

Animal-Free BMP-7 Protein, Human (His)

Cat. No.:	HY-P700030AF
Synonyms:	Osteogenic Protein-1; OP-1
Species:	Human
Source:	E. coli
Accession:	P18075 (M315-H431)
Gene ID:	655
Molecular Weight:	Approximately 14.00 kDa

PROPERTIES

AA Sequence	<p> M A N V A E N S S S D Q R Q A C K K H E L Y V S F R D L G W Q D W I I A P E G Y A A Y Y C E G E C A F P L N S Y M N A T N H A I V Q T L V H F I N P E T V P K P C C A P T Q L N A I S V L Y F D D S S N V I L K K Y R N M V V R A C G C H </p>
Biological Activity	Measure by its ability to induce alkaline phosphatase production by ATDC5 cells. The ED ₅₀ for this effect is <0.65 µg/mL.
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-7 Protein, a vital member of the TGF-beta superfamily, plays a crucial role in various biological processes, encompassing embryogenesis, hematopoiesis, neurogenesis, and skeletal morphogenesis. It initiates the canonical BMP signaling cascade by binding to the type I receptor ACVR1 and the type II receptor ACVR2A, leading to the phosphorylation and activation of ACVR1. Subsequently, ACVR1 phosphorylates SMAD1/5/8, which modulate target gene transcription as activators and repressors in the nucleus. In specific functions, such as growth cone collapse in developing spinal neurons and monocyte chemotaxis, BMP-7 utilizes BMPR2 as an additional type II receptor. Beyond canonical pathways, BMP-7 signals through non-canonical routes, such as the P38 MAP kinase signaling cascade, to promote brown adipocyte differentiation by activating target genes, including members of the SOX family of transcription factors. BMP-7 further</p>
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regulates the expression of HAMP, with this process being restrained by its interaction with ERFE. This homodimeric protein forms disulfide-linked complexes and interacts with various proteins, including SOSTDC1, TWSG1, FBN1, FBN2, ACVR1, ACVR2A, NOG, SCUBE3, and ERFE, each contributing to its diverse functional repertoire.

REFERENCES

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

Tel: 609-228-6898

Fax: 609-228-5909

E-mail: tech@MedChemExpress.com

Address: 1 Deer Park Dr, Suite Q, Monmouth Junction, NJ 08852, USA