BMP-5 Protein, Human (HEK293, hFc)

Cat. No.:	HY-P75472
Synonyms:	Bone morphogenetic protein 5; BMP-5
Species:	Human
Source:	HEK293
Accession:	NP_066551.1 (Q324-H454)
Gene ID:	653
Molecular Weight:	50-55 kDa

PROPERTIES

Appearance	Solution
Formulation	Supplied as a 0.2 μm filtered solution of PBS, pH 7.4.
Endotoxin Level	<1 EU/μg, determined by LAL method.
Reconsititution	N/A.
Storage & Stability	Stored at -80°C for 1 year. It is stable at -20°C for 3 months after opening. It is recommended to freeze aliquots at -80°C for extended storage. Avoid repeated freeze-thaw cycles.
Shipping	Shipping with dry ice.

DESCRIPTION

Background

Bone Morphogenetic Protein 5 (BMP-5) is a ligand protein with pleiotropic, belongs to TGFβ family and expresses mainly in the lung and liver. BMP/TGFβ signaling to involve in vascular and valvular homeostasis, which is a critical process of embryonic development[4]. And BMP/TGFβ signaling can be terminated by inhibitory SMADs including SMAD6 and SMAD7, which are activated and induced by BMP signaling and switch off BMP signaling via multiple mechanisms[5].

BMP-5 silencing inhibits chondrocyte senescence and apoptosis as well as osteoarthritis (OA) progression by downregulating activity in the p38/ERK signaling pathway[1].

BMP-5 initiates the canonical BMP signaling cascade by associating with type I receptor BMPR1A and type II receptor BMPR2 [2].

BMP-5 also triggers signal through non-canonical pathway such as MAPK p38 signaling cascade to promote chondrogenic differentiation[3].

BMP-5 specific expressing in neural crest progenitor cells is sufficient to induce cell proliferation through the MEK-ERK-ID3 signaling cascade, whereas disruption of this signaling cascade had no effect on cell survival[6].

REFERENCES

[1]. Shao Y, et al. BMP5 silencing inhibits chondrocyte senescence and apoptosis as well as osteoarthritis progression in mice. Aging (Albany NY). 2021 Mar 19;13(7):9646-9664.

[2]. Beck HN, et al. Bone morphogenetic protein-5 (BMP-5) promotes dendritic growth in cultured sympathetic neurons. BMC Neurosci. 2001;2:12.

[3]. Snelling SJ, et al. BMP5 activates multiple signaling pathways and promotes chondrogenic differentiation in the ATDC5 growth plate model. Growth Factors. 2010 Aug;28(4):268-79.

[4]. Yang P, et al. The role of bone morphogenetic protein signaling in vascular calcification. Bone. 2020 Dec;141:115542.

[5]. Miyazawa K, et al. Regulation of TGF-β Family Signaling by Inhibitory Smads. Cold Spring Harb Perspect Biol. 2017 Mar 1;9(3):a022095.

[6]. Shih HY, et al. Bmp5 Regulates Neural Crest Cell Survival and Proliferation via Two Different Signaling Pathways. Stem Cells. 2017 Apr;35(4):1003-1014.

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