

Animal-Free BMP-2 Protein, Human (His)

Cat. No.:	HY-P7006AF
Synonyms:	Endogenous Mediator (LEM); Mononuclear Cell Factor (MCF)
Species:	Human
Source:	E. coli
Accession:	P12643 (Q283-R396)
Gene ID:	650
Molecular Weight:	Approximately 13.76 kDa

PROPERTIES

AA Sequence	<p> M Q A K H K Q R K R L K S S C K R H P L Y V D F S D V G W N D W I V A P P G Y H A F Y C H G E C P F P L A D H L N S T N H A I V Q T L V N S V N S K I P K A C C V P T E L S A I S M L Y L D E N E K V V L K N Y Q D M V V E G C G C R </p>
Biological Activity	Measure by its ability to induce alkaline phosphatase production by ATDC5 cells. The ED50 for this effect is <9.5 ng/mL. The specific activity of recombinant BMP-2 is > 3.2 x 10 ⁶ IU/mg
Appearance	Lyophilized powder.
Formulation	Lyophilized from a solution containing 20 mM sodium citrate, 0.2 M NaCl, pH 3.5.
Endotoxin Level	<0.1 EU per 1 µg of the protein by the LAL method.
Reconstitution	It is not recommended to reconstitute to a concentration less than 100 µg/mL in ddH ₂ O.
Storage & Stability	Stored at -20°C for 2 years. After reconstitution, it is stable at 4°C for 1 week or -20°C for longer (with carrier protein). It is recommended to freeze aliquots at -20°C or -80°C for extended storage.
Shipping	Room temperature in continental US; may vary elsewhere.

DESCRIPTION

Background	<p>BMP-2 Protein, a vital member of the TGF-beta superfamily, plays essential roles in diverse developmental processes, including cardiogenesis, neurogenesis, and osteogenesis. It induces cartilage and bone formation and initiates the canonical BMP signaling cascade by binding to type I receptor BMPRI1A and type II receptor BMPRII. This complex formation triggers BMPRII phosphorylation, activating BMPRI1A, which, in turn, phosphorylates SMAD1/5/8 to modulate gene transcription. BMP-2 also engages non-canonical pathways, such as the ERK/MAP kinase signaling cascade, influencing osteoblast differentiation. Additionally, it stimulates myoblast differentiation into osteoblasts through the EIF2AK3-EIF2A-ATF4 pathway. Acting as a positive regulator of odontoblast differentiation, BMP-2 forms homodimers and interacts with</p>
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various proteins, including SOSTDC1, GREM2, RGMA, RGMB, RGMC, ASPN, FBN1, FBN2, SCUBE3, TNFAIP6, and ERFE. Its intricate interactions highlight its versatile regulatory roles in multiple cellular processes.

Caution: Product has not been fully validated for medical applications. For research use only.

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