

Recombinant Rat BMP4 Protein

For Research Use Only

1. Basic Product Information

Catalog No.: REP52451

Size: 10ug, 100ug

Protein Name: Bone morphogenetic protein 4 (BMP-4) (Bone morphogenetic protein 2B) (BMP-2B)

Synonym: Bmp4, Bmp-4, Dvr-4

UniProt ID: Q06826

UniProt Link: www.uniprot.org/uniprotkb/Q06826/entry

Species Source: Rat

Expression System: HEK293T eukaryotic cell expression system Sequence

Length: 408 AA

Molecular Weight: 47 KD

Protein Tag: C-terminal His6

2. Amino Acid Sequence

MIPGNRMLMVVLLCQVLLGGATDASLIPETGKKKVAEIQQGHAGGRRSGQSHELLRDFEATLLQMFG
RRRPQPSKSAVIPDYMRDLRLQSGEEEEEEQSQGTGLEYPERPASRANTVRSFHHEEHLENIPGT
SESSAFRFFFLSSIPENEVISSAELRLFREQVDQGPDWEQGFHRINIYEVMPKPPAEMVPGHLITRLL
DTRLVRHNVTRWETFDVSPAVLRWTREKQPNYGLAIEVTHLHQTRTHQGQHVRISRSLPQGSGNW
AQLRPLLVTFGHDGRGHTLTRRRAKRSPKHHPQRSRKKKNKNCRRHSLYVDFSDVGWNDWIVAPPG
YQAFYCHGDCPFPLADHLNSTNHAIVQTLVNSVNSSIPKACCVPTLSAISMLYLDEYDKVVLKNYQE
MVVEGCGCR

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 4 (BMP-4) (Bone morphogenetic protein 2B) (BMP-2B) 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 neurogenesis, vascular development, angiogenesis and osteogenesis (By similarity). Acts in concert with PTHLH/PTHRP to stimulate ductal outgrowth during embryonic mammary development and to inhibit hair follicle induction (By similarity). Initiates the canonical BMP signaling cascade by associating with type I receptor BMPR1A and type II receptor BMPR2. Once all three components are bound together in a complex at the cell surface, BMPR2 phosphorylates and activates BMPR1A. In turn, BMPR1A propagates signal by phosphorylating SMAD1/5/8 that travel to the nucleus and act as activators and repressors of transcription of target genes. Positively regulates the expression of odontogenic development regulator MSX1 via inducing the IPO7-mediated import of SMAD1 to the nucleus (By similarity). Required for MSX1-mediated mesenchymal molar tooth bud development beyond the bud stage, via promoting Wnt signaling (By similarity). 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). Able to induce its own expression in dental mesenchymal cells and also in the neighboring dental epithelial cells via an MSX1-mediated pathway (By similarity). Can also signal through non-canonical BMP pathways such as ERK/MAP kinase, PI3K/Akt, or SRC cascades. For example, induces SRC phosphorylation which, in turn, activates VEGFR2, leading to an angiogenic response (By similarity).

Subcellular Localization: Secreted, extracellular space, extracellular matrix.

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.