Product Description

Bone morphogenetic protein 2 (BMP-2) is a member of the transforming growth factor beta (TGF-β) superfamily. BMP-2 is a disulfide-linked homodimer, acts as a ligand for complexes of type I and II BMP receptors, and primarily activates SMAD1/5/8 signaling (Nohe et al.). BMP-2 is a potent differentiation factor and directs human pluripotent stem cells (hPSCs) towards various cell types including extra-embryonic endoderm, mesenchymal cells, and chondrocytes (Pera et al.). Although BMP-2 expression is low in healthy cartilage, its expression is upregulated at the site of cartilage damage (Blaney Davidson et al.). BMP-2 induces bone and cartilage formation in vitro and is able to induce chondrogenesis in human mesenchymal stem cells (Schmitt et al.). This product is animal component-free.

Product Information

Alternative Names: BDA2, BMP-2A, BMP2, Bone morphogenetic protein 2A
Accession Number: P12643
Amino Acid Sequence: MQAKHKQRKR LKSSCKRHPL YVDFSVDGWN DWIVAPPGYH AFYCHGECPF PLADHLNSTN HAIVQTLVNS VNSKIPKACC VPTELSAISM LYLDENEKVV LKNYQDMVVE GCGCR
Predicted Molecular Mass: 13 kDa monomer; 26.1 kDa dimer
Species: Human
Cross Reactivity: Mouse, Rat, Monkey
Formulation: Lyophilized from a sterile-filtered aqueous solution containing 0.1% trifluoroacetic acid
Source: E. coli

Specifications

Activity: The specific activity is ≥ 4.0 x 10^3 units/mg (EC50 ≤ 250 ng/mL) as determined by alkaline phosphatase activity induced in ATDC-5 cells.
Purity: ≥ 95%
Endotoxin Level: Measured by kinetic Limulus amebocyte lysate (LAL) analysis and is ≤ 1 EU/μg protein.

Preparation and Storage

Storage: Store at -20°C to -80°C.
Stability: Stable as supplied for 12 months from date of receipt.
Preparation: Centrifuge vial before opening. Reconstitute the product in sterile water to at least 0.1 mg/mL by pipetting the solution down the sides of the vial. Do not vortex.

OPTIONAL: After reconstitution, if product will not be used immediately, dilute with concentrated bovine serum albumin (BSA) to a final BSA concentration of 0.1%. The effect of storage of stock solution on product performance should be tested for each application. As a general guide we recommend to not store at 2 - 8°C for more than 1 month or at -20°C to -80°C for more than 3 months. Avoid repeated freeze-thaw cycles.
(A) The biological activity of Human Recombinant BMP-2, ACF was tested by its ability to induce alkaline phosphatase activity in ATDC-5 cells. Cell proliferation was measured using a fluorometric assay method. The EC50 is defined as the effective concentration of the growth factor at which alkaline phosphatase production is at 50% of maximum. The EC50 in the example above is 74 ng/mL.

(B) 1 μg of Human Recombinant BMP-2, ACF was resolved with SDS-PAGE under reducing (+) and non-reducing (-) conditions and visualized by Coomassie Blue staining.

Related Products

For a complete list of cytokines, as well as related products available from STEMCELL Technologies, visit www.stemcell.com/cytokines or contact us at techsupport@stemcell.com.

References