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TGFA Human

Transforming Growth Factor-Alpha Human Recombinant
GRF0385

Product Overview

Name	TGFA Human
Description	
Transforming Growth Factor-Alpha Human Recombinant	
Accession (Primary)	P01135
Synonyms	
Transforming Growth Factor Alpha, Protransforming Growth Factor Alpha, TGF-Alpha, TGFA.	
Introduction	
Transforming Growth Factor-Alpha (TGF-alpha) belongs to the EGF family of cytokines. TGFA soluble form is discharged from the membrane by proteolytic cleavage. Membrane-bound proTGF-alpha is biologically active and has a role in cell-cell adhesion or in the stimulation of adjacent cells. TGFA expression is common in transformed cells. Additionally, TGFA is expressed in normal tissues during embryogenesis and in adult cells/tissues, including the pituitary, keratinocytes, and macrophages.	
Source	
Escherichia Coli.	
Physical Appearance	
Sterile Filtered White lyophilized (freeze-dried) powder.	
Formulation	
Lyophilized from a 0.2 µm filtered solution in 0.1% TFA.	
Stability	
Lyophilized TGFA although stable at room temperature for 3 weeks, should be stored desiccated below -18°C. Upon reconstitution TGFA should be stored at 4°C between 2-7 days and for future use below -18°C. For long term storage it is recommended to add a carrier protein (0.1% HSA or BSA). Please prevent freeze-thaw cycles.	
Purity	
Greater than 95.0% as determined by SDS-PAGE.	
Amino acid sequence	
VVSHFNDCPD SHTQFCFHGT CRFLVQEDKP ACVCHSGYVG ARCEHADLLA.	
Biological Activity	
The ED 50 , as measured in a proliferation assay using mouse BALB/c 3T3 cells, is 0.395ng/ml.	

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Solubility

It is recommended to reconstitute the lyophilized TGFA in sterile 18M-cm H 2 O not less than 100 µg/ml, which can then be further diluted to other aqueous solutions.

Background

Title: Transforming Growth Factor-Alpha Human Recombinant, Yeast: A Versatile Biopharmaceutical for Therapeutic Applications Abstract: Transforming Growth Factor-Alpha (TGF-α) is a potent growth factor involved in numerous physiological processes, including cell proliferation, differentiation, and tissue repair. The development of TGF-α human recombinant using yeast expression systems has provided a valuable biopharmaceutical tool for therapeutic applications. This research paper explores the production process, characteristics, and potential therapeutic applications of TGF-α human recombinant derived from yeast, highlighting its versatility and clinical significance. Introduction: TGF-α is a crucial growth factor that regulates cellular functions and plays a vital role in tissue development and repair. Harnessing the therapeutic potential of TGF-α has been limited by challenges in its production and stability. However, the development of TGF-α human recombinant using yeast expression systems has overcome these limitations, making it an attractive biopharmaceutical for therapeutic interventions. Production Process and Characteristics: TGF-α human recombinant derived from yeast is produced through recombinant DNA technology, utilizing yeast cells as expression hosts. Yeast expression systems offer several advantages, including high expression yields, cost-effectiveness, and the ability to produce correctly folded and biologically active TGF-α. The resulting TGF-α human recombinant closely resembles native TGF-α in terms of structure and function, allowing for effective therapeutic intervention. Therapeutic Applications: TGF-α human recombinant derived from yeast has shown promise in various therapeutic applications. It has been investigated for its wound-healing properties, where it promotes tissue regeneration and accelerates the healing process. Additionally, TGF-α has been explored in tissue engineering and regenerative medicine, playing a crucial role in stimulating cell proliferation and tissue development. Furthermore, TGF-α has been studied in the context of cancer research, as it is involved in tumor growth and angiogenesis, making it a potential target for anticancer therapies. Advantages and Challenges: The use of yeast expression systems for producing TGF-α human recombinant offers several advantages, including scalability, cost-effectiveness, and the ability to produce bioactive protein. However, challenges remain, such as optimizing production processes, purification methods, and ensuring product consistency and stability. Further research is needed to address these challenges and maximize the clinical potential of TGF-α human recombinant derived from yeast. Conclusion: TGF-α human recombinant derived from yeast represents a versatile biopharmaceutical tool with significant therapeutic potential. Its production using yeast expression systems offers advantages in terms of scalability, cost-effectiveness, and bioactivity. The therapeutic applications of TGF-α human recombinant extend to wound healing, tissue engineering, and cancer research. Continued research and development efforts are crucial to optimizing production processes, overcoming challenges, and fully exploiting the clinical benefits of TGF-α human recombinant as a therapeutic agent.

References

Bibliography: Derynck R, Roberts AB, Winkler ME, et al. Human transforming growth factor-alpha: precursor structure

and expression in E. coli. Cell. 1984;38(2):287-297. Cohen S, Carpenter G, King L Jr. Epidermal growth factor-receptor-protein kinase interactions. Co-purification of receptor and epidermal growth factor-enhanced phosphorylation activity. J Biol Chem. 1980;255(10):4834-4842. Carpenter G, Cohen S. Epidermal growth factor. Annu Rev Biochem. 1979;48:193-216. Luetteke NC, Qiu TH, Peiffer RL, et al. TGF alpha deficiency results in hair follicle and eye abnormalities in targeted and waved-1 mice. Cell. 1993;73(2):263-278. Segarini PR, Nesbitt JE, Li D, et al. The role of integrins alpha v beta 3 and alpha v beta 5 in angiogenesis. Angiogenesis. 1995;3(1):11-24.

Precautions

TGFA Human is for research use only and not for use in diagnostic or therapeutic procedures.

Target Information: (P01135)

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References for protein:

Bibliography: Derynck R, Roberts AB, Winkler ME, et al. Human transforming growth factor-alpha: precursor structure and expression in E. coli. Cell. 1984;38(2):287-297. Cohen S, Carpenter G, King L Jr. Epidermal growth factor-receptor-protein kinase interactions. Co-purification of receptor and epidermal growth factor-enhanced phosphorylation activity. J Biol Chem. 1980;255(10):4834-4842. Carpenter G, Cohen S. Epidermal growth factor. Annu Rev Biochem. 1979;48:193-216. Luetteke NC, Qiu TH, Peiffer RL, et al. TGF alpha deficiency results in hair follicle and eye abnormalities in targeted and waved-1 mice. Cell. 1993;73(2):263-278. Segarini PR, Nesbitt JE, Li D, et al. The role of integrins alpha v beta 3 and alpha v beta 5 in angiogenesis. Angiogenesis. 1995;3(1):11-24.