

BMP13 Human

Bone Morphogenetic protein-13 Human Recombinant

CYK0088

Product Overview

Name	BMP13 Human
Accession(Primary)	Q6KF10
Description	Bone Morphogenetic protein-13 Human Recombinant

Target information (Q6KF10)

Gene Name

About Gene Symbol

Background

Bone Morphogenetic Protein-13 Human Recombinant: Unraveling its Potential in Tissue Engineering and Regenerative Medicine Abstract: Bone Morphogenetic Protein-13 (BMP-13) human recombinant is a pivotal member of the bone morphogenetic protein family, known for its crucial role in tissue development, regeneration, and repair. This research paper aims to provide a comprehensive analysis of BMP-13, including its characteristics, signaling pathways, and potential therapeutic applications. Furthermore, innovative methodologies for the production and optimization of BMP-13 human recombinant are proposed, shedding light on its future implications in the field of tissue engineering and regenerative medicine. Introduction: Tissue engineering and regenerative medicine hold great promise in addressing tissue repair and regeneration challenges. BMP-13, a prominent member of the BMP family, plays a vital role in orchestrating cellular responses during tissue development and healing. This paper explores the distinctive features of BMP-13 and presents novel approaches for the production and optimization of BMP-13 human recombinant, aiming to unlock its therapeutic potential in various regenerative contexts. Characteristics and Signaling Pathways: BMP-13 is a secreted growth

factor belonging to the transforming growth factor-beta (TGF- β) superfamily. It exerts its biological effects by binding to specific cell surface receptors, initiating intricate intracellular signaling cascades. BMP-13 signaling pathways, including Smad-dependent and Smad-independent pathways, regulate critical processes such as cell differentiation, proliferation, and extracellular matrix synthesis, influencing tissue development and repair. Production of BMP-13 Human Recombinant: Efficient production methodologies are crucial for harnessing the therapeutic potential of BMP-13 human recombinant. Various recombinant protein expression systems, such as mammalian cells or baculovirus-insect cell systems, have been utilized for the production of functional BMP-13. Optimization strategies, including codon optimization, signal peptide engineering, and protein folding enhancement, have been employed to improve the yield and bioactivity of BMP-13 recombinant protein. Potential Therapeutic Applications: BMP-13 human recombinant holds immense promise in the field of tissue engineering and regenerative medicine. Its involvement in cartilage formation, osteogenesis, and tissue repair makes it a potential candidate for the treatment of musculoskeletal disorders, joint injuries, and cartilage defects. Furthermore, the ability of BMP-13 to modulate cell behavior and tissue remodeling indicates its wider therapeutic applications in diverse regenerative processes. Conclusion: BMP-13 human recombinant emerges as a crucial regulator in tissue engineering and regenerative medicine, offering significant potential for tissue repair and regeneration. Optimizing production methodologies and further unraveling its signaling mechanisms will undoubtedly enhance its therapeutic applications. Given its involvement in cartilage and bone formation, as well as tissue repair, BMP-13 human recombinant represents a valuable tool for promoting tissue regeneration and addressing the unmet clinical needs in regenerative medicine.

References for protein:

Bibliography: Chubinskaya S, Segalite D, Pikovsky D, Hakimiyan A, Rueger DC. Effects induced by BMPs in cultures of human articular chondrocytes: comparative studies. *Growth Factors*. 2008;26(5):275-283. Lyons KM, Hogan BL, Robertson EJ. Colocalization of BMP 7 and BMP 2 RNAs suggests that these factors cooperatively mediate tissue interactions during murine development. *Mech Dev*. 1995;50(1):71-83. Vukicevic S, Luyten FP, Kleinman HK, Reddi AH. Differentiation of canalicular cell processes in bone cells by basement membrane matrix components: regulation by discrete domains of laminin. *Cell*. 1990;63(2):437-445. Zhu W, Rawlins BA, Boachie-Adjei O, et al. Combined bone morphogenetic protein-2 and -7 gene transfer enhances osteoblastic differentiation and spine fusion in a rodent model. *J Bone Miner Res*. 2004;19(12):2021-2032. Zhang W, Deng D, Lv D, et al. Role of bone morphogenetic protein 13 in osteogenic differentiation of rat dental follicle stem cells. *Stem Cells Dev*. 2012;21(11):library-1296.