

## DESCRIPTION

<b>Species Reactivity</b>	Human
<b>Specificity</b>	Detects human BMP-4 in Western blots. In Western blots, approximately 35% cross-reactivity with recombinant human (rh) BMP-2 is observed and 10% cross-reactivity with rhBMP-5 and rhBMP-6 is observed.
<b>Source</b>	Polyclonal Goat IgG
<b>Purification</b>	Antigen Affinity-purified
<b>Immunogen</b>	Mouse myeloma cell line NS0-derived recombinant human BMP-4 Ser293-Arg408 Accession # P12644
<b>Formulation</b>	Lyophilized from a 0.2 µm filtered solution in PBS with BSA as a carrier protein. See Certificate of Analysis for details.

## APPLICATIONS

**Please Note:** Optimal dilutions should be determined by each laboratory for each application. *General Protocols* are available in the *Technical Information* section on our website.

	<b>Recommended Concentration</b>	<b>Sample</b>
<b>Western Blot</b>	0.1 µg/mL	Recombinant Human BMP-4 (Catalog # 314-BP)

## PREPARATION AND STORAGE

<b>Reconstitution</b>	Reconstitute at 0.2 mg/mL in sterile Tris-buffered saline, pH 7.3 (20 mM Trizma base, 150 mM NaCl) containing 0.1% bovine serum albumin.
<b>Shipping</b>	The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below.
<b>Stability &amp; Storage</b>	<b>Use a manual defrost freezer and avoid repeated freeze-thaw cycles.</b> <ul style="list-style-type: none"> <li>● 12 months from date of receipt, -20 to -70 °C as supplied.</li> <li>● 1 month, 2 to 8 °C under sterile conditions after reconstitution.</li> <li>● 6 months, -20 to -70 °C under sterile conditions after reconstitution.</li> </ul>

## BACKGROUND

BMP-4 is a TGF-β superfamily ligand that is widely expressed from early embryogenesis through adulthood. It plays an important role in mesenchyme formation, epidermal determination, suppression of neural induction, the development of multiple organs, and tissue repair (1-5). The human BMP-4 precursor contains a 273 amino acid (aa) propeptide and a 116 aa mature protein (6). Processing of the propeptide by furin or proprotein convertase 6 enables the formation of the mature disulfide-linked homodimeric BMP-4 and facilitates its secretion. Similar intracellular processes may lead to the formation and recreation of BMP4/BMP7 disulfide-linked heterodimer (7-9). Mature human and mouse BMP-4 share 98% aa sequence identity. Human BMP-4 shares 85% aa sequence identity with human BMP-2 and less than 50% with other human BMPs. Compared to BMP-4 homodimers, BMP-4/BMP-7 heterodimers exhibit a greater potency in inducing osteogenic differentiation (9). In *Xenopus*, the heterodimers can also induce the formation of mesoderm, whereas BMP-4 homodimers only provide ventralizing signals for existing mesoderm (10). BMP-4 signals through tetrameric complexes composed of type I (primarily Activin RIA or BMPRI-A) and type II (primarily Activin RIIA or BMPRII) receptors (11, 12). The bioavailability of BMP-4 is regulated by its interaction with multiple proteins and glycosaminoglycans (13-15).

## References:

1. Zhang, P. *et al.* (2008) *Blood* **111**:1933.
2. Gambaro, K. *et al.* (2006) *Cell Death Differ.* **13**:1075.
3. Simic, P. and S. Vukicevic (2005) *Cytokine Growth Factor Rev.* **16**:299.
4. Sadlon, T.J. *et al.* (2004) *Stem Cells* **22**:457.
5. Frank, D.B. *et al.* (2005) *Circ. Res.* **97**:496.
6. Wozney, J. *et al.* (1988) *Science* **242**:1528.
7. Cui, Y. *et al.* (1998) *EMBO J.* **17**:4735.
8. Cui, Y. *et al.* (2001) *Genes Dev.* **15**:2797.
9. Aono, A. *et al.* (1995) *Biochem. Biophys. Res. Commun.* **210**:670.
10. Nishimatsu, S. and G.H. Thomsen (1998) *Mech. Dev.* **74**:75.
11. Chen, D. *et al.* (2004) *Growth Factors* **22**:233.
12. Lavery, K. *et al.* (2008) *J. Biol. Chem.* April 24 epub.
13. Rosen, V. (2006) *Ann. N.Y. Acad. Sci.* **1068**:19.
14. Jones, C.M. and J.C. Smith (1998) *Dev. Biol.* **194**:12.
15. Takada, T. *et al.* (2003) *J. Biol. Chem.* **278**:43229.