



TB-500

Product Information

Alternate Names:	Thymosin Beta-4 fragment (active region)
Size:	10.0mg
Format/Appearance:	Lyophilized, white/off-white powder
Sequence:	N-Acetyl-Leu-Lys-Lys-Thr-Glu-Thr-Gln
Purity:	>98%
Recommended Diluent:	Bacteriostatic Water

Description

TB-500 is a synthetically produced fragment of the active region of a naturally occurring peptide produced in the thymus, Thymosin Beta-4. Its role in the body is to upregulate cell building proteins, for example, actin, which is a protein that structures (along with myosin) the contractile fibers of muscle cells, and is additionally associated with migration and metabolism in many cell types. Upregulation of actin by TB-500 promotes healing, cell renewal/growth, cell migration and proliferation. This allows the body to create new blood vessel pathways to supply injured areas with nutrients and upregulate acute (or “good”) inflammation, which is directly correlated with faster wound healing.

TB-500 has been found to play an important role in protection, regeneration, and remodeling of injured or damaged tissues.

Indications and Benefit

- Soft tissue repair
- Cardiac and kidney function
- Hair loss
- Reduced inflammation of tissue in joints
- Prevents the formation of adhesions and fibrous bands in muscles, tendons, and ligaments

Preparation and Storage

Prior to reconstitution, TB-500 should be stored at -20C, protected from light. After reconstitution, store at 4C protected from light.

Clinical Research and Related Publications

Bjørklund, G., Dadar, M., Aaseth, J., & Chirumbolo, S. (2020). Thymosin β 4: A Multi-Faceted Tissue Repair Stimulating Protein in Heart Injury. *Current Medicinal Chemistry*, 27(37), 6294-6305.

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Hinkel, R., Klett, K., Bähr, A., & Kupatt, C. (2018). Thymosin β 4-mediated protective effects in the heart. *Expert Opinion on Biological Therapy*, 18(sup1), 121-129. <https://doi.org/10.1080/14712598.2018.1490409>

Kaur, H., & Mutus, B. (2012). Platelet function and thymosin β 4. *Biological Chemistry*, 393(7), 595-598. <https://doi.org/10.1515/hsz-2012-0131>

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Li, X., Zheng, L., Peng, F., Qi, C., Zhang, X., Zhou, A., Liu, Z., & Wu, S. (2007). Recombinant thymosin beta 4 can promote full-thickness cutaneous wound healing. *Protein Expression and Purification*, 56(2), 229-236.

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Philp, D., Goldstein, A. L., & Kleinman, H. K. (2004). Thymosin β 4 promotes angiogenesis, wound healing, and hair follicle development. *Mechanisms of Ageing and Development*, 125(2), 113-115.

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Pipes, G. T., & Yang, J. (2016). Cardioprotection by Thymosin Beta 4. *Vitamins and Hormones*, 209-226. <https://doi.org/10.1016/bs.vh.2016.04.004>

Silva, W. A. (2003). The Profile of Gene Expression of Human Marrow Mesenchymal Stem Cells. *Stem Cells*, 21(6), 661-669.

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Song, K., Han, H.-J., Kim, S., & Kwon, J. (2020). Thymosin beta 4 attenuates PrP(106-126)-induced human brain endothelial cells dysfunction. *European Journal of Pharmacology*, 869, 172891.

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Sosne, G., Szliter, E. A., Barrett, R., Kernacki, K. A., Kleinman, H., & Hazlett, L. D. (2002). Thymosin Beta 4 Promotes Corneal Wound Healing and Decreases Inflammation in Vivo Following Alkali Injury. *Experimental Eye Research*, 74(2), 293-299. <https://doi.org/10.1006/exer.2001.1125>

Tokura, Y., Nakayama, Y., Fukada, S.-, Nara, N., Yamamoto, H., Matsuda, R., & Hara, T. (2010). Muscle injury-induced thymosin 4 acts as a chemoattractant for myoblasts. *Journal of Biochemistry*, 149(1), 43-48. <https://doi.org/10.1093/jb/mvq115>

Young, J. D., Lawrence, A. J., MacLean, A. G., Leung, B. P., McInnes, I. B., Canas, B., Pappin, D. J. C., & Stevenson, R. D. (1999a). Thymosin β 4 sulfoxide is an anti-inflammatory agent generated by monocytes in the presence of glucocorticoids. *Nature Medicine*, 5(12), 1424-1427. <https://doi.org/10.1038/71002>

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