BMP-2 Protein, Zebrafish

Cat. No.:	HY-P72854
Synonyms:	BDA2; BMP-2; BMP-2A; Bone morphogenetic protein 2a; SSFSC
Species:	Others
Source:	E. coli
Accession:	B3DI86 (Q272-R386)
Gene ID:	/
Molecular Weight:	Approximately 13 kDa

PROPERTIES

AA Sequence	Q A R N N K Q R K K H K A N C R R H S L Y V D F S D V G W N D W I V A P P G Y H A F Y C Q G E C P F P L A D H L N S T N H A I V Q T L V N S V N S N I P R A C C V P T D L S P V S L L Y L D E Y E R V I L K N Y Q D M V V E G C G C R
Biological Activity	Measured by its ability to induce alkaline phosphatase production by ATDC5 mouse chondrogenic cells and the ED_{50} is typically 0.5-3 μg/mL.
Appearance	Lyophilized powder.
Formulation	Lyophilized from a 0.2 μm filtered solution of 30 mM HAC, pH 3.0.. Normally 5 % - 8 % trehalose, mannitol and 0.01% Tween 80 are added as protectants before lyophilization.
Endotoxin Level	<1 EU/μg, determined by LAL method.
Reconsititution	It is not recommended to reconstitute to a concentration less than 100 μg/mL in ddH_2O.
Storage & Stability	Stored at -20°C for 2 years. After reconstitution, it is stable at 4°C for 1 week or -20°C for longer (with carrier protein). It is recommended to freeze aliquots at -20°C or -80°C for extended storage.
Shipping	Room temperature in continental US; may vary elsewhere.

DESCRIPTION

Background	Bone Morphogenetic Protein 2 (BMP-2) is a ligand protein with pleiotropic, belongs to TGFβ family. BMP-2 formats BMP/TGF β signaling to involve in vascular and valvular homeostasis, which is a critical process of embryonic development[1]. BMP-2/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[2]. BMP-2 is widely found in different animals, while the sequence in human is similar to rat (91.86%), and mouse (92.13%). BMPs exhibits critical contributions to the pathophysiology of atherosclerosis, pulmonary vascular disease, and vascular

and valvular calcification[1].
BMP-2 binds different receptor, such as type I receptors (ALK-2/-3/-6) and type II receptors (BMPR2, ACVR2A), to regulate various calcification type including Atherosclerosis, Chronic Kidney Disease, Diabetes, Valvular Calcification[1].
BMP-2 promotes monocyte infiltration and inflammation of atherosclerotic legions[3].
It is linked to increased plaque formation via pro-inflammatory and pro-atherogenic effects, promoting oxidative stress, endothelial dysfunction and osteogenic differentiation[4].
BMP-2 is overexpressed in ossified regions of human calcified valves by myofibroblasts and pre-osteoblasts in areas densely infiltrated with B- and T-lymphocytes[5].
And it serves as the linkers between atherosclerotic vascular calcification with mechanisms of normal bone formation[6].
BMP-2 induces angiogenesis, endothelial cells (ECs) proliferation, and migration[7].
And BMP-2 also enhances the expression of the osteoblast and chondrocyte master transcriptional regulator RUNX2 to promote the mineralization of cultured human coronary vascular SMCs in a manner that was dependent on oxidative stress and endoplasmic reticulum (ER) stress[8].

REFERENCES

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