

Recombinant Rat BMP2 Protein

For Research Use Only

1. Basic Product Information

Catalog No.: REP52373

Size: 10ug, 100ug

Protein Name: Bone morphogenetic protein 2 (BMP-2) (Bone morphogenetic protein 2A) (BMP-2A)

Synonym: Bmp2, Bmp-2

UniProt ID: P49001

UniProt Link: www.uniprot.org/uniprotkb/P49001/entry

Species Source: Rat

Expression System: HEK293T eukaryotic cell expression system Sequence

Length: 393 AA

Molecular Weight: 44 KD

Protein Tag: C-terminal His6

2. Amino Acid Sequence

MVAGTRCLLVLLL PQVLLGGAAGLIPELGRKKFAGASRPLSRPSEDVLSEFELRLLSMFGLKQRPTPS
KDVVVPYMLDLYRRHSGQPGALAPDHLRLERAASRANTVLSFHHEEAIEELSEMSGKTSRRFFFNL
SSVPTDEFLTSAELQIFREQMQEALGNSSFQHRINIYEIIPATASSKFPVTRLLDTRLVTQNTSQWES
FDVTPAVMRWTAQGHTNHGFVVEVAHLEEKPGVSKRHVRISRLHQDEHSWSQVRPLLVTFGHDG
KGHPLHKREKRQAKHKQRKRLKSSCKRHPLYVDFSDVGWNDWIVAPPGYHAFYCHGECPPFLADH
LNSTNHAIVQTLVNSVNSKIPKACCVPTELSAISMLYLDENEKVVLKNYQDMVVEGCGCR

3. Buffer Composition

Liquid format: PBS-based buffer containing 50% glycerol. Glycerol concentration can be customized upon customer request; please state special requirements when placing your order.

Lyophilized format: Buffer before lyophilization is PBS supplemented with 6% trehalose.

4. Storage Conditions

Upon receipt, store the product at -20 °C or -80 °C. Aliquot the product for on-demand use to preserve protein activity and prevent denaturation and inactivation caused by repeated freeze-thaw cycles.

5. Product Description

This product is recombinant Bone morphogenetic protein 2 (BMP-2) (Bone morphogenetic protein 2A) (BMP-2A) produced using the HEK293T eukaryotic cell expression system. It is suitable for in-vitro functional assays, protein-protein interaction studies, antibody preparation and other biomedical research applications.

Protein Function: Growth factor of the TGF-beta superfamily that plays essential roles in many developmental processes, including cardiogenesis, neurogenesis, and osteogenesis. Induces cartilage and bone formation. Initiates the canonical BMP signaling cascade by associating with type I receptor BMPRI1 and type II receptor BMPRII. Once all three components are bound together in a complex at the cell surface, BMPRII phosphorylates and activates BMPRI1. In turn, BMPRI1 propagates signal by phosphorylating SMAD1/5/8 that travel to the nucleus and act as activators and repressors of transcription of target genes. Also acts to promote expression of HAMP, via the interaction with its receptor BMPRI1/ALK3 (By similarity). Can also signal through non-canonical pathways such as ERK/MAP kinase signaling cascade that regulates osteoblast differentiation. Also stimulates the differentiation of myoblasts into osteoblasts via the EIF2AK3-EIF2A-ATF4 pathway by stimulating EIF2A phosphorylation which leads to increased expression of ATF4 which plays a central role in osteoblast differentiation. Acts as a positive regulator of odontoblast differentiation during mesenchymal tooth germ formation, expression is repressed during the bell stage by MSX1-mediated inhibition of CTNNB1 signaling (By similarity).

Subcellular Localization: Secreted .

6. Notes

- Avoid repeated freeze-thaw cycles to maintain protein stability and biological activity.
- Please specify special buffer- composition requirements at the time of order placement.
- For research use only. Not intended for clinical diagnosis, therapeutic use or commercial manufacturing.