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BMP-7

Catalog # PVGS1057

Product Information

Primary Accession	P18075
Species	Human
Sequence	Ser293-His431
Purity	> 95% as analyzed by SDS-PAGE > 95% as analyzed by HPLC
Endotoxin Level	
Expression System	E. coli
Theoretical Molecular Weight	15.7 kDa
Formulation	Lyophilized from a 0.2 μm filtered solution in 30% acetonitrile, 0.1% TFA.
Reconstitution	It is recommended that this vial be briefly centrifuged prior to opening to bring the contents to the bottom. Reconstitute the lyophilized powder in 10 mM HAc to a concentration of 0.1-1.0 mg/mL.
Storage & Stability	Upon receiving, this product remains stable for up to 6 months at -70°C or -20°C. Upon reconstitution, the product should be stable for up to 1 week at 4°C or up to 3 months at -20°C. Avoid repeated freeze-thaw cycles.

Additional Information

Gene ID	655
Other Names	Bone morphogenetic protein 7, BMP-7, Osteogenic protein 1, OP-1, Eptotermin alfa, BMP7, OP1
Target Background	Human BMP-7 is one of at least 15 structurally and functionally related BMPs, which are members of the transforming growth factor β (TGF-β) superfamily. BMPs were originally identified as protein regulators of cartilage and bone formation. However, they havesince been shown to be involved in embryogenesis and morphogenesis of various tissues and organs. BMPs have also been shown to regulate the growth, differentiation, chemotaxis and apoptosis of various cell types, including mesenchymal cells, epithelial cells, hematopoietic cells and neuronal cells. BMP-7 is synthesized as large precursor molecules which are cleaved by proteolytic enzymes. The active form can consist of a dimer of two identical proteins or a heterodimer of two related bone morphogenetic proteins.

Protein Information

Name	BMP7
Synonyms	OP1
Function	Growth factor of the TGF-beta superfamily that plays important role in various biological processes, including embryogenesis, hematopoiesis, neurogenesis and skeletal morphogenesis (PubMed:31208997). Initiates the canonical BMP signaling cascade by associating with type I receptor ACVR1 and type II receptor ACVR2A (PubMed:12667445, PubMed:9748228). Once all three components are bound together in a complex at the cell surface, ACVR2A phosphorylates and activates ACVR1. In turn, ACVR1 propagates signal by phosphorylating SMAD1/5/8 that travel to the nucleus and act as activators and repressors of transcription of target genes (PubMed:12478285). For specific functions such as growth cone collapse in developing spinal neurons and chemotaxis of monocytes, also uses BMPR2 as type II receptor (PubMed:31208997). Can also signal through non-canonical pathways such as P38 MAP kinase signaling cascade that promotes brown adipocyte differentiation through activation of target genes, including members of the SOX family of transcription factors (PubMed:27923061). Promotes the expression of HAMP, this is repressed by its interaction with ERFE (PubMed:30097509).
Cellular Location	Secreted.
Tissue Location	Expressed in the kidney and bladder. Lower levels seen in the brain