Recombinant Human Bone Morphogenetic Protein -2 (rh BMP-2)

**Synonyms:** BMP2A.

**Introduction:** BMPs (Bone Morphogenetic Proteins) belong to the TGF-beta superfamily of structurally related signaling proteins. BMP-2 is a potent osteoinductive cytokine, capable of inducing bone and cartilage formation in association with osteoconductive carriers such as collagen and synthetic hydroxyapatite. In addition to its osteogenic activity, BMP-2 plays an important role in cardiac morphogenesis and is expressed in a variety of tissues including lung, spleen, brain, liver, prostate ovary and small intestine. BMP-2 regulates similarly to its nearest homologue BMP-4 diverse fundamental processes during embryonic development: BMP-2 and other BMP proteins have great potential for medical therapeutic application, in particular because they allow or at least accelerate the ossification of extensive bone lesions. BMP-2 lacks the natural N-terminus which results in a 15-20 fold increase of specific activity. BMP-2 is a heparin binding protein.

**Description:** Recombinant human Bone Morphogenetic Protein-2 (BMP-2) is a disulfide-bonded homodimeric, non-glycosylated protein consisting of two 115 amino acid polypeptide chains with an apparent molecular weight of 26 kDa. The human BMP-2 is purified by proprietary chromatographic techniques.

**Source:** Escherichia Coli.

**Physical Appearance:** Sterile filtered white lyophilized (freeze-dried) powder.

**Formulation:** Lyophilised from a 0.22 µm filtered solution in 25 mM sodium acetate, pH 4.0
The aliquots of 1µg and 2 µg contain Trehalose 5% (w/vol) for better recovery

**Solubility:** The lyophilised BMP-2 is soluble in distilled water and most aqueous buffer at concentrations greater than 1 mg/ml when the pH is below 6.0. Above pH 6.0 the solubility is low, but could be increased by addition of 1M NaCl or 30% 2-propanol.

**Stability:** Lyophilized rh BMP-2 although stable at room temperature for 3 weeks, should be stored desiccated below -18°C. Upon reconstitution rh BMP-2 should be stored at 4°C between 2-7 days and for future use below -18°C. For long term storage it is recommended to add a carrier protein (0.1% HSS or BSA). Please prevent freeze-thaw cycles.

**Purity:** Greater than 95.0% as determined by SDS-PAGE silver stained gel.

**Biological Activity:** Measured by the ability of BMP-2 to induce alkaline phosphatase production by C2C12 myogenic cell the specific activity is ~ 2.5x 10^3 units/mg

**Endotoxicity:** The endotoxin level is less than 1 EU / µg determined by LAL method

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