Product Information

Bone Morphogenetic Protein 2 Human

BMP-2, Recombinant, Expressed in HEK 293 Cells, HumanKine®, Suitable for Cell Culture

H4791
Storage Temperature −20 °C
Synonym: BMP-2

Product Description

HumanKine® Bone Morphogenetic Protein 2 is produced from a DNA sequence encoding the human BMP-2 protein, expressed in HEK 293 cells. It is a glycosylated homodimer linked by a single disulfide bond with an apparent molecular mass of 30–38 kDa.

Bone Morphogenetic Protein 2 is a member of the TGF-β superfamily of cytokines that affect bone and cartilage formation. It is important for skeletal development during embryogenesis. BMP-2 induces chondrocyte formation, osteoblast differentiation, and is involved in embryo dorsal-ventral patterning and organogenesis.

It has been reported that BMP-2 inhibits estradiol-induced proliferation of human breast cancer cells.[1] BMP-2 signaling mediates apoptosis by activation of the TAK1-p38 kinase pathway that is negatively regulated by Smad6.[2] Cellular responses to BMP-2 are mediated by the formation of hetero-oligomeric complexes of type I and type II serine/threonine kinase receptors,[3] which play significant roles in BMP binding and signaling. One BMP type II receptor and two BMP type I receptors have been identified. Both BMP type I receptors bind BMP-2 with high-affinity in the absence of BMP receptor type II.

This product is lyophilized from a solution of 50 mM sodium acetate, pH 4.5, with 50 mM NaCl.

EC50 60 ng/mL

The specific activity is determined by the dose dependent induction of alkaline phosphatase production in the ATDC-5 cell line (mouse chondrogenic cell line).

Purity ≥ 95% (SDS-PAGE)

Endotoxin level ≤ 1 EU/µg

Precautions and Disclaimer

For R&D use only. Not for drug, household, or other uses.

Preparation Instructions

Briefly centrifuge the vial before opening. It is recommended to reconstitute the protein in sterile PBS containing 0.1% endotoxin-free recombinant human serum albumin

Storage/Stability

Store the product at −20 °C. The lyophilized product remains active for one year at −20 °C.

Upon reconstitution, the cytokine can be stored at 2–8 °C for short term only, or at −20 °C to −80 °C in aliquots for long term. Avoid repeated freeze-thaw cycles.

References

1. Ghosh-Choudury, N., et al., *Bone morphogenetic protein-2 induces cyclin kinase inhibitor p21 and hypophosphorylation of retinoblastoma protein in estradiol-treated MCF-7 human breast cancer cells*. Biochem. Biophys. Acta, **497**: 186-196 (2000).
2. Kimura, N., et al., *BMP2-induced apoptosis is mediated by activation of the TAK1-p38 kinase pathway that is negatively regulated by Smad6*. J. Biol. Chem., **275**: 17647-17652 (2000).
3. Kawabata, M., et al., *Signal transduction by bone morphogenetic proteins. Cytokine Growth Factor* Rev., **9**: 49-61 (1998).
4. Chen, D. et al., *Growth Factors*, **22**: 233-241 (2004).
5. Nakamure, K. et al., *Exp. Cell research*, **250**: 351-363 (1999).

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