

BMP-2

Bone Morphogenetic Protein-2 human, recombinant, *E. coli*

Cat. No.	Amount
PR-407	10 μ g

For *in vitro* use only
Quality guaranteed for 12 months
Store at -20°C

Avoid freeze / thaw cycles

Form

Lyophilized white powder. BMP-2 was lyophilized from a 1 mg/ml solution containing 20 mM sodium acetate pH 4.0.

Solubility

It is recommended to reconstitute the lyophilized BMP-2 in sterile 20mM acetic Acid not less than 100 μ g/ml, which can then be further diluted to other aqueous solutions. For long term storage it is recommended to add a carrier protein (0.1% HSA or BSA).

Activity

ED₅₀: <50 ng/ml, determined by the cytolysis of MC3T3-E1 cells.

Calcium uptake in mouse muscle tissue >1000 μ g/mg.

In mouse muscle myoblast C2C12 cell line, activity was found to be 1x10⁵ U/mg protein.

Molecular Weight

26 kDa

Purity

≥ 95% by SDS-PAGE and RP-HPLC

Description

The Bone Morphogenetic Protein-2 belongs to the bone-growth regulatory factors that are members of the transforming growth factor-beta (TGF β) superfamily of proteins. BMPs are widely expressed in the mammalian nervous system, where they exert trophic effects on several neuronal populations. They are synthesized as large precursor molecules which are cleaved by proteolytic enzymes. The active form can consist of a dimer of two identical proteins or a heterodimer of two related bone morphogenetic proteins.

Bone morphogenetic protein-2 promote the differentiation of GABAergic neurons, especially of the calbindin-positive subpopulation, the subset of projecting striatal neurons that degenerates in Huntington's disease.

Recombinant Human Bone Morphogenetic protein-2 produced in *E. coli* is a homodimeric, non-glycosylated polypeptide chain containing 115 amino acids and having a molecular mass of 26 kDa.

BMP-2 is purified by proprietary chromatographic techniques.

Selected References:

- Gratacos *et al.* (2001) Bone morphogenetic protein-2, but not bone morphogenetic protein-7, promotes dendritic growth and calbindin phenotype in cultured rat striatal neurons. *Neuroscience*. **104**:783.
- Reppe *et al.* (2004) Butyrate response factor 1 is regulated by parathyroid hormone and bone morphogenetic protein-2 in osteoblastic cells. *Biochem. Biophys. Res. Commun.* **324**:218.
- Kim *et al.* (2004) Bone morphogenetic protein-2-induced alkaline phosphatase expression is stimulated by Dlx5 and repressed by Msx2. *J Biol Chem* **279**:50773.
- Seeherman *et al.* (2004) Recombinant human bone morphogenetic protein-2 delivered in an injectable calcium phosphate paste accelerates osteotomy-site healing in a nonhuman primate model. *J. Bone Joint Surg. Am.* **86**:1961.
- Takagi *et al.* (2004) Effects of bone morphogenetic protein-2 and transforming growth factor beta 1 on gene expression of transcription factors, AJ18 and Runx2 in cultured osteoblastic cells. *J. Mol. Histol.* **35**:81.
- Kaden *et al.* (2004) Expression of bone sialoprotein and bone morphogenetic protein-2 in calcific aortic stenosis. *J. Heart Valve Dis.* **13**:560.
- Mummaneni *et al.* (2004) Contribution of recombinant human bone morphogenetic protein-2 to the rapid creation of interbody fusion when used in transforaminal lumbar interbody fusion: a preliminary report. Invited submission from the Joint Section Meeting on Disorders of the Spine and Peripheral Nerves, March 2004. *J. Neurosurg. Spine.* **1**:19.