

BMP4 Antibody

Purified Mouse Monoclonal Antibody Catalog # AO2170a

Product Information

Application WB, ICC, E **Primary Accession** P12644 Reactivity Human, Rat Host Mouse Clonality Monoclonal **Clone Names** 3C11H8 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. Bone morphogenetic proteins were originally

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.

Immunogen Purified recombinant fragment of human BMP4 (AA: 277-408) expressed in E.

Coli.

Formulation Purified antibody in PBS with 0.05% 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 ICC~~N/A E~~1/10000

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.

PrecautionsBMP4 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: <u>29212066</u>). 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.Cancer Invest. 2013 Oct;31(8):555-62. 2.Eur J Oral Sci. 2013 Aug;121(4):313-8.

Images

