ALPHA DIAGNOSTIC INTERNATIONAL

Product Specification Sheet

LIFE TECH Life Technologies™ Your Molecular & Cell Technology Partner

Human Bone Morphogenetic Protein (BMP) 3 Protein

Cat. # BMP35-R-10 Recombinant Human BMP-3 Protein **SIZE**: 10 ug

Cat. # BMP35-R-100 Recombinant Human BMP-3 Protein **SIZE**: 100 ug

FORM: Soln Lyophilized

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.

BMP3 / Osteogenin/ BMP-3A is a 472aa protein in human (chr 4p14-q21), highly expressed in lung, ovary and small intestine, Its function is involved in the cartilage and bone formation. BMP3 and BMP2 genes map to conserved regions between human and mouse.

BMP-3B / GDF-10, a 478aa protein in human (Chr 10q11.22), belongs to a group of proteins that can induce endochondral bone formation in adult animals, it is closely related in sequence to BMP3 with 44% homology. The amino acid sequences of human and rat BMP-3b precursor proteins are 83% similar, whereas the mature proteins show 98% identity. BMP-3B is mainly expressed in femur, brain, lung, pancreas and testis.

Source of Antigen and controls

Human BMP3 (mature 363-472 aa; Wozney et al 1988) was expressed in E. coli and purified. The active human BMP-3 refolded from monomer is a disulphide-linked homodimer. Each methionyl form of the monomer consists of 111aa and has a predicted molecular mass of 12.5kD with >95% purity as determined by SDS-PAGE.

BMP3 is lyophilized from a 0.2 µm filtered solution in 40% acetonitrile, 0.1% TFA containing 50 µg of bovine serum albumin per 1 µg of cytokine.

Purified recombinant human BMP-3 (cat # BMP35-R-100) has endotoxin level (<1.0 ng/1 ug). The **biological activity of BMP-3** was determined by its ability to antagonize BMP-2 activity in MC3T3E1 cells. (Daluiski, A. *et. al.*, 2001). 100 µg/mL of hBMP-3 will antagonize hBMP-2 (0.5 µg/mL) induction of alkaline phosphatase in MC3T3E1 cells by 50 - 70%.

Reconstitution: The rhBMP-3 is available in lyophilized form containing 0.1% BSA. We recommend that PBS containing at least 0.1% human serum albumin or bovine 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 liquid vials for less than a week 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:

Wozney, J.M. *et al.*, 1988, Science **242**:1528 – 1534; Daluiski, A. *et. al.*, 2001, Nature Genetics **27**:84; Kawabata, M et al (1998) Cytokine and Growth Factor Reviews 9: 49-61, Ebendal, T et al (1998), J. Neurosci. Res. 51: 139-146; Reddi, A. H (1998), Nature Biotechnology 16: 247-252; Daluiski, A et al (2001), Nature Genetics 27: 84; Bahamonde, M. E et al (2001) Bone and Joint Surgery 83-A (suppl 1): S156.

*This product is for in vitro research use only.

Related material available from ADI

BMP 1-8, CDMP antibodies and recombinant proteins.

BMP-7 ELISA kit

BMP35-R-100 rev. 40920A

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