Animal-Free BMP-15 Protein, Human (His)

Cat. No.:	HY-P700024AF
Synonyms:	Growth/Differentiation Factor-9B; GDF-9B; ODG2; POF4
Species:	Human
Source:	E. coli
Accession:	O95972 (Q268-R392)
Gene ID:	9210
Molecular Weight:	Approximately 14.88 kDa

PROPERTIES

AA Sequence	M A P L A T R Q G K R P S K N L K A R C S R K A L H V N F K D M G W D D W I I A P L E Y E A F H C E G L C E F P L R S H L E P T N H A V I Q T L M N S M D P E S T P P T C C V P T R L S P I S I L F I D S A N N V V Y K Q Y E D M V V E S C G C R
Appearance	Lyophilized powder.
Formulation	Lyophilized from a solution containing 20 mM sodium citrate, 0.2 MNaCl, pH 3.5.
Endotoxin Level	<0.1 EU per 1 μg of the protein by the 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 15 (BMP-15; GDF9B), also known as growth and differentiation factor 9B (GDF9B), is a polymorphic ligand protein belonging to the TGFβ family and expresses exclusively in the oocyte[1]. BMP15 is closely related to GDF9, which is essential for early ovarian folliculogenesis[1]. BMP15 and GDF9 involve in the genetic control of follicular development. Their main functions include regulating cellular proliferation/differentiation, follicular survival/atresia, and oocyte maturation, to creat an environment supporting follicle selection and growth[2]. BMP15 involves in p38 MAPK pathway to up-regulate anti-Mullerian hormone (AMH) expression in granulosa cells, which is produced by granulosa cells (GCs) of preantral and small antral follicles and plays a role in regulating the recruitment of primordial follicles and the FSH-dependent development of follicles[3].

Otherwise, BMP15 binds HIF-1α/SCF signaling pathway to induce stem cell factor (SCF) expression in human GCs of polycystic ovary syndrome (PCOS) related follicles[4].
BMP-15 is widely found in different animals, while the sequence in human is different from rat (63.66%), and mouse (64.01).

REFERENCES

[1]. Galloway SM, et al. Bmp15 mutations and ovarian function. Mol Cell Endocrinol. 2002 May 31;191(1):15-8.

[2]. Liu MN, et al. The role of BMP15 and GDF9 in the pathogenesis of primary ovarian insufficiency. Hum Fertil (Camb). 2021 Dec;24(5):325-332.

[3]. Zhao Z, et al. BMP15 regulates AMH expression via the p38 MAPK pathway in granulosa cells from goat. Theriogenology. 2018 Sep 15;118:72-79.

[4]. Cao LY, et al. Aberrant BMP15/HIF-1α/SCF signaling pathway in human granulosa cells is involved in the PCOS related abnormal follicular development. Gynecol Endocrinol. 2022 Sep 23:1-7.

[5]. Shimizu K, et al. Molecular mechanism of FSHR expression induced by BMP15 in human granulosa cells. J Assist Reprod Genet. 2019 Jun;36(6):1185-1194.

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