

## BMP-15 Protein, Human (His, Myc)

<b>Cat. No.:</b>	HY-P72426
<b>Synonyms:</b>	Growth/differentiation factor 9B
<b>Species:</b>	Human
<b>Source:</b>	E. coli
<b>Accession:</b>	O95972 (Q268-R392)
<b>Gene ID:</b>	9210
<b>Molecular Weight:</b>	Approximately 23.0 kDa

### PROPERTIES

<b>AA Sequence</b>	<p>Q A D G I S A E V T    A S S S K H S G P E    N N Q C S L H P F Q    I S F R Q L G W D H</p> <p>W I I A P P F Y T P    N Y C K G T C L R V    L R D G L N S P N H    A I I Q N L I N Q L</p> <p>V D Q S V P R P S C    V P Y K Y V P I S V    L M I E A N G S I L    Y K E Y E G M I A E</p> <p>S C T C R</p>
<b>Appearance</b>	Lyophilized powder.
<b>Formulation</b>	Lyophilized from a 0.2 µm filtered solution of Tris/PBS-based buffer, 6% Trehalose, pH 8.0.
<b>Endotoxin Level</b>	<1 EU/µg, determined by LAL method.
<b>Reconstitution</b>	It is not recommended to reconstitute to a concentration less than 100 µg/mL in ddH <sub>2</sub> O.
<b>Storage &amp; Stability</b>	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.
<b>Shipping</b>	Room temperature in continental US; may vary elsewhere.

### DESCRIPTION

<b>Background</b>	<p>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<sup>[1]</sup>. BMP15 is closely related to GDF9, which is essential for early ovarian folliculogenesis<sup>[1]</sup>. 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 create an environment supporting follicle selection and growth<sup>[2]</sup>.</p> <p>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<sup>[3]</sup>.</p>
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Otherwise, BMP15 binds HIF-1 $\alpha$ /SCF signaling pathway to induce stem cell factor (SCF) expression in human GCs of polycystic ovary syndrome (PCOS) related follicles<sup>[4]</sup>.  
BMP-15 is widely found in different animals, while the sequence in human is different from rat (63.66%), and mouse (64.01).

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## REFERENCES

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- [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-1 $\alpha$ /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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**Caution: Product has not been fully validated for medical applications. For research use only.**

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