BMP-2 Protein, Human (P. pastoris, His)

Cat. No.:	HY-P700556
Synonyms:	Bone morphogenetic protein 2A; BMP-2A; BDA2; SSFSC; SSFSC1
Species:	Human
Source:	P. pastoris
Accession:	P12643 (Q283-R396)
Gene ID:	650
Molecular Weight:	14.9 kDa

PROPERTIES

AA Sequence	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
Appearance	Lyophilized powder.
Formulation	Lyophilized from a 0.2 μm filtered solution of Tris/PBS-based buffer, 6% Trehalose, pH 8.0.
Endotoxin Level	<1 EU/μg, determined by LAL method.
Reconsititution	It is not recommended to reconstitute to a concentration less than 100 μg/mL in ddH_2O.
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	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 BMPR1A and type II receptor BMPR2. This complex formation triggers BMPR2 phosphorylation, activating BMPR1A, 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 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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