



Product Information

Monoclonal Anti-Bone Morphogenetic Protein 8

Clone 158708

Purified Mouse Immunoglobulin

Product Number **B 3935**

Product Description

Monoclonal Anti-Bone Morphogenetic Protein 8 (mouse IgG2b isotype) is purified from the 158708 mouse hybridoma resulting from the fusion of a mouse myeloma with B cells obtained from a mouse immunized with purified, *E. coli*-derived, recombinant mature human bone morphogenetic protein 8 (BMP-8). The antibody is purified by Protein G affinity chromatography.

Monoclonal Anti-Bone Morphogenetic Protein 8 detects human BMP-8 by immunoblotting and ELISA. The antibody shows no cross-reactivity with recombinant human BMP-2, BMP-3, BMP-4, BMP-5, BMP-6, or BMP-7.

Bone Morphogenetic Proteins are members of the TGF- β superfamily of cytokines that affect bone and cartilage formation.¹⁻³ Originally identified as protein regulators of cartilage and bone organs, it has been shown that BMPs are also involved in embryogenesis and morphogenesis of various tissues and organs. Similar to other TGF- β family proteins, BMPs are highly conserved across animal species. Mature BMPs are 30-38 kDa proteins that assume a TGF- β -like cysteine knot configuration. Unlike TGF- β , BMPs do not form latent complexes with their propeptide counterparts. Most BMPs are homodimers, but bioactive natural heterodimers have been reported. BMPs create an environment conducive for bone marrow development by stimulating the production of specific bone matrix proteins and altering stromal cell and osteoclast proliferation.^{4,5} In addition to stimulating ectopic bone and cartilage development, BMPs may be an important factor in the development of the viscera. BMPs regulate the growth, differentiation, chemotaxis, proliferation, and apoptosis of various cell types (including mesenchymal cells, epithelial cells, hematopoietic cells, and neuronal cells).^{1,6} BMPs also appear to be responsible for normal dorsal/ventral patterning and can be found in tissues that induce bone or cartilage growth, such as demineralized bone and urinary epithelium.

Bone Morphogenetic Protein 8 (BMP-8), also called BMP-8a and Op-2 (osteogenic protein-2), was discovered in mouse embryo and human hippocampus cDNA libraries. BMP-8 is synthesized as a 402 amino acid prepropeptide that contains a 19 amino acid signal sequence, a 244 amino acid pro-region, and a 139 amino acid mature segment. Like most BMP mature segments, mature BMP-8 contains one potential N-linked glycosylation site. Most of the BMPs contain seven cysteines, however, BMP-8 contains 8 cysteines. Between mouse and human BMP-8, there are 13 amino acid differences in the 139 amino acid mature segment for an amino acid identity of 93.5%. The amino acid sequences of the mature segments of human Op-2 (BMP-8a) and human Op-1 (BMP-7) are 57% identical.⁷ BMP-8b (Op-3) apparently occurs only in mice. The BMP-8b gene is suggested to have arisen from BMP-8 gene duplication.⁸ BMP-8a and BMP-8b share 75% amino acid identity in their 139 amino acid mature segments.⁸

Reagent

Monoclonal Anti-Bone Morphogenetic Protein 8 is supplied as approximately 500 μ g of antiserum lyophilized from a 0.2 μ m filtered solution of phosphate buffered saline with 5% trehalose.

Storage/Stability

Prior to reconstitution, store at -20°C . Reconstituted product may be stored at $2-8^{\circ}\text{C}$ for up to one month. For prolonged storage, freeze in working aliquots. Avoid repeated freezing and thawing. Do not store in frost-free freezer.

Preparation Instructions

To one vial of lyophilized powder, add 1 ml of 0.2 μ m filtered solution of phosphate buffered saline to produce a 0.5 mg/ml stock solution of antibody.

Product Profile

For immunoblotting, a working antibody concentration of 1-2 μ g/ml is recommended. The detection limit for

recombinant human BMP-8 is approximately 0.5 ng/lane under non-reducing and reducing conditions.

For ELISAs, a working antibody concentration of 0.5-1.0 µg/ml is recommended. The detection limit for recombinant human BMP-8 is approximately 2 ng/well.

Note: In order to obtain the best results in various techniques and preparations, we recommend determining the optimal working dilutions by titration.

Endotoxin: < 0.1 EU (endotoxin units)/µg antibody as determined by the LAL (Limulus amoebocyte lysate) method.

References

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8. Zhao, G-Q., and Hogan, B.L.M., Evidence that mouse *Bmp8a* (*Op2*) and *Bmp8b* are duplicated genes that play a role in spermatogenesis and placental development. *Mech. Dev.*, **57**, 159-168 (1996).

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