

DESCRIPTION

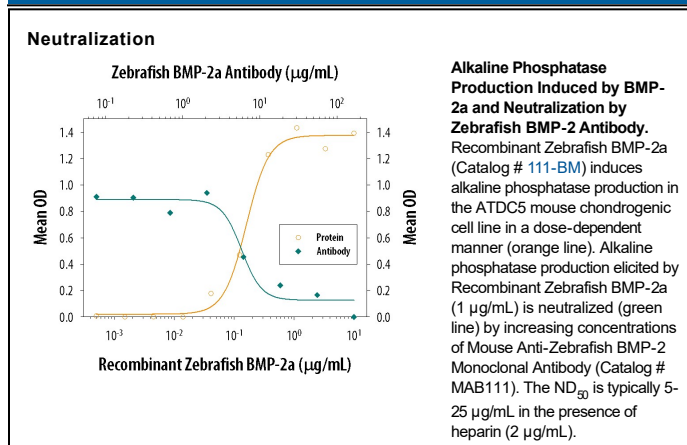
Species Reactivity	Zebrafish
Specificity	Detects zebrafish BMP-2 in direct ELISAs and Western blots. In direct ELISAs, no cross-reactivity with recombinant human BMP-2, -3, -3B, -4, -5, -6, -7, -8, or recombinant zebrafish BMP-4 is observed.
Source	Monoclonal Mouse IgG ₁ Clone # 208301
Purification	Protein A or G purified from hybridoma culture supernatant
Immunogen	<i>E. coli</i> -derived recombinant zebrafish BMP-2 Gln272-Arg386 Accession # AAI63048
Endotoxin Level	<0.10 EU per 1 µg of the antibody by the LAL method.
Formulation	Lyophilized from a 0.2 µm filtered solution in PBS with Trehalose. See Certificate of Analysis for details. *Small pack size (-SP) is supplied either lyophilized or as a 0.2 µm filtered solution in PBS.

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.

	Recommended Concentration	Sample
Western Blot	1 µg/mL	Recombinant Zebrafish BMP-2a (Catalog # 111-BM)
Neutralization		Measured by its ability to neutralize BMP-2a-induced alkaline phosphatase production in the ATDC5 mouse chondrogenic cell line. Nakamura, K. <i>et al.</i> (1999) <i>Exp. Cell Res.</i> 250 :351. The Neutralization Dose (ND ₅₀) is typically 5-25 µg/mL in the presence of 1 µg/mL Recombinant Zebrafish BMP-2a and 2 µg/mL heparin.

DATA



PREPARATION AND STORAGE

Reconstitution	Reconstitute at 0.5 mg/mL in sterile PBS.
Shipping	The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below. *Small pack size (-SP) is shipped with polar packs. Upon receipt, store it immediately at -20 to -70 °C
Stability & Storage	Use a manual defrost freezer and avoid repeated freeze-thaw cycles. <ul style="list-style-type: none"> ● 12 months from date of receipt, -20 to -70 °C as supplied. ● 1 month, 2 to 8 °C under sterile conditions after reconstitution. ● 6 months, -20 to -70 °C under sterile conditions after reconstitution.

BACKGROUND

BMP-2 is one of at least 20 structurally and functionally related BMPs, which are members of the transforming growth factor β (TGF- β) superfamily (1, 2). BMPs were originally identified as protein regulators of cartilage and bone formation. However, they are also involved in embryogenesis and morphogenesis of various tissues and organs. BMPs regulate the growth, differentiation, chemotaxis, and apoptosis of various cell types, including mesenchymal cells, epithelial cells, hematopoietic cells, and neuronal cells. Similarly to other TGF- β family proteins, BMPs are highly conserved across animal species. At the amino acid sequence level, mature human, mouse, and rat BMP-2 share 100% amino acid (aa) sequence identity, while mature human BMP-2 and zebrafish BMP-2 share 85% aa identity. Zebrafish have another homolog of BMP-2 (also called BMP-2a) called BMP-2b, which is 88% identical to BMP-2 in the mature region and corresponds to the *swirl* mutant. The combined expression pattern of zfBMP-2a/2b/4 coincides with areas where BMP-2/4 expression would be found in other vertebrates (3). Biologically active BMP-2 is a disulfide-linked homodimer of the carboxy-terminal 115 amino acid residues that contains the characteristic seven conserved cysteine residues involved in the formation of the cysteine knot and the single interchain disulfide bond. Cellular responses to BMP-2 have been shown to be mediated by the formation of hetero-oligomeric complexes of type I and type II serine/threonine kinase receptors (4). In contrast to the TGF- β type I receptor, which does not bind the ligand in the absence of the TGF- β receptor type II, both type I BMP receptor's can bind BMP-2 with high affinity in the absence of BMP receptor type II.

References:

1. Ryoo, H.M. *et al.* (2006) *Gene* **366**:51.
2. Chen, D. *et al.* (2004) *Growth Factors* **22**:233.
3. Martinez-Barbera, J. *et al.* (1997) *Gene* **198**:53.
4. Miyazono, K. *et al.* (2005) *Cytokine Growth Factor Rev.* **16**:251.