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Bone Morphogenetic Protein (BMP) Antibodies

Bone morphogenetic protein 1 (BMP1) antibodies. Cat # BMP-101AP, FITC-BMP1, P-BMP1 and PC-BMP1.

The transforming growth factor-beta (TGF-beta) super-family consists of a large number of growth and differentiation factors, such as TGF-betas, activins, inhibins, growth and differentiation factors (GDFs), and bone morphogenetic proteins (BMPs). These TGF beta ligands act through specific serine/threonine type I and Type II receptor kinases (1). These type I and II receptor kinases subsequently activate Smad proteins, which then propagate the signals into the nucleus to regulate target gene expression. Several BMP isotypes have been identified (BMP1 through MP16) have been recovered through molecular cloning. Recombinant protein products from several of these clones (BMP2-BMP16) are members of the TGF-beta super-family of regulatory ligands. There exist high degree of amino acid sequence homology between BMP5, BMP6, and BMP7, that constitute a subfamily within the BMPs. The signaling systems of BMP are highly conserved from flies to mammals and have been shown to be important in the development of multiple organs.

The bone morphogenetic proteins (BMP) are implicated in several inductive differentiation processes in vertebrate ontogeny and patterning of nervous system. Recently, these proteins have also emerged as candidates for regulating survival of mesencephalic dopaminergic and sympathetic neurons. It has been shown that several bone morphogenetic proteins are induced in 14 day developing embryonic rat dorsal root ganglia (2). BMPs exert survival promoting effects and positively modulate the effects of neurotrophins on sensory neurons (3). BMP2 is a 471 amino acid protein with an apparent MW of 58 kDa. BMP2 transforms the human bone marrow-derived mesenchymal stem cells (MSCs) in to chondrocytic phenotype in high-density cultures (3). Recent studies suggest that BMP2 induced ectopic bone formation involves both endochondral and intramembranous ossification (4). Except for BMP-1, which is a metalloprotease, all other BMPs appears to be members of the TGF-beta regulatory molecules. BMP1 plays important roles in regulating the deposition of fibrous extracellular matrix in vertebrates, including provision of the procollagen C-proteinase activity that processes the major fibrillar collagens I-III. Biglycan, a small leucine-rich proteoglycan, is a nonfibrillar extracellular matrix component with functions that include the positive regulation of bone formation (5).

The BMP1-selective antibodies were generated against peptides from unique regions of the BMP1 protein. FabGennix Inc. has generated epitope specific rabbit anti-BMP4 and BMP8 polyclonal antibodies utilizing linear and cyclic peptide sequences. These antibodies have been fully characterized for cross reactivity with other members of the bone morphogenetic proteins and other proteins. Limited quantities of the antigenic blocking peptide and western blot positive control for BMP1 antibodies are also available.

Catalog #	Host	Description	Antigen/ control	Cross reactivity	vol
BMP-101AP	Rabbit	Bone morphogenic protein 1(BMP1) antibody	Peptide antibody	R, M, H	175ul
FITC-BMP1	Rabbit	FITC-conjugated BMP1 Antibody	Peptide antibody	R, M, H	200ul
PC-BMP1	n/a	Western blot positive control for BMP1	Partially purified BMP1 protein	N/A	Inquire
P-BMP1	n/a	BMP1 Antigenic blocking Peptide	Antigenic peptide	250 ug	100ul

R = rat; M = mouse; H = humans; R = rabbit * Actual volume is 103-110 µl; WB, Western Blot analyses; IMM, Immunoprecipitation; IHC, Immunohistochemistry, n.d, not determine.

Immunogen: Synthetic peptide corresponding to amino acid 184-197 of mouse BMP1 sequence. (Peptide Sequence: vmlk ppa emv pgh li). The peptide was conjugated to KLH using hetero-bifunctional cross linker for immunogenization.

Concentration: BMP-101AP and FITC-BMP1 = IgG concentration 0.5-0.75 mg/ml.

Applications: ELISA: Antibody dilution 1:2,000 for ELISA or DOT blot assay. W.B: Antibody dilution 1:500-1,000 for WB using PC-BMP1. IMM: n.d; IHC n.d

Reactivity The antibodies BMP-200P and BMP-201AP label 58-60 kDa bone morphogenetic protein 2 in PC-BMP2 sample.

Protocols: Standard protocol for various applications (Western blot; immunoprecipitation and immunohistochemistry) of this antibody is provided with the product specification sheet, however, FabGennix Inc. recommends investigators to optimize conditions.

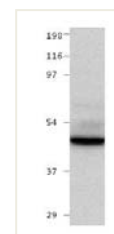
Form/Storage: The antiserum is supplied in antibody stabilization buffer with preservatives. For long-term storage of antibody, store at -20°C FabGennix Inc. does not recommend storage of very dilute antibody solutions unless they are prepared in specially formulated multi-use antibody dilution buffer (Cat # DiluOBuffer). Working solutions of antibodies in DiluOBuffer should be filtered through 0.45µ filter after every use for long-term storage.

References:

1. Peng C. J Obstet Gynaecol Can. 2003 Oct;25(10):834-44.
2. Farkas LM, Jaszai J, Unsicker K, Kriegelstein K. Neuroscience. 1999;92(1):227-35
3. Schmitt B, Ringe J, Haupl T, Notter M, Manz R, Burmester GR, Sittinger M, Kaps C. Differentiation. 2003 Dec;71(9-10):567-577. Stoeger T, Proetzel GE, Welzel H, Papadimitriou A, Dony C, Balling R, Hofmann C.. Growth Factors. 2002 Dec;20(4):197-210.
4. Scott IC, Imamura Y, Pappano WN, Troedel JM, Recklies AD, Roughley PJ, Greenspan DS. J Biol Chem. 2000 ;275:30504-11

*Note: Briefly centrifuge to collect liquid, heat or boil PC-BMP1 tube for 1-2 minutes to dissolve any precipitate before use. This product is "ready-to-use" for electrophoresis. After thawing store at room temperature. Repeated freezing and thawing may result in appearance of higher molecular weight immunoreactive bands.

*For users who may require large amounts of BMP-101AP and FITC-BMP1, please enquire about bulk material discounts.
This Product is for Research Use Only and is NOT intended for use in humans or clinical diagnosis.



Western blot of BMP1 (BMP-101AP) antibody with PC-BMP2 sample. Antibody dilution 1:500 in diluOBuffer.

A070903-0020SF1002Z-rev10.00

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