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Product Specification Sheet

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**Bone Morphogenetic Protein 7 (BMP-7) Protein**

□ Cat. # BMP75-R-10 Recombinant (CHO cells) Human BMP-7 Protein (Biologically Active)

**SIZE:** 10 ug

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The BMPs belong to the TGF- $\beta$  superfamily, whose members are widely represented throughout the animal kingdom. The BMPs are important regulators of key events in the processes of bone formation during embryogenesis, postnatal growth, remodeling and regeneration of the skeleton. The BMPs function by binding to a receptor complex that is found on all normal cells and is composed of type-I and -II receptors. The primary unit of bone formation is osteoblast, the bone-forming cell. These osteoblast cells respond to physical loading by transducing signals that alter gene expression patterns, and Cbfa (core binding factor), the osteoblast specific transcription factor plays an important role in osteoblast differentiation and function.

Localization studies in both human and mouse tissues have demonstrated high levels of mRNA expression and protein synthesis for various BMPs in kidney, heart, lung, small intestine, limb bud and teeth. Several BMPs have been implicated in early skeletal development, including BMP-2, -4, -5, -7, -14 (CDMP-1 / GDF-5), other members, such as BMP-3, -6, -7 and -13 (CDMP-2 / GDF-6) may be involved in later stages of skeletal formation.

BMP7 or OP1a 431-amino acid polypeptide that includes a secretory signal sequence, (Chr 20), expressed in kidney, bladder and brain. Induces cartilage and bone formation may be the osteoinductive factor responsible for the phenomenon of epithelial osteogenesis. It plays a role in calcium regulation and bone homeostasis.

**Source of Antigen**

The DNA sequence encoding the human BMP-2 signal peptide and propeptides (aa residues 1-282 of human BMP-2) fused to the human BMP-7 mature chain (aa residues 293-431 of human BMP-7) was expressed in Chinese hamster ovary cell line. The mature recombinant human BMP-7, generated by the proteolytic removal of the signal peptide and propeptide, is a disulfide-linked homodimeric protein consisting of two 139aa residue subunits with a mol. mass of ~15.7 KD. Due to glycosylation the rhBMP-5 migrates as an ~30-40 KD protein under non-reducing conditions and as 18-20 KD protein under reducing conditions in SDS-PAGE.

**Purified recombinant human** (cat # BMP75-R-10) are supplied in buffer 1% sucrose, 1.2% mannitol, 20mM Glycine, 0.005% Tween. pH 4 in powder form with no preservatives or carrier proteins. **BMP-7** has endotoxin level (<0.1 ng/1 ug).

The **biological activity** of rhBMP-7 was determined by its ability to induce alkaline Phosphatase production by ATDC5 chondrogenic cells. The expected ED50 for this effect is 0.2-0.6ng/ml

**Reconstitution:** The rhBMP-7 is available in lyophilized, containing no carrier or preservative. We recommend that sterile 4mM HCl containing at least 0.1% human serum albumin or bovine serum albumin (BSA) be added to the vial to prepare a stock solution of no less than 10ug/ml. The solution can be sterile filtered if necessary.

**Storage**

**Short-term:** unopened, undiluted vials for less 1-2 months at 4oC.

**Long-term:** at -20C or below in suitable aliquots after reconstitution. Do not freeze and thaw and store working, diluted solutions.

**Stability:** 6-12 months at -20oC or below.

**Shipping:** 4oC for solutions and room temp for powder.

**General References:**

Sampath, T. K et al (1990) JBC 265: 13198-13205, Reddi, A.H et al (1998), Nature Biotechnology 16: 247-252; Helder, M. N et al (1995) J. Histochem. Cytochem 43: 1035-1044; Godin, R. E et al (1998) Development 125: 3473-3482.

\*This product is for in vitro research use only.

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**Related material available from ADI**

BMP 1-8, CDMP-1, -2 recombinant protein and antibodies.

Human BMP-7 ELISA kit

BMP75-R-10

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