

DESCRIPTION

Source Chinese Hamster Ovary cell line, CHO-derived rat BMP-6 protein
Ser368-His506
Accession # Q04906.2

N-terminal Sequence Analysis Ser368

Structure / Form Covalent dimer

Predicted Molecular Mass 16 kDa

SPECIFICATIONS

SDS-PAGE 16-22 kDa, under 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 0.15-0.9 µg/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 HCl. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Reconstitution Reconstitute at 200 µg/mL in 4 mM HCl.

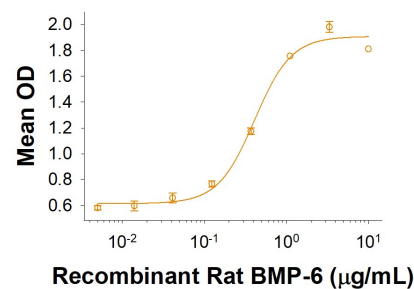
Shipping The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below.

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, -20 to -70 °C under sterile conditions after reconstitution.

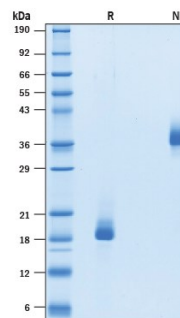
DATA

Bioactivity



Recombinant Rat BMP-6 (Catalog # 10420-BM) induces alkaline phosphatase production in the ATDC5 mouse chondrogenic cell line. The ED₅₀ for this effect is 0.15-0.9 µg/mL.

SDS-PAGE



2 µg/lane of Recombinant Rat BMP-6 (Catalog # 10420-BM) was resolved with SDS-PAGE under reducing (R) and non-reducing (NR) conditions and visualized by Coomassie® Blue staining, showing bands at 16-22 kDa and 32-44 kDa, respectively.

BACKGROUND

Bone Morphogenetic Protein 6 (BMP-6), also known as Vgr-1, is a member of the BMP subfamily of TGF-beta superfamily proteins. BMPs are involved in a wide range of processes including embryogenesis, tissue morphogenesis, cell differentiation and migration, and tumorigenesis (1). BMP-6 is synthesized as a large precursor protein that is cleaved at the dibasic cleavage site (RxxR) to release a smaller, C-terminal mature protein. Biologically active BMP-6 consists of a disulfide-linked homodimer of the mature protein, with each monomer containing a characteristic cystine knot motif (2). Mature rat BMP-6 shares 98% and 96% amino acid sequence identity with human and mouse BMP-6, respectively. Cellular responses to BMP-6 are mediated by hetero-oligomeric complexes of type I (Activin RIA/ALK-2 and BMPRII/ALK-3) and type II (Activin RIIA and BMPRII) serine/threonine kinase receptors (3-5). BMP-6 induces the expression of Noggin and is subsequently antagonized by Noggin (6). BMP-6 induces a wide range of cellular responses. It promotes osteoblast differentiation from mesenchymal stem cells (7), chondrocyte maturation (8), Ang II-induced aldosterone production in the adrenal cortex (4), hormone production and responsiveness in ovarian granulosa cells (9), iNOS and TNF-alpha production in macrophages (5), the cell death of B cells (10), and neurite outgrowth (11). BMP-6 expression is induced in astrocytes surrounding sites of brain injury where it functions as a neuroprotectant (11, 12). It enhances tumor progression by promoting local angiogenesis and differentiation of immune tolerizing M2 macrophages (13-15). Through interactions with the BMP co-receptor RGM-C/Hemojuvelin, BMP-6 plays an important role in iron homeostasis by promoting Hcpidin expression and preventing serum iron overload (16). Heterodimers of BMP-2 and BMP-6 show increased potency at inducing osteoblastic calcium deposition, chondrogenesis, and *in vivo* bone formation compared to either BMP-2 or BMP-6 homodimers (3).

References:

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