

DESCRIPTION

Source	Chinese Hamster Ovary cell line, CHO-derived Lys23-Arg319 (pro) & Ser320-Arg429 (mature) Accession # Q9UK05
N-terminal Sequence Analysis	Lys23 (pro) & Ser320 (mature)
Structure / Form	Non covalent complex between the prodomain and mature domain.
Predicted Molecular Mass	33 kDa (pro) & 12 kDa (mature)

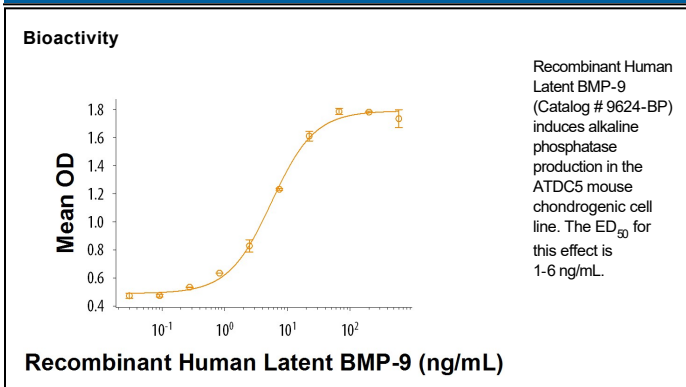
SPECIFICATIONS

SDS-PAGE	39-44 kDa (pro) & 11 kDa (mature)
Activity	Measured by its ability to induce alkaline phosphatase production by ATDC5 mouse chondrogenic cells. Nakamura, K. <i>et al.</i> (1999) Exp. Cell Res. 250 :351. The ED ₅₀ for this effect is 1-6 ng/mL.
Endotoxin Level	<0.10 EU per 1 µg of the protein by the LAL method.
Purity	>95%, by SDS-PAGE visualized with Silver Staining and quantitative densitometry by Coomassie® Blue Staining.
Formulation	Lyophilized from a 0.2 µm filtered solution in PBS with BSA as a carrier protein. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Reconstitution	Reconstitute at 250 µg/mL in PBS.
Shipping	The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below.
Stability & Storage	Use a manual defrost freezer and avoid repeated freeze-thaw cycles. <ul style="list-style-type: none"> ● 12 months from date of receipt, -20 to -70 °C as supplied. ● 1 month, 2 to 8 °C under sterile conditions after reconstitution. ● 3 months, -20 to -70 °C under sterile conditions after reconstitution.

DATA



BACKGROUND

Human BMP-9, also known as growth and differentiation factor 2 (GDF2), is a member of the BMP subgroup of the TGF β superfamily proteins that signal through heterodimeric complexes composed of type I and type II BMP receptors. BMP-9 regulates the development and function of a variety of embryonal and adult tissues (1, 2). The human BMP-9 cDNA encodes a 429 amino acid (aa) precursor that includes a 22 aa signal sequence, a 298 aa propeptide, and a 111 aa mature protein (3). Unlike with other BMP family proteins, the propeptide does not interfere with the biological activity of BMP-9 and remains associated with the mature peptide after proteolytic cleavage (4). Human and mouse BMP-9 share 96% aa sequence identity. Within the mature protein, human BMP-9 shares 64% aa sequence identity with human BMP-10 and less than 50% aa sequence identity with other BMPs. BMP-9 is expressed by nonparenchymal cells in the liver, (5, 6) where it promotes lipid metabolism and inhibits glucose production (7). BMP-9 exerts a prolonged hypoglycemic effect which may be due to an enhancement of insulin release (7). BMP-9 interacts with a high affinity specific heteromeric receptor expressed on liver endothelial cells that has been identified as ALK1 (4, 6). In the embryonal CNS, BMP-9 functions in the development and maintenance of the cholinergic neuronal phenotype (8, 10). BMP-9 also induces the differentiation of mesenchymal stem cells into the chondrogenic lineage (11, 12). At low concentrations, BMP-9 is a proliferative factor for hematopoietic progenitor cells, but at higher concentrations, it enhances TGF- β 1 production and inhibits hematopoietic progenitor colony formation (13).

References:

1. Chen, D. *et al.* (2004) *Growth Factors* **22**:233.
2. Miyazono, K. *et al.* (2005) *Cytokine Growth Factor Rev.* **16**:251.
3. Celeste, A.J. *et al.* (1994) *J. Bone Miner. Res.* **9**:S136.
4. Brown, M.A. *et al.* (2005) *J. Biol. Chem.* **280**:25111.
5. Song, J.J. *et al.* (1995) *Endocrinology* **136**:4293.
6. Miller, A.F. *et al.* (2000) *J. Biol. Chem.* **275**:17937.
7. Chen, C. *et al.* (2003) *Nat. Biotechnol.* **21**:294.
8. LopezCoviella, I. *et al.* (2000) *Science* **289**:313.
9. LopezCoviella, I. *et al.* (2005) *Proc. Natl. Acad. Sci.* **102**:6984.
10. LopezCoviella, I. *et al.* (2002) *J. Physiol. Paris* **96**:53.
11. Majumdar, M.K. *et al.* (2001) *J. Cell. Physiol.* **189**:275.
12. Hills, R.L. *et al.* (2005) *J. Orthoped. Res.* **23**:611.
13. Ploemacher, R.E. *et al.* (1999) *Leukemia* **13**:428.