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Anti-BMP2 Antibody Picoband®

Catalog Number: PB9687

About BMP2

BMP2 is also known as Bone morphogenetic protein 2 or BMP2A. It is mapped to 20p12. The protein encoded by this gene belongs to the transforming growth factor-beta (TGFB) superfamily. BMP-2, like other bone morphogenetic proteins, plays an important role in the development of bone and cartilage. It is involved in the hedgehog pathway, TGF beta signaling pathway, and in cytokine-cytokine receptor interaction. Also, it is involved in cardiac cell differentiation and epithelial to mesenchymal transition. In addition, BMP2A has been suggested as a reasonable candidate for the human condition fibrodysplasia (myositis) ossificans progressiva, on the basis of observations in a Drosophila model.

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Overview

Product Name	Anti-BMP2 Antibody Picoband®
Reactive Species	Human, Rat
Description	Boster Bio Anti-BMP2 Antibody Picoband® catalog # PB9687. Tested in ELISA, IHC, WB applications. This antibody reacts with Human, Rat. The brand Picoband indicates this is a premium antibody that guarantees superior quality, high affinity, and strong signals with minimal background in Western blot applications. Only our best-performing antibodies are designated as Picoband, ensuring unmatched performance.
Application	IHC, WB, ELISA (Cap)
Clonality	Polyclonal
Formulation	Each vial contains antibody formulated with stabilizing components, 0.9 mg NaCl, 0.2 mg Na2HPO4, and 0.05 mg NaN3. *This antibody is supplied in a stabilized formulation. Compatibility with conjugation reactions depends on the chemistry of the conjugation method used. For conjugation methods that are not compatible with the stabilizing components present in this formulation, a carrier-free antibody format is required.
Storage Instructions	Store at -20˚C for one year from date of receipt. After reconstitution, at 4˚C for one month. It can also be aliquotted and stored frozen at -20˚C for six months. Avoid repeated freeze-thaw cycles.
Host	Rabbit
Uniprot ID	P12643

Technical Details

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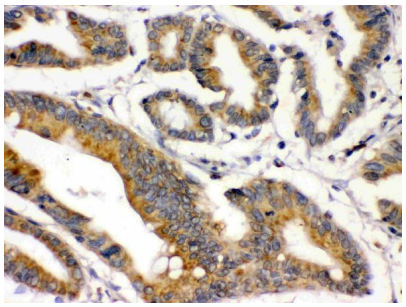
Immunogen	A synthetic peptide corresponding to a sequence at the C-terminus of human BMP-2, identical to the related mouse and rat sequences.
Recommended Detection Systems	Boster recommends Enhanced Chemiluminescent Kit with anti-Rabbit IgG (EK1002) for Western blot, and HRP Conjugated anti-Rabbit IgG Super Vision Assay Kit (SV0002-1) for IHC(P).
Cross Reactivity	No cross-reactivity with other proteins
Isotype	Rabbit IgG
Form	Lyophilized
Concentration	Adding 0.2 ml of distilled water will yield a concentration of 500 ug/ml.
Purification	Immunogen affinity purified.
Suggested Dilutions	Western blot, 0.1-0.5ug/ml, Human, Rat Immunohistochemistry (Paraffin-embedded Section), 0.5-1ug/ml, Human ELISA(Cap) , 1-5ug/ml, Human, -

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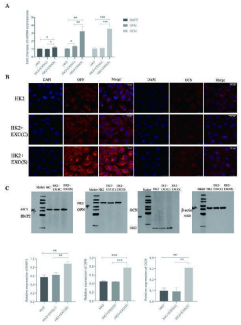
Anti-BMP2 Antibody Picoband® (PB9687) Images



Western blot analysis of BMP-2 using anti-BMP-2 antibody (PB9687). Electrophoresis was performed on a 5-20% SDS-PAGE gel at 70V (Stacking gel) / 90V (Resolving gel) for 2-3 hours. Lane 1: Rat Lung Tissue Lysate at 50ug, Lane 2: Rat Brain Tissue Lysate at 50ug, Lane 3: U87 Whole Cell Lysate at 40ug, Lane 4: HELA Whole Cell Lysate at 40ug. After electrophoresis, proteins were transferred to a nitrocellulose membrane at 150 mA for 50-90 minutes. Blocked the membrane with 5% non-fat milk/TBS for 1.5 hour at RT. The membrane was incubated with rabbit anti-BMP-2 antigen affinity purified polyclonal antibody (Catalog # PB9687) at 0.5 ug/mL overnight at 4°C, then washed with TBS-0.1%Tween 3 times with 5 minutes each and probed with a goat anti-rabbit IgG-HRP secondary antibody at a dilution of 1:5000 for 1.5 hour at RT. The signal is developed using an Enhanced Chemiluminescent detection (ECL) kit (Catalog # EK1002) with Tanon 5200 system. A specific band was detected for BMP-2 at approximately 20 kDa, 40 kDa. The expected band size for BMP-2 is at 45 kDa.



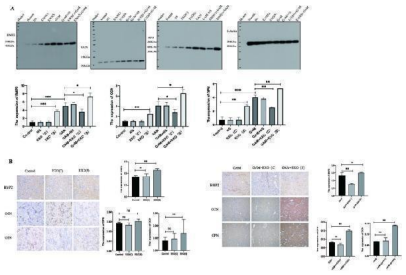
IHC analysis of BMP-2 using anti-BMP-2 antibody (PB9687). BMP-2 was detected in a paraffin-embedded section of human intestinal cancer tissue. Heat mediated antigen retrieval was performed in EDTA buffer (pH 8.0, epitope retrieval solution). The tissue section was blocked with 10% goat serum. The tissue section was then incubated with 1 ug/ml rabbit anti-BMP-2 Antibody (PB9687) overnight at 4°C. Biotinylated goat anti-rabbit IgG was used as secondary antibody and incubated for 30 minutes at 37°C. The tissue section was developed using Strepavidin-Biotin-Complex (SABC) (Catalog # SA1022) with DAB as the chromogen.



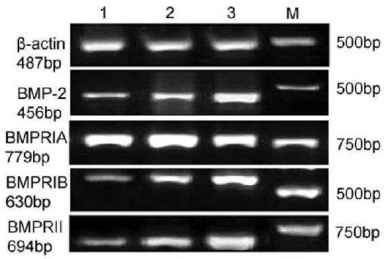
Effects of exosomes on the activation of osteoblastic-associated protein expression in HK2 cells. A RT-qPCR analysis of BMP2,OPN and OCN expression in the HK2 cells stimulated with exosomes derived from HK2 cells under different conditions. B Immunofluorescence analysis of OPN and OCN expression in the HK2 cells stimulated with exosomes derived from HK2 cells under different conditions. C Western blot assays showing the expression levels of BMP2, OPN, and OCN in the Hk2 cells stimulated with EXO(C) or EXO(S). The data are expressed as the mean ± SE. ∗ $P < 0.05$ compared with the HK2 cells Index in PubMed under a CC BY license. PMID: 36855143

Effects of exosomes derived from HK2 cells under different conditions on the activation of osteoblastic-associated protein expression in rat kidneys. A BMP2,OPN, and OCN were highly expressed in the rats injected with EXO(S) or GAM, and pre-EXO(C) renal subcapsular injection could ameliorate these effects,while pre-EXO(S) renal subcapsular

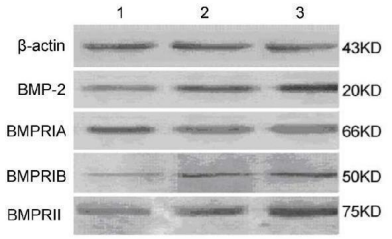
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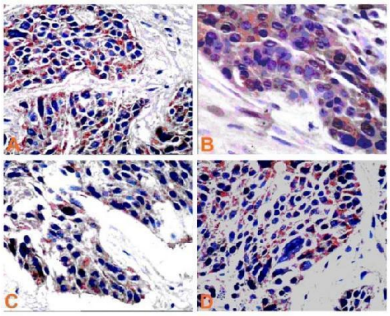
injection could accelerate the expression of osteoblastic-associated proteins. The expression levels of BMP2,OPN, and OCN were quantified via ImageJ. B The expression of BMP2,OPN and OCN in the rats with different treatments (magnification 200X). Three rats from each group were used for quantification via ImageJ. Three animals from each group were used for these data. The data are expressed as the mean ± SE. ∗ $P < 0.05$ Index in PubMed under a CC BY license. PMID: 36855143



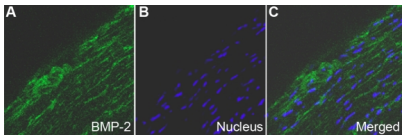
The mRNA expression of BMP-2 and its receptors detected by RT-PCR 1: Ovarian cancer tissue; 2: Benign ovarian tumor tissue; 3: Normal ovarian tissue; M: Marker . Index in PubMed under a CC BY license. PMID: 20587070



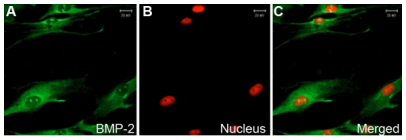
The protein expression of BMP-2 and its receptors detected by western blot 1: Ovarian cancer tissue; 2: Benign ovarian tumor tissue; 3: Normal ovarian tissue . Index in PubMed under a CC BY license. PMID: 20587070



Expression of BMP-2, BMPRIA, BMPRIB, and BMPRII in epithelial serous ovarian cancer detected by immunohistochemistry (×400) A: BMP-2, B: BMPRIA, C: BMPRIB, D: BMPRII . Index in PubMed under a CC BY license. PMID: 20587070

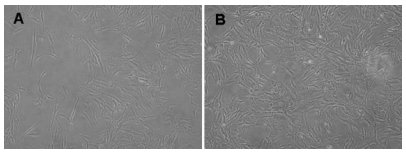


Distribution of BMP-2 in human sclera by indirect immunofluorescence. FITC marked the secondary antibody (green; A) and Hoechst33342 dyed the nucleus (blue; B). The first (A) and second images (B) are combined to form the third image shown (C). BMP-2 is localized in the cytoplasm of HSF and extracellular matrices (A - C). Magnification: 400X.Index in PubMed under a CC BY license. PMID: 19098993

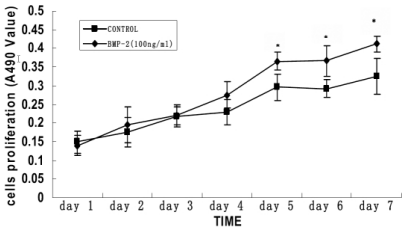


Distribution of BMP-2 in human sclera fibroblasts in vitro using indirect immunofluorescence. FITC marked the secondary antibody (green; A), and PI dyed the nucleus (red; B). The first (A) and second images (B) are combined to form the third image shown (C). BMP-2 is localized in the cytoplasm and weakly in the nucleus of HSF (A - C). Magnification: 400X.Index in PubMed under a CC BY license. PMID: 19098993

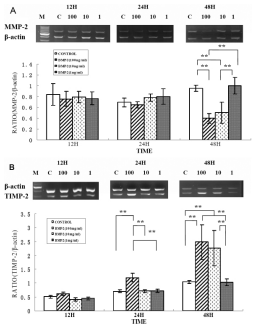
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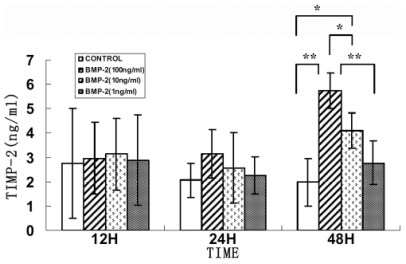
The changed pattern of human sclera fibroblasts incubated with rhBMP-2. The HSFs showed only a sparse and vortex pattern before incubation (A) whereas incubation with 100 ng/ml rhBMP-2 changed the HSFs into the intensive and polygonal cells (B). Inverted phase contrast microscope, original magnification 100X.Index in PubMed under a CC BY license. PMID: 19098993



Time-dependent effects of rhBMP-2 on the cell proliferation of primary cultured human sclera fibroblasts. Cell proliferation was determined by MTT assay. The optical density value at A490 and the mean±SD is provided for each time point (n=8). The cells were incubated with no rhBMP-2 or 100 ng/ml rhBMP-2 for seven days. A significant difference was seen in cell proliferation between 100 ng/ml rhBMP-2 treatment and control after four days. The asterisk indicates that p<0.05 when compared with the control without rhBMP-2.Index in PubMed under a CC BY license. PMID: 19098993



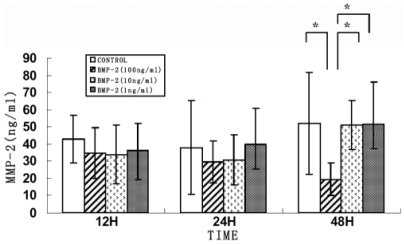
Effect of rhBMP-2 on mRNA expression levels of MMP-2 and TIMP-2 in human sclera fibroblasts. Ethidium-bromide agarose gels indicated the level of beta-actin message relative to MMP-2 (A) and TIMP-2 (B) levels from total RNA. Bar graphs revealed changes in mRNA expression (mean±standard error of the mean) where values were normalized to beta-actin values and expression was stated as a ratio of optical density. The double asterisk means that the semi-quantitative RT-PCR revealed significant changes for MMP-2 and TIMP-2 with varying concentrations of rhBMP-2 (p<0.01).Index in PubMed under a CC BY license. PMID: 19098993



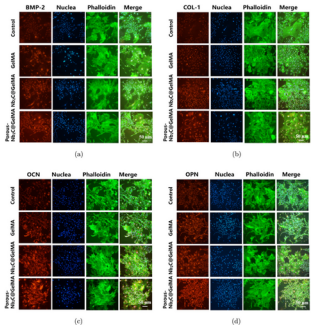
Effect of BMP-2 on TIMP-2 protein secreted from human sclera fibroblasts into culture medium. Cells were treated with 0, 1, 10, and 100 ng/ml rhBMP-2 for 12, 24, and 48 h. There were no significant differences in secreted protein levels of TIMP-2 in the HSF incubated with different rhBMP-2 concentrations after 24 h. The TIMP-2 protein levels were significantly increased following treatment with 100 ng/ml rhBMP-2 after 48 h (p< 0.01) and 10 ng/ml rhBMP-2 after 48 h (P < 0.05). Data were represented as the mean±SEM. Data were from three independent experiments. Each sample was assayed in duplicate. An asterisk indicates a p<0.05 compared to control values, and a double asterisk indicates a p< 0.01 compared to control values.Index in PubMed under a CC BY license. PMID: 19098993

Effect of BMP-2 on MMP-2 protein secretion from human sclera fibroblasts into culture medium. Cells were treated with 0, 1, 10, and 100 ng/ml rhBMP-2 for 12, 24, and 48 h. There were no significant differences in secreted protein levels of MMP-2 in the HSF incubated with different rhBMP-2 concentrations after 24 h. The MMP-2 protein levels were

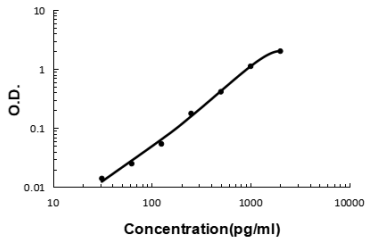
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significantly decreased following treatment of HSF cells with 100 ng/ml rhBMP-2 after 48 h ($p<0.05$). Data were represented as the mean±SEM. Data were from three independent experiments. Each sample was assayed in duplicate. An asterisk indicates a $p<0.05$ compared to control values.Index in PubMed under a CC BY license. PMID: 19098993



IF staining images of (a) BMP-2, (b) COL-1, (c) OCN, and (d) OPN in BMSCs (red: osteogenic proteins and genes; green: cytoskeleton; blue: nucleus). Index in PubMed under a CC BY license. PMID: 10.1142/S1793545824420021



Sandwich ELISA - Recombinant mouse BMP2 protein standard curve. Use in combination with reagents from Mouse BMP2 ELISA Kit EZ-Set (DIY Antibody Pairs) (EZ0313).

35 Publications Citing This Product

1. PubMed ID: 10.3760/cma.j.issn.0366-6999.2009.04.0021, Construction and expression of a bicistronic vector containing human bone morphogenetic protein 2 and vascular endothelial growth factor-165 genesin vitro

2. PubMed ID: PMID:19098993, Bone morphogenetic protein-2: a potential regulator in scleral remodeling

3. PubMed ID: 10.1016/j.apmt.2020.100777, Construction of chemokine substance P-embedded biomimetic multilayer onto bioactive magnesium silicate-titanium implant for bone regeneration

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