


PRODUCT DESCRIPTION:

Bone Morphogenetic Protein-2 (BMP-2) is a member of the transforming growth factor β (TGF- β) superfamily and acts as a ligand for complexes of type I and II BMP receptors. BMP are important regulators of bone and cartilage formation throughout embryogenesis. BMP also have reported effects on many other cell types including neural, hematopoietic, epithelial and mesenchymal cells. Specifically BMP-2 is used to direct differentiation of human embryonic stem cells to various lineages (extra-embryonic endoderm, mesenchymal and chondrocyte). Mature recombinant human (rh) BMP-2 is a disulfide-linked homodimeric protein consisting of two 114 amino acid residue subunits, with a calculated molecular mass of approximately 26 kDa. Due to glycosylation, rhBMP-2 migrates as an approximately 36 kDa protein under non-reducing conditions, and as a 17 - 18 kDa protein under reducing conditions in SDS-PAGE. At the amino acid sequence level, mature human, mouse and rat BMP-2 are 100% identical.

CYTOKINES	Product Information Sheet	 Version 1.0.0	Recombinant Human BONE MORPHOGENETIC PROTEIN-2 (BMP-2)

SOURCE:

The DNA sequence encoding human BMP-2² was expressed in Chinese Hamster Ovary (CHO) cells.

PURITY:

Greater than 90% as determined by SDS-PAGE and visualized by silver stain. Endotoxin level is less than 1.0 EU per 1 μ g of BMP-2 as determined by the LAL method.

FORMULATION:

Lyophilized from a sterile-filtered solution in 35% acetonitrile plus 0.1% TFA containing 50 μ g of bovine serum albumin per 1 μ g of BMP-2.

RECONSTITUTION:

It is recommended that sterile 4 mM HCl containing at least 0.1% human or bovine serum albumin be added to the vial to prepare a stock solution of no less than 10 μ g/mL.

STABILITY AND STORAGE:

The lyophilized powder is stable for up to 6 months at -20°C to -70°C.

Reconstituted BMP-2 can be stored under sterile conditions at 2 - 8°C for 1 month or at -20°C to -70°C for 3 months in a **manual defrost freezer** without detectable loss of activity.

Avoid repeated freezing and thawing.

ACTIVITY:

The ED₅₀ of BMP-2 is typically 150 - 600 ng/mL as measured by its ability to induce alkaline phosphatase production by mouse ATDC5 chondrogenic cells.³

REFERENCES:

1. Pera MF, Andrade J, Houssami S, Reubinoff B, Trounson A, Stanley EG, Ward-van Oostwaard D, Mummery C. Regulation of human embryonic stem cell differentiation by BMP-2 and its antagonist noggin. *J Cell Sci* 117(Pt 7):1269-80, 2004
2. Wozney JM, Rosen V, Celeste AJ, Mitscock LM, Whitters MJ, Kriz RW, Hewick RM, Wang EA: Novel regulators of bone formation: molecular clones and activities. *Science* 242: 1528-1534, 1988
3. Nakamura K, Shirai T, Morishita S, Uchida S, Saeki-Miura K, Makishima F: p38 mitogen-activated protein kinase functionally contributes to chondrogenesis induced by growth/differentiation factor-5 in ATDC5 cells. *Exp Cell Res* 250: 351-363, 1999

See Material Safety Data Sheet for more information.

**THIS REAGENT IS FOR RESEARCH ONLY.
IT IS NOT TO BE ADMINISTERED TO HUMANS.**

StemCell Technologies

In North America
Tel: 1.604.877.0713
Fax: 1.604.877.0704
Toll Free Tel: 1.800.667.0322
Toll Free Fax: 1.800.567.2899
e-mail: info@stemcell.com
www.stemcell.com

In the United Kingdom
Tel: +44.(0).20.7691.3561
Fax: +33.(0).4.76.18.99.63
Toll Free within United Kingdom:
Tel: 0800.731.27.14
Fax: 0800.731.27.13
e-mail: info@stemcellgb.com

In Europe
Tel: +33.(0).4.76.04.75.30
Fax: +33.(0).4.76.18.99.63
e-mail: info@stemcellfrance.com

Revised:
June 2007