THYMOSIN BETA-4

THYMOSIN BETA-4 IMMUNE ENHANCER

MOLECULAR FORMULA $C^{212}H^{350}N^{56}O^{78}S$

MOLECULAR WEIGHT 4963.506 g/mol

SEQUENCE Ac-Ser-Asp-Lys-Pro-Asp-Met-Ala-Glu-Ile-Glu-Lys-Phe-Asp-Lys-Ser-Lys-Leu-Lys-LysThr-Glu-Thr-Gin-Glu-Lys-Asn-Pro-Leu-Pro-Ser-Lys-Glu-Thy-IleGlu-Gin-Glu-Lys-Gin-Ala-Gly-Glu-Ser

PROTOCOL

CONTENT & POTENCY

INJECTABLE: 3000mcg/ml subcutaneous injection provided in a 5ml vial.

SUGGESTED DOSAGE

INJECTABLE: Inject 0.25ml subcutaneously daily for 20 days.

DESCRIPTION

Thymosin is a hormone secreted from the thymus. Its primary function is to stimulate the production of T cells, which are an important part
of the immune system. Thymosin also assists in the development of B cells to plasma cells to produce antibodies. The predominant form of Thymosin, Thymosin Beta 4, is a member of a highly conserved family of actin monomer-sequestering proteins. In addition to its role as amajor actin-sequestering molecule, Thymosin Beta 4 plays a role in tissue repair. Tß4 has been found to play an important role in protection, regeneration and remodeling of injured or damaged tissues. The gene for Tß4 has also been found to be one of the first to be upregulated after injuries. Thymosin Beta 4 is currently being trialed as a potential therapy for HIV, AIDS, and Influenza. Thymosin Beta 4 is most often prescribed for acute injury, surgical repair and for senior athletes. It has most recently been shown to help regrow hair in addition to PRP.

CLINICAL RESEARCH

Dorr RT, Lines R, Levine N, Brooks C, Xiang L, Hruby VJ, Hadley ME. Source: College of Medicine, Pharmacology Department, University of Arizona, Tucson, USA.

Abstract: A cDNA clone encoding human thymosin-beta 4 was isolated from a cDNA library prepared from peripheral blood leukocytes of a patient with acute lymphocytic leukemia. This clone contained the entire coding sequence of 43 amino acid residues of thymosin-beta 4 and had an initiation codon and two termination codons. The amino acid and nucleotide sequences in the coding region were well conserved between rat and human. Nine of 132 nucleotides were different in the coding sequences (93% homology), but the deduced amino acid sequences were identical. No signal peptide was found in the deduced protein sequence. Human thymosin-beta 4 mRNA, approximately 830 nucleotides in length, was about 30 nucleotides larger than rat thymosin-beta 4 mRNA. Expression of the human thymosin-beta 4 gene in various primary myeloid and lymphoid malignant cells and in a few human hemopoietic cell lines was studied. Northern blot analyses of different neoplastic B lymphocytes revealed that steady state levels of thymosin-beta 4 mRNA varid as a function of differentiation stage. Thymosin-beta 4 mRNA levels were decreased in myeloma cells as are class II human leukocyte antigen, Fc receptor, and complement receptor, suggesting a relationship between thymosin-beta 4 and the immune response. Thymosin-beta 4 mRNA was more highly expressed in mature granulocytes than in immature blastic cells. Treatment of THP-1 cells, a human monocytic cell line, with recombinant human interferon-lambda reduced the levels of thymosin-beta 4 mRNA. Its level decreased after differentiation of THP-1 cells into Ia+ macrophages, but increased after differentiation of HL-60 cells into Ia- macrophages. The pattern of thymosin-beta 4 gene expression suggests that it may play a fundamentalrole in the host defense mechanism.

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