under recommended storage conditions. Lyophilized (dry) form is significantly more stable than aqueous solutions.

Conditions to Avoid	Excessive heat (>40°C), moisture/humidity, direct light (especially UV), repeated freeze-thaw cycles, extremes of pH.
Incompatible Materials	Strong oxidizing agents, strong acids, strong bases, heavy metal ions (especially for Cys-containing peptides).
Hazardous Decomposition	Thermal decomposition may produce CO, CO2, NOx, and (if applicable) H2S or SO2.
Hazardous Polymerization	Will not occur under normal storage or handling conditions.
Possibility of Hazardous Reactions	None known under recommended conditions of use.

SECTION 11 — TOXICOLOGICAL INFORMATION	
Acute Toxicity (oral)	No data available for this specific compound. Treat as potentially harmful if ingested.
Acute Toxicity (dermal)	No data available. Avoid prolonged skin contact.
Acute Toxicity (inhalation)	No data available. Avoid inhalation of dust or aerosols.
Skin / Eye Irritation	Based on structural class analogues: mild to moderate irritant potential.
Sensitization	No data available. Some peptides may cause sensitization in susceptible individuals.
Carcinogenicity	Not listed by IARC, NTP, or OSHA as a confirmed or probable carcinogen.
Reproductive / Dev. Tox.	No data available. Use with appropriate caution.
STOT	No data available for single or repeated exposure.
Aspiration Hazard	Not applicable (solid).
Key Human Disclaimer	This compound has not been approved for human use. Toxicological profile in humans is NOT established. Intended for in vitro research only.

SECTION 12 — ECOLOGICAL INFORMATION	
Aquatic Toxicity	No data available. Treat as potentially harmful to aquatic organisms.
Persistence & Degradability	Peptides/proteins are generally biodegradable under environmental conditions.
Bioaccumulation	Not expected based on molecular size and hydrophilicity.
Mobility in Soil	Data not available. Likely to bind to organic matter.
PBT / vPvB Assessment	Not assessed. Not expected to be PBT/vPvB based on structure.

SECTION 13 — DISPOSAL CONSIDERATIONS	
Waste Disposal Method	Dispose in accordance with all applicable local, state, federal, and international regulations. Treat as chemical waste.
Contaminated Packaging	Empty containers that have not been decontaminated should be treated as chemical waste. Clean, uncontaminated containers may be recycled per local regulations.
Regulatory Basis	US EPA 40 CFR Parts 261-268; EU Waste Framework Directive 2008/98/EC; local applicable regulations.

SECTION 14 — TRANSPORT INFORMATION	
UN Number	Not regulated as dangerous goods for transport (research quantities).
UN Proper Shipping Name	Not regulated. Research chemical — not classified as hazardous material under DOT/IATA/IMDG for typical research quantities.
Transport Hazard Class	Not classified
Packing Group	Not applicable
Environmental Hazard	Not known to be a marine pollutant.
Special Precautions	Transport dry ice (if frozen). Ensure secondary containment. Comply with carrier requirements for biological research materials.

SECTION 15 — REGULATORY INFORMATION	
OSHA HCS (US)	This SDS prepared in compliance with OSHA Hazard Communication Standard 29 CFR 1910.1200 and GHS Revision 8.
TSCA (US)	Research-use chemical. Verify TSCA inventory status before commercial use.
EU REACH	Substances <1 tonne/year may be exempt from registration. User responsible for verifying applicable registration requirements.
Controlled Substance Status	Verify DEA/local scheduling status before ordering or using. Vial & Error Labs makes no representation regarding scheduling in any jurisdiction.
Research Use Only Statement	NOT approved by FDA or any regulatory authority for diagnostic, therapeutic, human, or veterinary use.

SECTION 16 — OTHER INFORMATION	
Revision	Rev 1.0 — Issued 22 Feb 2026
Prepared By	Vial & Error Labs Quality & Regulatory Compliance Team
Key References	GHS Rev. 8 (UN Purple Book); OSHA 29 CFR 1910.1200; NFPA 704; compound-specific primary literature
Disclaimer	The information in this SDS is believed to be correct and is provided in good faith as guidance for safe handling. Vial & Error Labs makes no warranty of merchantability or fitness for purpose. User assumes full responsibility for ensuring compliance with all applicable laws and regulations.
Contact	www.vialanderrorlabs.com · info@vialanderrorlabs.com