ALPHA DIAGNOSTIC INTERNATIONAL

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Product Specification Sheet

Bone Morphogenetic Protein 4 (BMP-4) Protein

Cat. # BMP45-R-5	Recombinant Human BMP-4 Protein, Biologically active	**SIZE**: 5 ug
Cat. # BMP45-R-10	Recombinant Human BMP-4 Protein, Biologically active	**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.

BMP4 / BMP-2B is a vital regulatory molecule that functions throughout development in mesoderm induction, tooth development, limb formation, bone induction, and fracture repair. In human it is expressed as 408aa protein (Chr 14q22) in lungs, kidney and is secreted in extracellular matrix.

Source of Antigen, Antibodies, Protein and controls

The DNA sequence encoding human BMP-2 signal peptide and propeptides (aa residues 1-282 of human BMP-2) fused to the human BMP-4 mature chain (aa residues 293-408 of human BMP-4) was expressed in a mouse myeloma cell line, NSO. The mature recombinant human BMP-4, generated by the proteolytic removal of the signal peptide and propeptides, is a disulphide-linked homodimeric protein consisting of two 116 aa residue subunits with a mol. mass of ~26kD. Due to glycosylation the rhBMP-4 migrates as an ~36kD protein under non-reducing conditions and as 18kD protein under reducing conditions in SDS-PAGE.

Biological Activity

Purified recombinant human BMP-4 (**cat # BMP45-R-10 and BMP45-R-5)**) have endotoxin level (<1.0 ng/1 ug). The biological activity of rhBMP-4 was determined by its ability to induce alkaline Phosphatase production by mouse ATDC-5 chodrogenic cells. The expected ED50 for this effect is 10-30ng/ml.

Reconstitution: The rhBMP-4 is available in lyophilized form containing 0.1% BSA. We recommend that sterile 4mM HCl containing at least 0.1% human serum albumin or bovine serum albumin be added to the vial to prepare a stock solution of no less than 10 ug/ml.

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.

Recommended Usage

Western Blotting (1-2ug/ml with appropriate secondary reagents to detect human BMP-4).

ELISA (1:10K-1:30K).

Histochemistry & Immunofluorescence: not tested

General References:

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.

*This product is for in vitro research use only.

Related material available from ADI

BMP 1-8, CDMP-1, -2 recombinant proteins and antibodies
Human BMP-7 ELISA kit

BMP45-R-10 71219A

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