9051 Mira Mesa Blvd, #910094
San Diego, CA 92191
Tel: 760-390-3989

BMP 4 Human

Bone Morphogenetic Protein-4 Human Recombinant
CYK0082

Product Overview

Name	BMP 4 Human
Description	
Bone Morphogenetic Protein-4 Human Recombinant	
Accession (Primary)	P12644
Synonyms	
BMP4, ZYME, BMP2B, BMP2B1.	
Introduction	
The protein encoded by this gene is a member of the bone morphogenetic protein family which is part of the transforming growth factor-beta superfamily. The superfamily includes large families of growth and differentiation factors. Bone morphogenetic proteins were originally identified by an ability of demineralized bone extract to induce endochondral osteogenesis in vivo in an extraskeletal site. This particular family member plays an important role in the onset of endochondral bone formation in humans, and a reduction in expression has been associated with a variety of bone diseases, including the heritable disorder Fibrodysplasia Ossificans Progressiva. Alternative splicing in the 5' untranslated region of this gene has been described and three variants are described, all encoding an identical protein.	
Source	
Escherichia Coli.	
Physical Appearance	
Sterile Filtered White lyophilized (freeze-dried) powder.	
Formulation	
BMP-4 was lyophilized from a 0.2 μm filtered concentrated (1mg/ml) solution in 20mM Na 2 CO 3 buffer, pH 9.0.	
Stability	
Lyophilized Bone Morphogenetic Protein-4 although stable at room temperature for 3 weeks, should be stored desiccated below -18°C. Upon reconstitution BMP4 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: (a) Analysis by RP-HPLC. (b) Analysis by SDS-PAGE.	

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Amino acid sequence

SPKHHSQRAR KKNKNCRRHS LYVDFSDVGW NDWIVAPPGY QAFYCHGDCP FPLADHLNST NHAIVQTLVN SVNSSIPKAC CVPTELSAIS MLYLDEYDKV VLKNYQEMVV EGCGCR.

Solubility

It is recommended to reconstitute the lyophilized Bone Morphogenetic Protein-4 in sterile 18M-cm H 2 O not less than 100 µg/ml, which can then be further diluted to other aqueous solutions.

Background

What You Should Know About Bone Morphogenetic Protein-4 (BMP-4) Human Recombinant As part of the transforming growth factor-beta (TGF-β) superfamily, Bone morphogenetic protein-4 (BMP-4) participates in multiple developmental processes, from embryogenesis to bone and cartilage formation. Since this signaling protein is involved in many physiological processes, its laboratory-produced version has been studied for different medical applications. Additionally, a reduction in BMP-4 expression has been associated with multiple diseases, leading to further research into its potential therapeutic benefits. Are you interested in learning more about Bone Morphogenetic Protein-4 (BMP-4) human recombinant? Read on to find more information! How Does Bone Morphogenetic Protein-4 (BMP-4) Work? Bone Morphogenetic Protein-4 (BMP-4) regulates microRNAs miR-494 and miR-126-5p expression, controlling endothelial cells' involvement and function in angiogenesis. As such, it has diverse effects on cell growth, differentiation, and survival. The Role of BMP-4 This protein emits signals that promote the formation of different tissues and organs, including the bones and cartilage, kidneys, teeth, and the neural tube. In other words, it's essential for the development of the heart, skeleton, and central nervous system. However, the role of BMP-4 goes beyond these processes. It participates in different physiological activities, such as: Embryonic development Wound healing Bone remodeling Immune response modulation Tissue repair Cardiac development and function What Is Bone Morphogenetic Protein-4 (BMP-4) Human Recombinant? To replicate the effects of the BMP4 found in humans and explore its possible therapeutic applications, many laboratories have started producing this protein in Chinese hamster ovary (CHO) cells. As mentioned, decreased BMP-4 expression has been associated with different diseases, including bone disorders, fibrosis, and cancer, which can cause other conditions, such as organ dysfunction. More research is needed, but BMP-4 human recombinant (rhBMP4) produced in CHO has the potential to address these diseases and could be used for other medical applications. These are some examples: Cancer therapy Development of engineered tissues and organs Bone regeneration for the treatment of osteoporosis and nonunion fractures Bone growth and fusion in spinal fusion surgeries (the U.S. Food and Drug Administration approved some bone morphogenetic proteins for these procedures) Promotion of tissue repair and regeneration Final Thoughts BMP-4 Although BMP-4 human recombinant produced in CHO offers potential benefits, several challenges remain, including possible side effects, as high doses can cause inflammation, bone overgrowth, and other issues. However, the long-term effects of rhBMP4 are still under investigation. Further research will provide solutions to address these challenges and allow experts to explore this laboratory-produced protein's power in different medical fields.

Precautions

BMP 4 Human is for research use only and not for use in diagnostic or therapeutic procedures.

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Target Information: (P12644)

Background

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