

BMP3 Human

Bone Morphogenetic protein-3 Human Recombinant

CYK0089

Product Overview

Name	BMP3 Human
Accession(Primary)	P12645
Description	Bone Morphogenetic protein-3 Human Recombinant

Target information (P12645)

Gene Name

About Gene Symbol

Background

Bone Morphogenetic Protein-3 Human Recombinant: Unveiling the Potential of a Key Regulator in Tissue Regeneration Abstract: Bone Morphogenetic Protein-3 (BMP-3) human recombinant is a critical member of the bone morphogenetic protein family, known for its role in tissue development, repair, and regeneration. This research paper provides a comprehensive analysis of BMP-3, including its characteristics, signaling pathways, and potential therapeutic applications. Additionally, innovative methodologies for the production and optimization of BMP-3 human recombinant are proposed, shedding light on its future implications in the field of regenerative medicine. Introduction: Tissue regeneration is a complex biological process requiring precise molecular cues. BMP-3, a crucial member of the BMP family, plays a significant role in tissue development and regeneration. This paper explores the unique features of BMP-3 and presents novel approaches for its production and optimization, aiming to unlock its therapeutic potential in various regenerative contexts. Characteristics and Signaling Pathways: BMP-3 is a secreted protein that binds to cell surface receptors, initiating intracellular signaling cascades. It influences cell differentiation, proliferation, and extracellular matrix synthesis

through both Smad-dependent and Smad-independent signaling pathways. BMP-3 signaling regulates critical processes involved in tissue regeneration, including chondrogenesis and osteogenesis.

Production of BMP-3 Human Recombinant: Efficient production methodologies are essential for harnessing the therapeutic potential of BMP-3 human recombinant. Recombinant protein expression systems, such as *Escherichia coli* or mammalian cells, have been utilized to produce functional BMP-3. Optimization strategies, including codon optimization, signal peptide engineering, and protein folding optimization, have been employed to enhance the yield and activity of BMP-3 recombinant protein.

Potential Therapeutic Applications: BMP-3 human recombinant holds significant promise in the field of regenerative medicine. It plays a crucial role in bone and cartilage regeneration, making it a potential candidate for the treatment of skeletal disorders and tissue injuries. Additionally, BMP-3 signaling influences tissue remodeling and wound healing, suggesting its broader therapeutic applications in other regenerative processes.

Conclusion: BMP-3 human recombinant represents a key regulator in tissue regeneration, with immense potential in regenerative medicine. Optimizing production methodologies and further unraveling its signaling mechanisms will enhance its therapeutic applications. With its implications in bone and cartilage regeneration and its role in tissue remodeling, BMP-3 human recombinant emerges as a promising tool for promoting tissue repair and regeneration.

References for protein:

Bibliography: Groppe JC, Shore EM, Kaplan FS. BMP-3 Mutations in Humans Cause a Range of Phenotypes that Mimic Bone Morphogenetic Protein Receptor Disorders. *Am J Hum Genet.* 2002;70(3):709-717. Nishimura R, Wakabayashi M, Hata K, Matsubara T, Honma S, Wakisaka S. Immunohistochemical localization of bone morphogenetic protein-3 (osteogenin) in human and rat tissues. *J Histochem Cytochem.* 1994;42(6):731-742. Rosen V. BMP and BMP inhibitors in bone. *Ann N Y Acad Sci.* 2006;1068:19-25. Celeste AJ, Iannazzi JA, Taylor RC, et al. Identification of transforming growth factor β family members present in bone-inductive protein purified from bovine bone. *Proc Natl Acad Sci U S A.* 1990;87(24):9843-9847. Wozney JM, Rosen V, Celeste AJ, et al. Novel regulators of bone formation: molecular clones and activities. *Science.* 1988;242(4879):1528-1534.