

DESCRIPTION

Source *E. coli*-derived
Ser288-Arg400, with an N-terminal Met
Accession # NP_571417

N-terminal Sequence Analysis Met

Predicted Molecular Mass 12.9 kDa (monomer)

SPECIFICATIONS

Activity Measured by its ability to induce alkaline phosphatase production by ATDC5 mouse chondrogenic cells. Nakamura, K. *et al.* (1999) Exp. Cell Res. **250**:351.
The ED₅₀ for this effect is 0.2-1 µg/mL.

Endotoxin Level <0.10 EU per 1 µg of the protein by the LAL method.

Purity >97%, by SDS-PAGE under reducing conditions and visualized by silver stain.

Formulation Lyophilized from a 0.2 µm filtered solution in Acetonitrile and TFA. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Reconstitution Reconstitute at 100 µg/mL in sterile 4 mM HCl.

Shipping The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below.

Stability & Storage **Use a manual defrost freezer and avoid repeated freeze-thaw cycles.**

- 12 months from date of receipt, -20 to -70 °C as supplied.
- 1 month, 2 to 8 °C under sterile conditions after reconstitution.
- 3 months, -20 to -70 °C under sterile conditions after reconstitution.

BACKGROUND

BMP-4 is one of at least 15 structurally and functionally-related BMPs, which are members of the transforming growth factor-β (TGF-β) superfamily. BMPs were originally identified as protein regulators of cartilage and bone formation. They have since been shown to have roles in embryogenesis and morphogenesis of various tissues and organs. BMPs have also been shown to 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 superfamily proteins, BMPs are highly conserved across animal species. Zebrafish BMP-4 protein shares 73% amino acid sequence identity with human and murine BMP-4, and 86% amino acid sequence identity with zebrafish BMP-2b. Zebrafish BMP-4 mRNA is detected throughout embryonic development and has been detected in tissues of adult fish, including the brain, heart, digestive tracts, testes, and jaw. BMP-4 has been shown to play roles in directing zebrafish heart looping and in ear development. The combined expression pattern of zBMP-2a/2b/4 coincides with areas where BMP-2/4 expression would be found in other vertebrates. Biologically active BMP-4 is a disulfide-linked homodimer of the carboxy-terminal 113 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.

References:

1. Kawabata, M. *et al.* (1998) Cytokine and Growth Factor Reviews **9**:49.
2. Hwang, S.P. *et al.* (1997) DNA Cell Biol. **16**:1003.
3. Martinez-Barbera, J.P. *et al.* (1997) Gene **197**:53.
4. Mowbray, C. *et al.* (2001) Mech Dev. **108**:179.
5. Chen J.N. *et al.* (1997) Development **124**:4373.