Daresbury Proteins

Product description

Name: Mature BMP4 Human

Synonyms: Bone morphogenetic protein 4; Bone morphogenetic protein 2B; BMP2B
Species: Human
Source: HEK293
Amino Acids: 293-408
Tag: None
Predicted Molecular Weight: 13,128.92 Da (with glycosylation giving 25kDa)
Protein ID: P12644
Sequence:

Mature BMP4 Amino acid Sequence

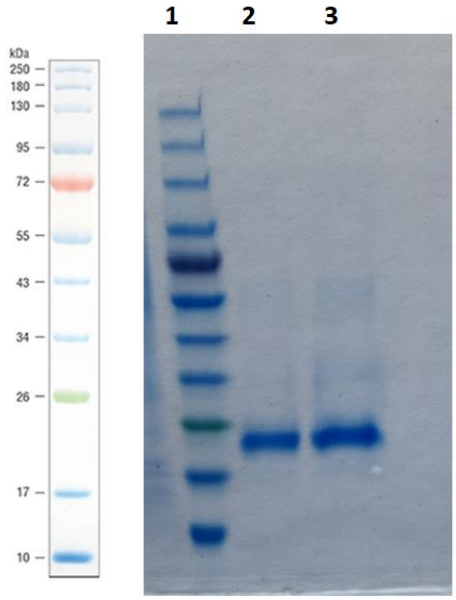
```
         10          20          30          40          50          60
SPKHHSQRAR KKNKNCRRHS LYVDFSDVGW NDWIVAPPGY QAFYCHGDCP FPLADHLNST

         70          80          90         100         110
NHAIVQTLVN SVNSSIPKAC CVPTELSAIS MLYLDEYDKV VLKNYQEMVV EGCGCR
```

Product specifications

Estimated Molecular Weight, SDS-PAGE: ≈ 25 kDa

Grade & Purity: >95% by SDS-PAGE stained with Instant Blue Stain (Expedeon).



1. Mw (NEB P7719) 5µl
2. BMP4 2µg
3. BMP4 4µg

175V for 45minutes (Biorad Mini-Protean TGX 4-20%, 10well 50ul)
Gel samples were made 32.5ul sample + 6.5ul 6x reducing Laemmli

Amount sent: 1 vial containing Xµl (Xµg) of Xmg/ml, SDS PAGE analysis and Nanodrop estimation at 280 nm

Batch/Lot number: #DSB-BMP4-XXXX

Formulation: 20mM histidine pH5.5, 0.2M NaCl, 0.6M arginine.

Shipping

Product is shipped on wet or dry ice or frozen packs. Upon receipt keep refrigerated if for immediate use or frozen at -70^0/80^{0}C for medium to long-term storage.

Product application and Storage

Storage: Store at 4^{0}C for short term. -70^0/80^{0}C for medium and long term.

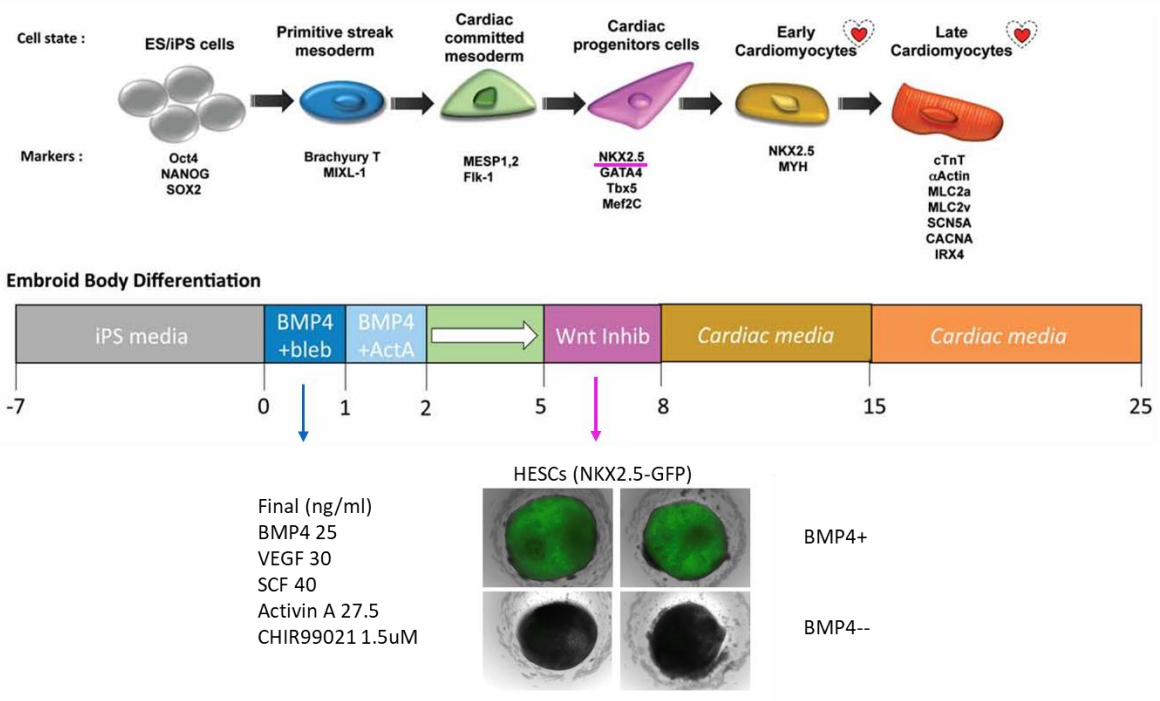
Stability: 3 weeks at 2°C to 8°C. Longer storage might be possible without loss of activity but has not been tested.

Application Note: For research purposes only. Not for use in humans.

Activity data

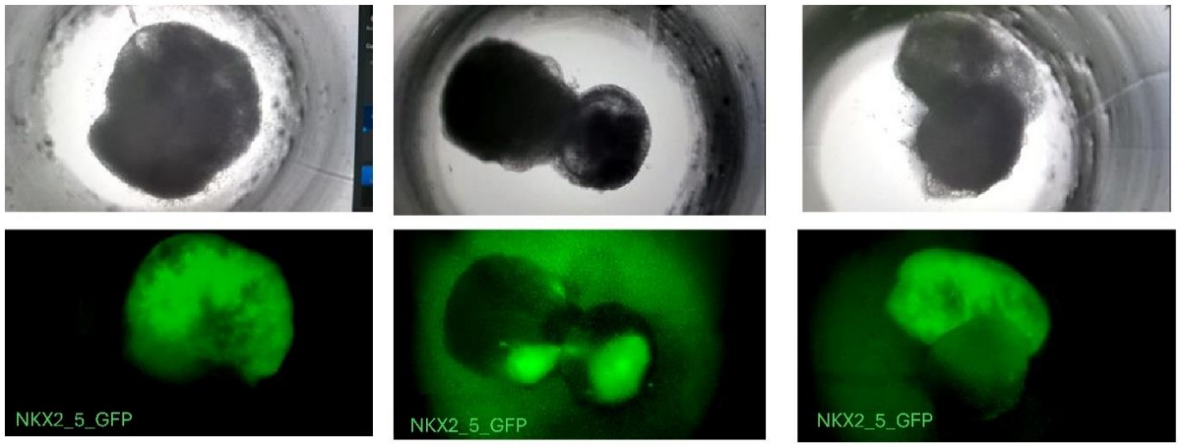
I. Cardiomyocytes differentiation

Cardiac differentiation protocol (from Jeziorowska et al, 2015):



Still photos of the differentiated beating EBs composed of cardiac muscle cells expressing GFP marker post BMP4 treatment:

Positive Control **Sample 1** **Sample 2**

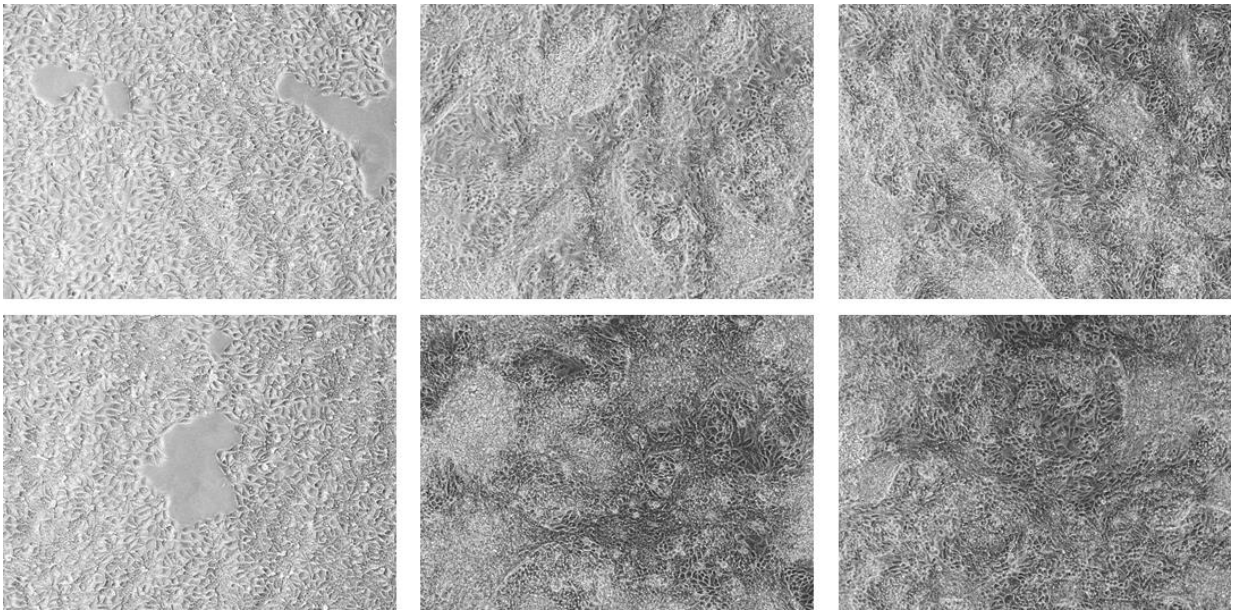


BMP4 (R&D Systems #314-BP, 25ng/ml), Daresbury Proteins manufactured BMP4 (11ng/ml)

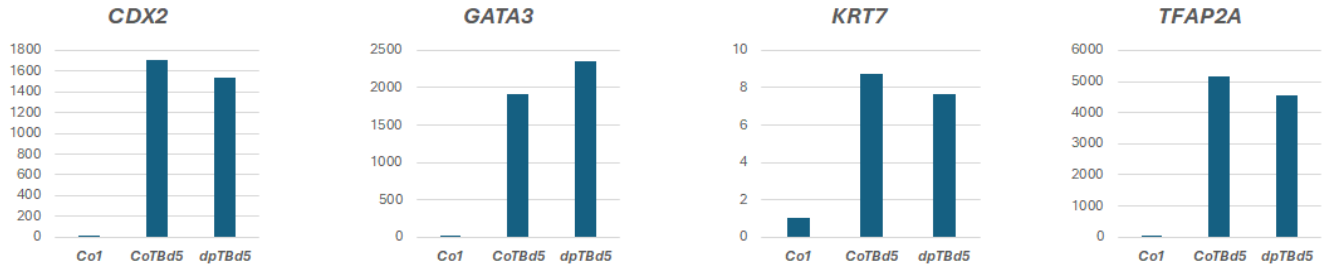
II. Trophoblast differentiation

Differentiation of Human Embryonic Stem Cells into Trophoblast Lineage – day 5

mTeSR1 **mTeSR1-BMP4_Control** **mTeSR1-BMP4_DP**



qRT-PCR analysis of trophoblast markers in MAN13 HESCs differentiated into trophoblast lineages with BMP4 –day 5



Co1 = MAN13 HESCs in mTeSR media
CoTBd5 = MAN13 in mTeSR + BMP4 standard, R&D Systems #314-BP (10ng/ml)
dpTBd5 = MAN13 in mTeSR + BMP4, Daresbury Proteins (10ng/ml)

Protocol references:

Comparison of Four Protocols for In Vitro Differentiation of Human Embryonic Stem Cells into Trophoblast Lineages by BMP4 and Dual Inhibition of Activin/Nodal and FGF2 Signaling
Anvar Z, Chakchouk I, Sharif M, Mahadevan S, Su L, Anikar S, Naini FA, Utama AB, Van den Veyver IB.
Reprod Sci. 2024 Jan;31(1):173-189. doi: 10.1007/s43032-023-01334-5. Epub 2023 Sep 1. PMID: 37658178; PMCID: PMC10784360.

BMP4-directed trophoblast differentiation of human embryonic stem cells is mediated through a ΔNp63^{+} cytotrophoblast stem cell state
Li Y, Moretto-Zita M, Soncin F, Wakeland A, Wolfe L, Leon-Garcia S, Pandian R, Pizzo D, Cui L, Nazor K, Loring JF, Crum CP, Laurent LC, Parast MM.
Development. 2013 Oct;140(19):3965-76. doi: 10.1242/dev.092155. Epub 2013 Sep 4. PMID: 24004950; PMCID: PMC3775414.