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TGFB1 (113 a.a.) Human

Transforming Growth Factor-Beta 1 (113 a.a.) Human Recombinant
GRF0386

Product Overview

Name	TGFB1 (113 a.a.) Human

Description

Transforming Growth Factor-Beta 1 (113 a.a.) Human Recombinant

Accession (Primary)	P01137

Synonyms

Transforming growth factor beta-1, TGF-beta-1, CED, DPD1, TGFB, TGF-b 1.

Introduction

Transforming growth factor betas (TGFBetas) mediate many cell-cell interactions that occur during embryonic development. Three TGFBetas have been identified in mammals. TGFBeta1, TGFBeta2 and TGFBeta3 are each synthesized as precursor proteins that are very similar in that each is cleaved to yield a 112 amino acid polypeptide that remains associated with the latent portion of the molecule.

Source

Escherichia Coli.

Physical Appearance

Sterile Filtered colorless solution.

Formulation

The TGF-b 1 solution contains 10mM Sodium Citrate (pH3.5) and 10% glycerol.

Stability

Store at 4°C if entire vial will be used within 2-4 weeks. Store, frozen at -20°C for longer periods of time. For long term storage it is recommended to add a carrier protein (0.1% HSA or BSA). Avoid multiple freeze-thaw cycles.

Purity

Greater than 95.0% as determined by SDS-PAGE.

Amino acid sequence

MALDTNYCFS STEKNCCVRQ LYIDFRKDLG WKWIHEPKGY HANFCLGPCP YIWSLDTQYS KVLALYNQHN PGASAAPCCV PQALEPLPIVYYVGRKPKVE QLSNMIVRSC KCS.

Background

Title: Transforming Growth Factor-Beta 1 (113 a.a.) Human Recombinant: A Key Regulator of Cellular Processes with Therapeutic Potential Abstract: Transforming Growth Factor-Beta 1 (TGF-β1) is a multifunctional cytokine that plays a

crucial role in various cellular processes, including cell growth, differentiation, and immune modulation. The development of TGF-β1 human recombinant proteins has provided valuable tools for studying its biological functions and therapeutic applications. This research paper explores the production process, characteristics, and potential therapeutic uses of TGF-β1 human recombinant, highlighting its importance and clinical significance. Introduction: TGF-β1 is a pivotal cytokine involved in numerous physiological and pathological processes, such as embryonic development, tissue repair, and immune regulation. Harnessing the therapeutic potential of TGF-β1 has been facilitated by the development of TGF-β1 human recombinant proteins using recombinant DNA technology. These recombinant proteins have become valuable tools for investigating the biological functions of TGF-β1 and exploring its therapeutic applications. Production Process and Characteristics: TGF-β1 human recombinant proteins are produced using recombinant DNA technology, allowing for the expression of the TGF-β1 gene in different host systems. The resulting recombinant proteins possess similar structural and functional characteristics to native TGF-β1. They exhibit the ability to bind to the TGF-β receptor, initiate intracellular signaling pathways, and modulate various cellular responses. Therapeutic Applications: TGF-β1 human recombinant proteins have shown promise in a wide range of therapeutic applications. They have been investigated for their potential in tissue regeneration and wound healing, as TGF-β1 plays a crucial role in promoting cell proliferation and extracellular matrix production. Additionally, TGF-β1 has been studied in the context of fibrotic diseases, such as pulmonary fibrosis and liver fibrosis, where it is implicated in the fibrotic cascade. Furthermore, TGF-β1 has been explored as a potential target for antitumor therapies due to its involvement in tumor progression and immune evasion. Advantages and Challenges: The use of TGF-β1 human recombinant proteins offers several advantages, including the ability to study and manipulate its biological functions in a controlled manner. Recombinant proteins also provide a consistent and reproducible source of TGF-β1, overcoming the challenges associated with sourcing native TGF-β1 from biological samples. However, challenges remain in optimizing production processes, ensuring correct protein folding, and maintaining protein stability. Conclusion: TGF-β1 human recombinant proteins have emerged as valuable tools for studying the biological functions of TGF-β1 and exploring its therapeutic applications. The production of TGF-β1 recombinant proteins using recombinant DNA technology allows for the investigation of its diverse roles in cellular processes. The therapeutic potential of TGF-β1 human recombinant proteins extends to tissue regeneration, fibrotic diseases, and cancer research. Continued research and development efforts are essential to further optimize production processes, address challenges, and fully exploit the clinical benefits of TGF-β1 human recombinant proteins.

References

Bibliography: Derynck R, Jarrett JA, Chen EY, et al. Human transforming growth factor-beta complementary DNA sequence and expression in normal and transformed cells. Nature. 1985;316(6030):701-705. Massagué J. TGF-beta signal transduction. Annu Rev Biochem. 1998;67:753-791. Blobe GC, Schiemann WP, Lodish HF. Role of transforming growth factor beta in human disease. N Engl J Med. 2000;342(18):1350-1358. Akhurst RJ, Hata A. Targeting the TGFβ signaling pathway in disease. Nat Rev Drug Discov. 2012;11(10):790-811. Prud'homme GJ. Pathobiology of transforming growth factor beta in cancer, fibrosis, and immunologic disease, and therapeutic considerations. Lab Invest. 2007;87(11):1077-1091.

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Precautions

TGFB1 (113 a.a.) Human is for research use only and not for use in diagnostic or therapeutic procedures.

Target Information: (P01137)

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and exploring its therapeutic applications. The production of TGF-β1 recombinant proteins using recombinant DNA technology allows for the investigation of its diverse roles in cellular processes. The therapeutic potential of TGF-β1 human recombinant proteins extends to tissue regeneration, fibrotic diseases, and cancer research. Continued research and development efforts are essential to further optimize production processes, address challenges, and fully exploit the clinical benefits of TGF-β1 human recombinant proteins.

References for protein:

Bibliography: Derynck R, Jarrett JA, Chen EY, et al. Human transforming growth factor-beta complementary DNA sequence and expression in normal and transformed cells. Nature. 1985;316(6030):701-705. Massagué J. TGF-beta signal transduction. Annu Rev Biochem. 1998;67:753-791. Blobe GC, Schiemann WP, Lodish HF. Role of transforming growth factor beta in human disease. N Engl J Med. 2000;342(18):1350-1358. Akhurst RJ, Hata A. Targeting the TGFβ signaling pathway in disease. Nat Rev Drug Discov. 2012;11(10):790-811. Prud'homme GJ. Pathobiology of transforming growth factor beta in cancer, fibrosis, and immunologic disease, and therapeutic considerations. Lab Invest. 2007;87(11):1077-1091.