

**AR31188PU-S****Recombinant Human/Murine/Rat BMP2 / BMP2A (CHO cell derived) - Purified****Alternate names:**

BMP-2, BMP-2A, Bone morphogenetic protein 2

**Quantity:**

2 µg

**Background:**

BMPs (Bone Morphogenetic Proteins) belong to the TGF-β superfamily of structurally related signaling proteins. BMP-2 is a potent osteoinductive cytokine, capable of inducing bone and cartilage formation in association with an osteoconductive carrier such as collagen and synthetic hydroxyapatite. In addition to its osteogenic activity, BMP-2 appears to play an important role in cardiac morphogenesis, and is expressed in a variety of other tissues, including lung, liver, spleen, prostate, ovary, and small intestine. The functional form of BMP-2 is a 26 kDa protein composed of two identical 114 amino acid polypeptide chains (monomers) linked by a single disulfide bond. Each BMP-2 monomer is expressed as the C-terminal part of a precursor polypeptide, which also contains a 23 amino acid signal sequence for secretion, and a 259 amino acid propeptide. After dimerization of this precursor, the covalent bonds between the propeptide (which is also a disulfide-linked homodimer) and the mature BMP-2 ligand are cleaved by a furin-type protease.

**Uniprot ID:**[P12643](#)**NCBI:**[NP\\_001191.1](#)**GeneID:**[650](#)**Species:**

Human

**Source:**

CHO cells

**Format:****State:** Lyophilized (sterile filtered) purified protein**Purity:** >95% pure by SDS-PAGE gel and HPLC analyses.**Endotoxin Level:** < 0.1 ng/µg (1EU/µg)**Reconstitution:** Restore in water to a concentration of 0.1-1.0 mg/ml.

This solution can then be diluted into other aqueous buffers and stored at 2-8°C for 1 week or -20°C for future use.

**Description:**

Recombinant Human BMP-2 derived from CHO cells is a homodimeric glycoprotein that consists of two 114 amino acid polypeptide chains linked by a single disulfide bond. Due to glycosylation, CHO cell-derived Human BMP-2 migrates at an apparent molecular weight of approximately 28-29 kDa by SDS-PAGE analysis under non-reducing conditions.

Mature sequence is complete identical with Mouse and Rat.

**AA Sequence:**QAKHKQRKRL KSSCKRHPLY VDFSDVGWND WIVAPPGYHA FYCHGECPPF LADHLNSTNH  
AIVQTLVNSV NSKIPKACCV PTELSAISML YLDENEKVVL KNYQDMVVEG CGCR**Biological Activity:** Determined by its ability to induce alkaline phosphatase production by ATDC-5 cells. The expected ED<sub>50</sub> for this effect is 40-100 ng/ml.**Molecular weight:** 26.0 kDa (2x 114 amino acids)

- Add. Information:** Centrifuge the vial prior to opening!
- Storage:** Store lyophilized at 2-8°C for 6 months or at -20°C long term.  
After reconstitution store the antibody undiluted at 2-8°C for one month or (in aliquots) at -20°C long term.  
Avoid repeated freezing and thawing.  
Shelf life: one year from despatch.
- General Readings:**
1. Lyssiotis CA, Walker J, Wu C, Kondo T, Schultz PG, Wu X. Inhibition of histone deacetylase activity induces developmental plasticity in oligodendrocyte precursor cells. *Proc Natl Acad Sci U S A*. 2007 Sep 18;104(38):14982-7. Epub 2007 Sep 12. PubMed PMID: 17855562.
  2. Chung YI, Ahn KM, Jeon SH, Lee SY, Lee JH, Tae G. Enhanced bone regeneration with BMP-2 loaded functional nanoparticle-hydrogel complex. *J Control Release*. 2007 Aug 16;121(1-2):91-9. Epub 2007 Jun 2. PubMed PMID: 17604871.
  3. Huang MS, Morony S, Lu J, Zhang Z, Bezouglaia O, Tseng W, et al. Atherogenic phospholipids attenuate osteogenic signaling by BMP-2 and parathyroid hormone in osteoblasts. *J Biol Chem*. 2007 Jul 20;282(29):21237-43. Epub 2007 May 22. PubMed PMID: 17522049.
  4. Giuliani N, Morandi F, Tagliaferri S, Lazzaretti M, Bonomini S, Crugnola M, et al. The proteasome inhibitor bortezomib affects osteoblast differentiation in vitro and in vivo in multiple myeloma patients. *Blood*. 2007 Jul 1;110(1):334-8. Epub 2007 Mar 19. PubMed PMID: 17371942.
  5. Wong CE, Paratore C, Dours-Zimmermann MT, Rochat A, Pietri T, Suter U, et al. Neural crest-derived cells with stem cell features can be traced back to multiple lineages in the adult skin. *J Cell Biol*. 2006 Dec 18;175(6):1005-15. Epub 2006 Dec 11. PubMed PMID: 17158956.
  6. Chou YT, Yang YC. Post-transcriptional control of Cited2 by transforming growth factor beta. Regulation via Smads and Cited2 coding region. *J Biol Chem*. 2006 Jul 7;281(27):18451-62. Epub 2006 May 4. PubMed PMID: 16675452.
  7. Yamashita A, Takada T, Narita J, Yamamoto G, Torii R. Osteoblastic differentiation of monkey embryonic stem cells in vitro. *Cloning Stem Cells*. 2005;7(4):232-7. PubMed PMID: 16390259.
  8. Giuliani N, Colla S, Morandi F, Lazzaretti M, Sala R, Bonomini S, et al. Myeloma cells block RUNX2/CBFA1 activity in human bone marrow osteoblast progenitors and inhibit osteoblast formation and differentiation. *Blood*. 2005 Oct 1;106(7):2472-83. Epub 2005 Jun 2. PubMed PMID: 15933061.