Safety Data Sheet: TB-500 (thymosin beta-4)

Laboratory research reagent. Not for human or veterinary use.

This substance is supplied for in-vitro laboratory research by qualified researchers only. It is not a drug, food, dietary supplement or cosmetic and has not been evaluated by the US Food and Drug Administration. Purchasers must be 21 years of age or older.

Section 1: Identification

Product identifier	TB-500 (thymosin beta-4)
CAS number	77591-33-4
Product form	Lyophilised peptide, supplied by Licensed Peptides in sealed research packaging; the format of each product (vial, blend component, encapsulated research formulation or atomized solution) is stated on its product page.
Recommended use	Laboratory research reagent for in-vitro use by qualified researchers
Restrictions on use	Not for human or veterinary use. Not a drug, food, cosmetic or household product.
Supplier	Licensed Peptides, Inc., 1489 W Palmetto Park Rd, Boca Raton, FL 33486, USA
Supplier contact	service@licensedpeptides.com, +1 (855) 322-2214 (Mon to Fri, 8:30 AM to 6:30 PM ET)
Emergency telephone	+1 (855) 322-2214 (Mon to Fri, 8:30 AM to 6:30 PM ET). For a medical emergency contact local emergency services or a poison control centre.

Section 2: Hazard identification

GHS classification	Not classified under GHS (Rev. 9) on the basis of the data available for this substance.
Signal word	None
Hazard statements	None assigned
Precautionary statements	None assigned. Handle as a laboratory chemical of unknown toxicity: avoid dust formation, avoid contact with eyes, skin and clothing, do not swallow.
Other hazards	Fine lyophilised powder may form dust. No data available on other hazards.

Section 3: Composition / information on ingredients

Substance / mixture	Substance (synthetic peptide), may contain counter-ion and residual water from lyophilisation
Chemical name	Ac-Ser-Asp-Lys-Pro-Asp-Met-Ala-Glu-Ile-Glu-Lys-Phe-Asp-Lys-Ser-Lys-Leu-Lys-Lys-Thr-Glu-Thr-Gln-Glu-Lys-Asn-Pro-Leu-Pro-Ser-Lys-Glu-Thr-Ile-Glu-Gln-Glu-Lys-Gln-Ala-Gly-Glu-Ser-OH
Sequence (one-letter)	SDKPDMAEIEKFDKSKLKKTETQEKNPLPSKETIEQEKQAGES
Sequence (three-letter)	Ac-Ser-Asp-Lys-Pro-Asp-Met-Ala-Glu-Ile-Glu-Lys-Phe-Asp-Lys-Ser-Lys-Leu-Lys-Lys-Thr-Glu-Thr-Gln-Glu-Lys-Asn-Pro-Leu-Pro-Ser-Lys-Glu-Thr-Ile-Glu-Gln-Glu-Lys-Gln-Ala-Gly-Glu-Ser-OH
CAS number	77591-33-4
Molecular formula	C212H350N56O78S
Concentration	Content as stated on the lot Certificate of Analysis (see /lab-reports/).
Impurities contributing to classification	None known

Section 4: First-aid measures

General advice	Show this safety data sheet to the attending physician. Remove contaminated clothing.

If inhaled	Move the person to fresh air. If breathing is difficult, obtain medical attention.
In case of skin contact	Wash with plenty of soap and water. Obtain medical attention if irritation develops or persists.
In case of eye contact	Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing. Obtain medical attention if irritation persists.
If swallowed	Rinse mouth with water. Do not induce vomiting. Obtain medical attention.
Most important effects, acute and delayed	No data available.
Indication of immediate medical attention	No data available. Care at the discretion of the attending physician.

Section 5: Fire-fighting measures

Suitable extinguishing media	Water spray, dry chemical, carbon dioxide or alcohol-resistant foam, chosen for the surrounding fire.
Unsuitable extinguishing media	None known.
Specific hazards	Organic powder; combustion may release carbon oxides, nitrogen oxides and sulfur oxides.
Advice for fire-fighters	Wear self-contained breathing apparatus and full fire-fighting gear.

Section 6: Accidental release measures

Personal precautions	Avoid dust formation. Wear gloves, eye protection and a laboratory coat. Ensure adequate ventilation.
Environmental precautions	Do not let the substance enter drains. Quantities supplied are milligram scale.
Containment and clean-up	Sweep up or wipe with a damp cloth without creating dust, place in a closed container for disposal, then clean the area with water.

Section 7: Handling and storage

Precautions for safe handling	Handle in a laboratory setting by trained personnel. Avoid dust formation and contact with skin and eyes. Wash hands after handling. Keep the vial closed when not in use.
Conditions for safe storage	Store lyophilised at -20 °C in the original sealed vial, desiccated and protected from light. Keep away from strong oxidising agents. Short periods at ambient temperature during shipping are tolerated by the lyophilised powder.
Specific end use	Laboratory research reagent only.

Section 8: Exposure controls / personal protection

Occupational exposure limits	None established for this substance.
Engineering controls	Handle the powder in a fume hood or ventilated enclosure. Eyewash station and safety shower should be available.
Eye / face protection	Safety glasses with side shields or chemical goggles (EN 166 or ANSI Z87.1).
Skin protection	Nitrile gloves inspected before use; laboratory coat.
Respiratory protection	Not normally required when handled in a fume hood. For dust-forming operations outside a hood use a particulate respirator (N95 or P2 type).
Hygiene measures	Do not eat, drink or smoke in the laboratory. Wash hands after handling.

Section 9: Physical and chemical properties

Appearance	White to off-white lyophilised powder
Odour	Odourless
Molecular formula	C212H350N56O78S
Molecular weight (average)	4963.5 g/mol

Monoisotopic mass	4960.486 Da
Solubility	Soluble in water (supplier specification). Quantitative solubility: no data available.
pH, melting point, boiling point, flash point, vapour pressure, density, partition coefficient, auto-ignition temperature, decomposition temperature, viscosity	No data available
Flammability	No data available (organic powder, not expected to be readily flammable)

Section 10: Stability and reactivity

Reactivity	No data available.
Chemical stability	Stable under the recommended storage conditions (lyophilised, -20 °C, desiccated, protected from light).
Possibility of hazardous reactions	None known.
Conditions to avoid	Moisture, prolonged exposure to light and elevated temperature; repeated freeze-thaw of solutions.
Incompatible materials	Strong oxidising agents, strong acids and bases.
Hazardous decomposition products	None known under normal storage. Combustion: carbon oxides and nitrogen oxides.

Section 11: Toxicological information

Acute toxicity	No data available for this substance (all exposure routes).
Skin corrosion / irritation	No data available.
Serious eye damage / irritation	No data available.
Respiratory or skin sensitisation	No data available.
Germ cell mutagenicity	No data available.
Carcinogenicity	No data available. Not listed by IARC, NTP or OSHA.
Reproductive toxicity	No data available.
Specific target organ toxicity (single and repeated exposure)	No data available.
Aspiration hazard	No data available.
Additional information	This safety data sheet does not describe biological activity. The substance has not been evaluated for any use other than in-vitro laboratory research.

Section 12: Ecological information

Ecotoxicity	No data available.
Persistence and degradability	No data available. As a peptide it is expected to be hydrolysed by environmental proteases.
Bioaccumulative potential	No data available.
Mobility in soil	No data available.
Other adverse effects	No data available.

Section 13: Disposal considerations

Waste from residues	Dispose of as laboratory chemical waste through a licensed waste disposal contractor in accordance with local, state and federal regulations. Do not discharge to drains.
Contaminated packaging	Dispose of as unused product. Rinsed glass vials may be recycled where local rules allow.

Section 14: Transport information

UN number	Not assigned
UN proper shipping name	Not regulated as a dangerous good
Transport hazard class	Not applicable (DOT, IATA, IMDG)
Packing group	Not applicable
Environmental hazards	Not classified as a marine pollutant
Special precautions	Ship cold-packed; the lyophilised powder tolerates short periods at ambient temperature.

Section 15: Regulatory information

United States (FDA)	This substance is not approved by the US Food and Drug Administration as a drug, food, dietary supplement or cosmetic. It is supplied for in-vitro laboratory research only and is not for human or veterinary use.
OSHA Hazard Communication Standard (29 CFR 1910.1200)	Not classified as hazardous on the basis of available data.
TSCA (US)	Not evaluated. Supplied in research quantities only.
SARA 302 / 313, California Proposition 65	Not listed.
Other	Purchaser must be 21 years of age or older and a qualified researcher. The product may not be used in or on humans or animals.

Section 16: Other information

Revision date	2026-11-04
Version	1.0
Prepared by	Licensed Peptides, Inc. (regulatory and quality documentation)
Data sources	PubChem CID 45382195 (formula, average and monoisotopic mass, InChIKey UGPMCIBIHRSCBV-UHFFFAOYSA-N); UniProt P62328 for the sequence; lot Certificate of Analysis for purity and content; GHS Revision 9 for section structure.
Disclaimer	The information in this safety data sheet is believed to be accurate as of the revision date and is provided for guidance on safe handling, storage and disposal in a laboratory setting. It is not a specification and does not constitute a warranty. The recipient is responsible for determining the suitability of the substance for the intended research application and for compliance with all applicable regulations.