

Animal-Free BMP-4 Protein, Mouse (His)

Cat. No.:	HY-P700163AF
Synonyms:	Bone genetic protein 4; BMP4; Bone morphogenetic protein 4; zBMP-4
Species:	Mouse
Source:	E. coli
Accession:	P21275 (K303-R408)
Gene ID:	12159
Molecular Weight:	Approximately 12.88 kDa

PROPERTIES

AA Sequence	<p>M K K N K 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 Q A F Y C H G D C</p> <p>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 S I P K A C C V P T E L S A I</p> <p>S M L Y L D E Y D K V V L K N Y Q E M V V E G C G C R</p>
Biological Activity	Measure by its ability to induce alkaline phosphatase production by ATDC5 cells. The ED ₅₀ for this effect is <10 ng/mL. The specific activity of recombinant mouse BMP-4 is >1 x 10 ⁵ IU/mg
Appearance	Lyophilized powder.
Formulation	Lyophilized from a solution containing 20 mM sodium carbonate, pH 4.5.
Endotoxin Level	<0.1 EU per 1 µg of the protein by the LAL method.
Reconstitution	It is not recommended to reconstitute to a concentration less than 100 µg/mL in ddH ₂ O.
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	<p>Bone Morphogenetic Protein 4 (BMP-4) is a ligand protein with pleiotropic, belongs to TGFβ family. BMP-4 involves in the vasculature circulation and can activate receptors on vascular cells^[1].</p> <p>BMP-4/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^[4].</p> <p>BMP-4 is widely found in different animals, while the sequence in human is highly similar to Rat (96.81%), and mouse (97.54%).</p> <p>BMP-4 is expressed by endothelial cells (ECs) in response to hypoxia and promotes vascular SMC proliferation. Therefore it</p>
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inhibits the proliferation of smooth muscle cells (SMCs) isolated from the proximal pulmonary artery while induces proliferation of SMCs isolated from distal pulmonary arteries^[5].
BMP-4 appears to be a marker and driver of vascular calcification, particularly in atherosclerosis^[6].
BMP-4 induces angiogenesis, endothelial cells (ECs) proliferation, and migration^[7].
BMP-4 is differentially expressed in calcified atherosclerotic plaques^[8], serves as the linkers between atherosclerotic vascular calcification with mechanisms of normal bone formation^[9].
BMP-4 increases plaque formation via their pro-inflammatory and pro-atherogenic effects, promoting oxidative stress, endothelial dysfunction and osteogenic differentiation^[3].

REFERENCES

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