

DESCRIPTION

Source Chinese Hamster Ovary cell line, CHO-derived
Ser320-Arg429
Accession # Q9UK05

N-terminal Sequence Analysis Ser320

Structure / Form Disulfide-linked homodimer

Predicted Molecular Mass 12.1 kDa (monomer)

SPECIFICATIONS

SDS-PAGE 13 kDa, reducing conditions

Activity Measured by its ability to induce alkaline phosphatase production by ATDC5 mouse chondrogenic cells. Nakamura, K. *et al.* (1999) Exp. Cell Res. **250**:351.
The ED₅₀ for this effect is 0.4-1.6 ng/mL.

Endotoxin Level <0.01 EU per 1 µg of the protein by the LAL method.

Purity >95%, by SDS-PAGE under reducing conditions and visualized by silver stain.

Formulation Lyophilized from a 0.2 µm filtered solution in Acetonitrile and TFA with BSA as a carrier protein. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Reconstitution Reconstitute at 10 µg/mL in sterile 4 mM HCl containing at least 0.1% human or bovine serum albumin.

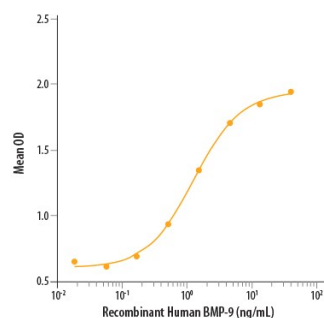
Shipping The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below.

Stability & Storage Use a manual defrost freezer and avoid repeated freeze-thaw cycles.

- 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, -70 °C under sterile conditions after reconstitution.

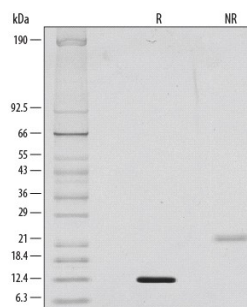
DATA

Bioactivity



Recombinant Human BMP-9 (Catalog # 3209-BP) induces alkaline phosphatase production in the ATDC5 mouse chondrogenic cell line. The ED₅₀ for this effect is 0.4-1.6 ng/mL.

SDS-PAGE



1 µg/lane of Recombinant Human BMP-9 was resolved with SDS-PAGE under reducing (R) and non-reducing (NR) conditions and visualized by silver staining, showing single bands at 13 kDa and 23 kDa, respectively.

BACKGROUND

Human BMP-9, also known as growth and differentiation factor 2 (GDF-2), 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 non-parenchymal 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 ALK-1 (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. Lopez-Coviella, I. *et al.* (2000) *Science* **289**:313.
9. Lopez-Coviella, I. *et al.* (2005) *Proc. Natl. Acad. Sci.* **102**:6984.
10. Lopez-Coviella, 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.