**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)

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**SPECIFICATIONS**

**SDS-PAGE**
13 kDa, reducing conditions

**Activity**
The ED$_{50}$ 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.

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**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.

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**DATA**

**Bioactivity**
Recombinant Human BMP-9 (Catalog # 3209-BP) induces alkaline phosphatase production in the ATDC5 mouse chondrogenic cell line. The ED$_{50}$ 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.
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-β1 production and inhibits hematopoietic progenitor colony formation (13).

References: