

**Synonym**

BMP4, BMP2B, BMP2B1, MCOPS6, OFC11, ZYME

**Source**

Human BMP-4 (improved sequence) Protein, premium grade (BM4-H5118) is expressed from *E. coli* cells. It is a variant of BMP-4 to suit cell culture applications better.

*It is produced under our rigorous quality control system that incorporates a comprehensive set of tests including sterility and endotoxin tests. Product performance is carefully validated and tested for compatibility for cell culture use or any other applications in the early preclinical stage.*

*GMP-BM4H18 is the GMP version of this BM4-H5118. These two proteins display indistinguishable performance profiles, thereby ensuring a seamless transition for end users from early preclinical stage to later clinical phases.*

**Molecular Characterization**

This protein carries no "tag".

The protein has a calculated MW of 13.2 kDa. The protein migrates as 13 kDa $\pm$ 3 kDa when calibrated against [Star Ribbon Pre-stained Protein Marker](#) under reducing (R) condition (SDS-PAGE).

**Endotoxin**

Less than 0.05 EU per  $\mu$ g by the LAL method / rFC method.

**Host Cell Protein**

<0.5 ng/ $\mu$ g of protein tested by ELISA.

**Host Cell DNA**

<0.02 ng/ $\mu$ g of protein tested by qPCR.

**Sterility**

Negative

**Mycoplasma**

Negative

**Purity**

>95% as determined by SDS-PAGE.

**Formulation**

Lyophilized from 0.22  $\mu$ m filtered solution in 20 mM Citric acid, pH2.2 with trehalose as protectant.

Contact us for customized product form or formulation.

**Reconstitution**

Please see Certificate of Analysis for specific instructions.

*For best performance, we strongly recommend you to follow the reconstitution protocol provided in the CoA.*

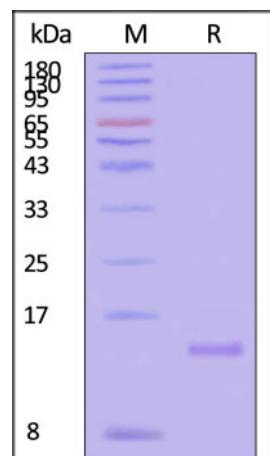
**Storage**

For long term storage, the product should be stored at lyophilized state at -20°C or lower.

*Please avoid repeated freeze-thaw cycles.*

This product is stable after storage at:

- -20°C to -70°C for 24 months in lyophilized state;
- -70°C for 3 months under sterile conditions after reconstitution.

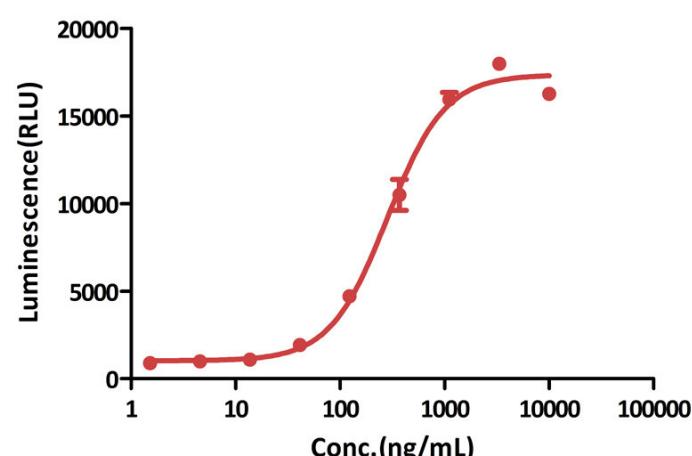
**SDS-PAGE**

Human BMP-4 (improved sequence) Protein, premium grade on SDS-PAGE under reducing (R) condition. The gel was stained with Coomassie Blue. The purity of the protein is greater than 95% (With [Star Ribbon Pre-stained Protein Marker](#)).

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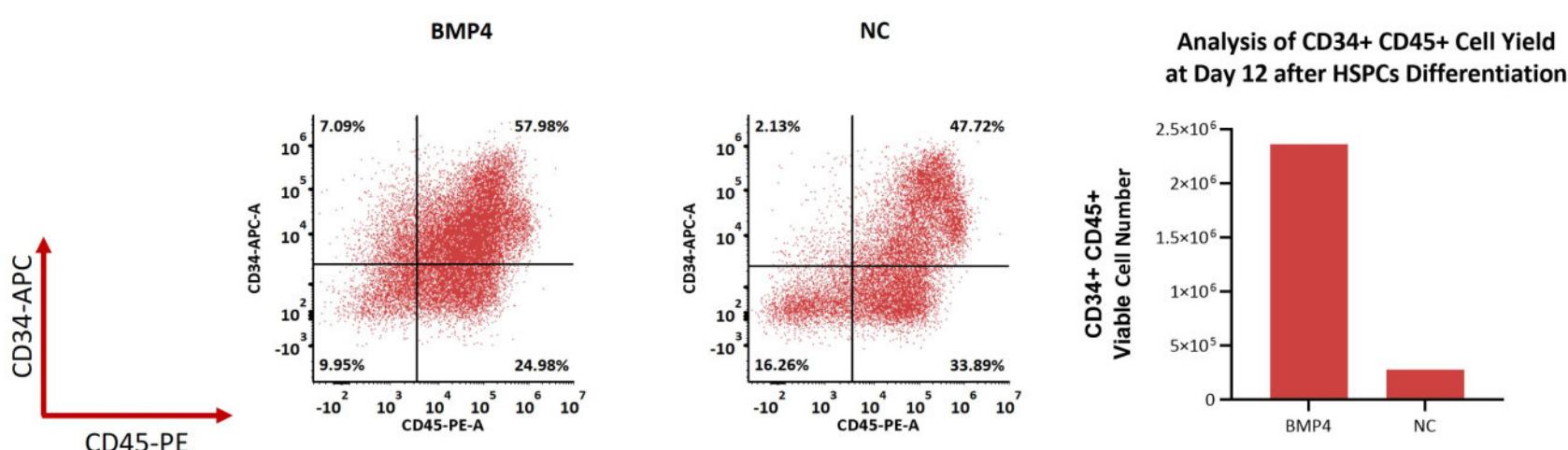


## Bioactivity-CELL BASE

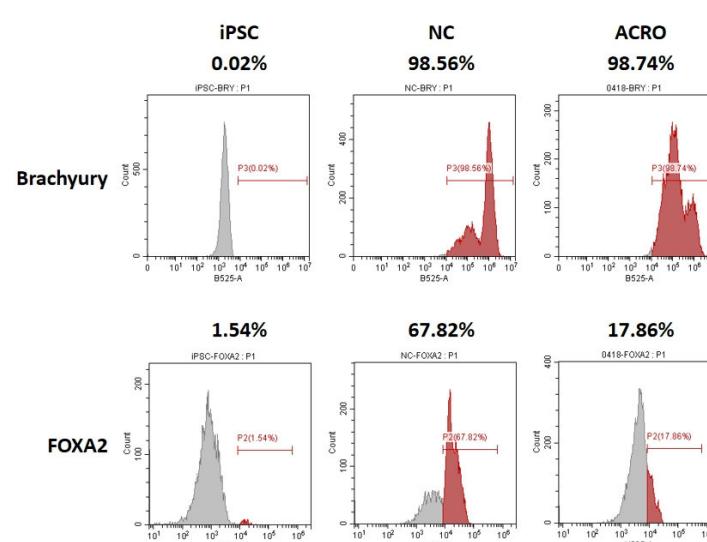
Human BMP-4 (improved sequence) Protein, premium grade  
stimulates Human BMP(Luc)HEK 293 Reporter cells

Human BMP-4 (improved sequence) Protein, premium grade (Cat. No. BM4-H5118) stimulates Human BMP (Luc) HEK293 Reporter Cell. The specific activity of Human BMP-4 (improved sequence) Protein, premium grade is  $> 1.90 \times 10^3$  U/mg (QC tested).

## Application Data



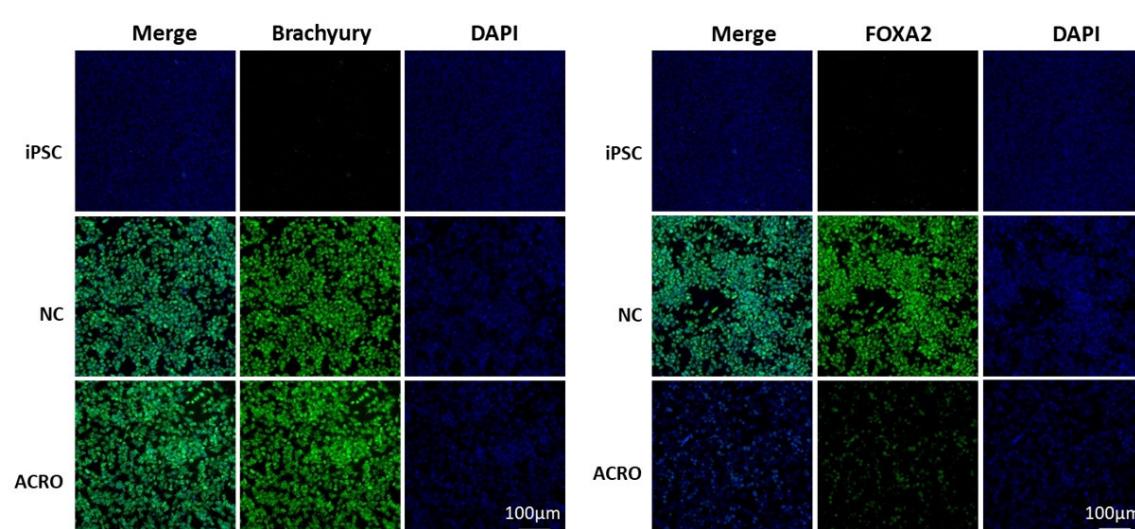
Human BMP-4 (improved sequence) Protein, premium grade (Cat. No. BM4-H5118) could significantly induce iPSC derived HSPC differentiation, with high expression of CD34 and CD45 (HSPC markers) by flow cytometry analysis and the increase of viable numbers of CD34+ CD45+ cells by cell counting. NC: H<sub>2</sub>O treatment (Routinely tested).



Human BMP-4 (improved sequence) Protein, premium grade (Cat. No. BM4-H5118) could significantly inhibit endoderm cell marker FOXA2 expression and promote mesoderm cell marker Brachyury expression from iPSC differentiation by FACS analysis. NC: CHIR99021; ACRO: CHIR99021+BMP4 treatment (30 ng/mL) (Routinely tested).

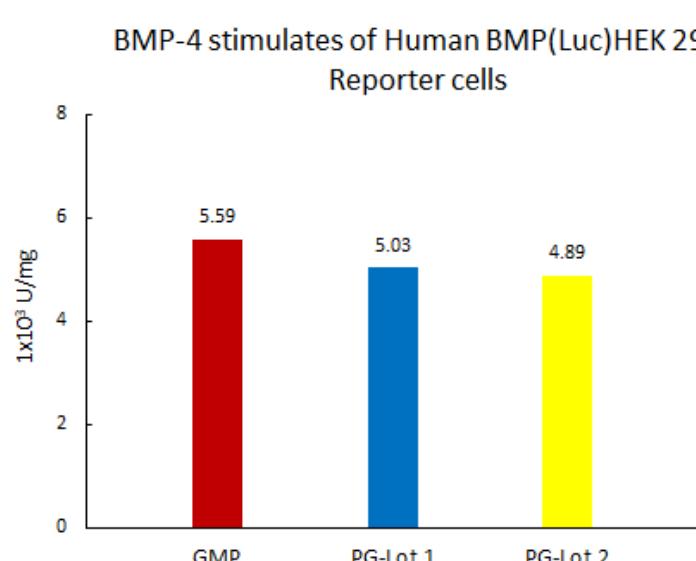
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Human BMP-4 (improved sequence) Protein, premium grade (Cat. No. BM4-H5118) could significantly inhibit endoderm cell marker FOXA2 expression and promote mesoderm cell marker Brachyury expression from iPSC differentiation by immunofluorescence staining. NC: CHIR99021; ACRO: CHIR99021+BMP4 treatment (30 ng/mL) (Routinely tested).

### Bioactivity-Stability



The Cell based assay shows batch-to-batch consistency between Acro's GMP and PG BMP-4 (improved sequence).

### Background

Bone Morphogenetic Protein 4 (BMP4) is a member of growth factor of the TGF-beta superfamily that plays essential roles in many developmental processes, including neurogenesis, vascular development, angiogenesis and osteogenesis. BMP-4 Initiates the canonical BMP signaling cascade by associating with type I receptor BMPR1A and type II receptor BMPR2. BMP-4 can acts in concert with PTHLH/PTHRP to stimulate ductal outgrowth during embryonic mammary development and to inhibit hair follicle induction.

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