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BMP4 Antibody

Purified Mouse Monoclonal Antibody
Catalog # AO1340a

Product Information

Application	WB, E
Primary Accession	P12644
Reactivity	Human
Host	Mouse
Clonality	Monoclonal
Clone Names	10F4B4
Isotype	IgG1
Calculated MW	46555
Description	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.BMPs (bone morphogenetic proteins) belong to the TGF beta superfamily of structurally related signaling proteins. Members of this superfamily are widely represented throughout the animal kingdom and have been implicated in a variety of developmental processes. Proteins of the TGF beta superfamily are disulfide-linked dimers composed of two 12-15 kDa polypeptide chains. As implied by their name, BMPs initiate, promote and regulate bone development, growth, remodeling and repair. Smad1 translocation to the nucleus is observed after the addition of BMP4 (also designated BMP2B), suggesting that BMP4 may play a role in activation of the Smad pathway. BMP is secreted into the extracellular matrix.
Immunogen	Purified recombinant fragment of human BMP4 expressed in E. Coli.
Formulation	Ascitic fluid containing 0.03% sodium azide.

Additional Information

Gene ID	652
Other Names	Bone morphogenetic protein 4, BMP-4, Bone morphogenetic protein 2B, BMP-2B, BMP4, BMP2B, DVR4
Dilution	WB~~1/500 - 1/2000 E~~N/A
Storage	Maintain refrigerated at 2-8°C for up to 6 months. For long term storage store at -20°C in small aliquots to prevent freeze-thaw cycles.
Precautions	BMP4 Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	BMP4 (HGNC:1071)
Function	Growth factor of the TGF-beta superfamily that plays essential roles in many developmental processes, including neurogenesis, vascular development, angiogenesis and osteogenesis (PubMed:31363885). Acts in concert with PTHLH/PTHRP to stimulate ductal outgrowth during embryonic mammary development and to inhibit hair follicle induction (By similarity). Initiates the canonical BMP signaling cascade by associating with type I receptor BMPR1A and type II receptor BMPR2 (PubMed:25868050, PubMed:8006002). Once all three components are bound together in a complex at the cell surface, BMPR2 phosphorylates and activates BMPR1A. In turn, BMPR1A propagates signal by phosphorylating SMAD1/5/8 that travel to the nucleus and act as activators and repressors of transcription of target genes (PubMed:25868050, PubMed:29212066). Positively regulates the expression of odontogenic development regulator MSX1 via inducing the IPO7- mediated import of SMAD1 to the nucleus (By similarity). Required for MSX1-mediated mesenchymal molar tooth bud development beyond the bud stage, via promoting Wnt signaling (By similarity). Acts as a positive regulator of odontoblast differentiation during mesenchymal tooth germ formation, expression is repressed during the bell stage by MSX1- mediated inhibition of CTNNB1 signaling (By similarity). Able to induce its own expression in dental mesenchymal cells and also in the neighboring dental epithelial cells via an MSX1-mediated pathway (By similarity). Can also signal through non-canonical BMP pathways such as ERK/MAP kinase, PI3K/Akt, or SRC cascades (PubMed:31363885). For example, induces SRC phosphorylation which, in turn, activates VEGFR2, leading to an angiogenic response (PubMed:31363885).
Cellular Location	Secreted, extracellular space, extracellular matrix
Tissue Location	Expressed in the lung and lower levels seen in the kidney. Present also in normal and neoplastic prostate tissues, and prostate cancer cell lines

References

1. Genomics. 1995 Jun 10;27(3):559-60. 2. DNA Seq. 1995;5(5):273-5. 3. J Bone Miner Res. 2009 Dec;24(12):2039-49. 4. Stem Cells Dev. 2009 Nov;18(9):1283-92.

Images

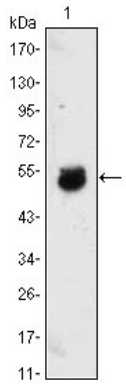
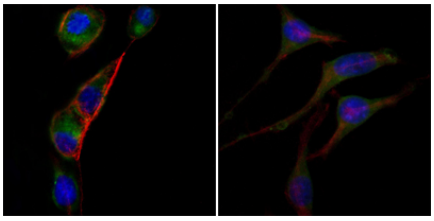


Figure 1: Western blot analysis using BMP4 mouse mAb against BMP4-hIgGFc transfected HEK293 cell lysate.

Figure 2: Immunofluorescence analysis of PC-3 (left) and



SK-BR-3 (right) cells using anti-GOT2 mAb (green). Red: Actin filaments have been labeled with DY-554 phalloidin. Blue: DRAQ5 fluorescent DNA dye.

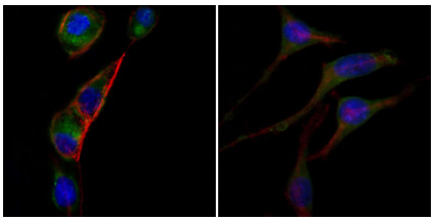


Figure 2:Immunofluorescence analysis of PC-3 (left) and SK-BR-3 (right) cells using anti-GOT2 mAb (green). Red: Actin filaments have been labeled with DY-554 phalloidin. Blue: DRAQ5 fluorescent DNA dye.