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Recombinant Human BMP4 Protein

Catalog Number:	631501, 631502
Size:	20 μg, 100 μg
Target Name:	BMP4, Bone Morphogenetic Protein 4, Bone Morphogenetic Protein 2B, BMP2B
Regulatory Status:	RUO

PRODUCT DETAILS

Application:	Bioassay
Format:	Lyophilized from sterile 30% Acetonitrile, 1/1000 TFA.
Expression Host:	E.coli
Species:	Human
accession number:	P12644
Sources:	A DNA sequence encoding the human BMP4 (P12644) (Ser293-Arg408, E399D) was expressed with an N-terminal Met.
Molecular Weight:	The recombinant Human BMP4 consists of 117 amino acids and predicts a molecular mass of 13.25 kDa.
Affinity Tag:	None
Purity:	≥ 95 % as determined by SDS-PAGE.
Endotoxin level:	< 1.0 EU per µg protein
Protein Concentration:	Lyophilized
Storage and Handling:	Samples are stable for up to twelve months from date of receipt at -20℃ to -80℃. Store it under sterile conditions at -20℃ to -80℃. It is recommended that the protein be aliquoted for optimal storage. Avoid repeated freeze-thaw cycles.

BACKGROUND INFORMATION

Human BMP4 (bone morphogenetic protein 4) is a secreted growth factor belonging to the transforming growth factor-β (TGF-β) superfamily. It plays a critical role in embryonic development, tissue patterning, and organogenesis, including bone and cartilage formation, limb development, and neural differentiation. BMP4 is synthesized as a precursor protein that undergoes proteolytic cleavage to generate a mature, biologically active dimer. Structurally, the mature BMP4 protein forms a disulfide-linked homodimer characterized by a conserved cystine knot motif typical of TGF-β family members.

BMP4 exerts its function by binding to heteromeric complexes of type I and type II serine/threonine kinase receptors on the cell surface, primarily BMPR1A (ALK3), BMPR1B (ALK6), and BMPR2. Upon ligand binding, these receptors phosphorylate SMAD1/5/8 proteins, which then associate with SMAD4 and translocate to the nucleus to regulate gene expression. BMP4 activity is tightly regulated by extracellular antagonists such as noggin, chordin, and gremlin, which bind BMP4 and prevent receptor interaction.

Dysregulation of BMP4 signaling has been implicated in various diseases, including cancer, fibrosis, and developmental disorders.

Overexpression or aberrant signaling can contribute to tumor progression, epithelial–mesenchymal transition, and abnormal tissue remodeling, while insufficient activity may impair normal development.

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