Recombinant Human BMP-9

Catalog Number: 3209-BP/CF

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

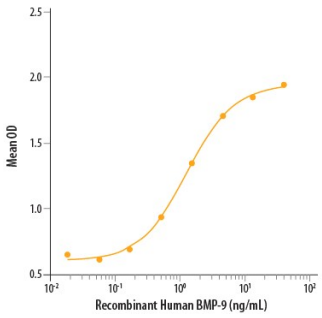
SDS-PAGE	13 kDa, reducing conditions
Activity	Measured by its ability to induce alkaline phosphatase production by ATDC5 mouse chondrogenic cells. Nakamura, K. *et al.* (1999) Exp. Cell Res. **250**:351. The ED_{50} for this effect is 0.4-1.6 ng/mL.
Endotoxin Level	<0.01 EU per 1 µg of the protein by the LAL method.
Purity	>95%, by SDS-PAGE under reducing conditions and visualized by silver stain.
Formulation	Supplied as a 0.2 µm filtered solution in Acetonitrile and TFA. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Reconstitution	It is recommended that sterile 4 mM HCl be added to the vial to prepare a working stock solution of no less than 100 µg/mL. The carrier-free protein should be used immediately upon dilution to avoid losses in activity due to non-specific binding to the inside surface of the vial. For long term storage as a dilute solution, a carrier protein (*e.g.* 0.1% HSA or BSA) should be added to the vial.
Shipping	The product is shipped with dry ice or equivalent. 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, -70 °C as supplied. ● 1 month, 2 to 8 °C under sterile conditions after opening.

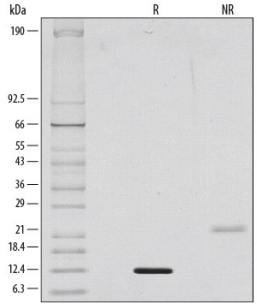
DATA

Bioactivity



Recombinant Human BMP-9 (Catalog # 3209-BP/CF) 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.

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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-β1 production and inhibits hematopoietic progenitor colony formation (13).

References:

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