ALPHA DIAGNOSTIC INTERNATIONAL

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Product Specification Sheet

# Human Bone Morphogenetic Protein 7 (BMP-7) Protein

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| Cat. # BMP76-R-5 | Recombinant Human BMP-7 Protein (E. coli) | **SIZE**: 5 ug |
| Cat. # BMP76-R-10 | Recombinant Human BMP-7 Protein (E. coli) | **SIZE**: 10 ug |

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. Incuces 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, Antibodies, Protein and controls

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 E. coli as a monomeric, non-glycosylated protein of 139-aa (15.6 kda). It has been purified >95%/. 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. The protein contains <1% protein as aggregates. The N-terminal sequence of human BMP-7 has been verified to Ser-Thr-Gly-Ser-Lys.

**Purified recombinant human** (cat # BMP76-R-5 and BMP76-R-10) **BMP-7** has endotoxin level (<0.1 ng/1 ug). It is supplied in 10mM acetate buffer, pH 3.4 at 1 mg/ml in powder or liquid form.

**Reconstitution**: The rhBMP-7 is available in lyophilized, form containing 0.1% BSA. We recommend that sterile 40mM acetate buffer pH 5.0 at 100 ug/ml. It is recommended to use buffer containing 0.1% human serum albumin or bovine serum albumin (BSA) 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.

## Biological activity

Not tested.

## Suggested usage

Human recombinant BMP-7 protein expressed in E. coli can be used positive control for ELISA, dot blot, and Western. It is also available as biologically active form expressed in CHO cells (#BMP75-R-5 and BMP75-R-10).

## 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.

## Related material available from ADI

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

Human BMP-7 ELISA kit

BMP76-R-5-10 71220A

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