

DESCRIPTION

Source Chinese Hamster Ovary cell line, CHO-derived
Ser292-His430
Accession # NP_031583

N-terminal Sequence Analysis Ser292

Structure / Form Disulfide-linked homodimer

Predicted Molecular Mass 15.6 kDa (monomer)

SPECIFICATIONS

SDS-PAGE 16 - 20 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 0.125-0.5 µg/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 HCl. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Reconstitution Reconstitute at 100 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.

BACKGROUND

Bone morphogenetic protein 7 (BMP-7), also known as osteogenic protein 1 (OP-1), is a widely expressed TGF-β superfamily member with important functions during embryogenesis, in the adult, and in disease (1, 2). Mouse BMP-7 is synthesized with a 29 amino acid (aa) signal sequence, a 262 aa propeptide, and a 139 aa growth factor domain (3). The growth factor domain of mouse BMP-7 shares 98% and 100% aa sequence identity with human and rat BMP-7, respectively. The BMP-7 propeptide is cleaved intracellularly but remains in association with the growth factor domain. BMP-7 is subsequently secreted as a tetramer that consists of two propeptides and two disulfide-linked growth factor domains (4, 5). Mature BMP-7 can also form disulfide-linked heterodimers with BMP-2 or BMP-4, complexes that show increased potency and range of activity compared to BMP-7 homodimers (6-8). The presence of the propeptides in the BMP-7 tetramer does not diminish the bioactivity of the growth factor domains (5). Secreted BMP-7 is immobilized in the extracellular matrix as a result of interactions between the propeptide and matrix Fibrillin (4). BMP-7 exerts its biological effects through the type 2 receptors Activin RIIA, Activin RII B, and BMPR-II and the type 1 receptors Activin RIA, BMPR-IA, and BMPR-IB (2, 5). BMP-7 plays a role in a variety of organ systems. It promotes new bone formation and nephron development (9, 10), inhibits the branching of prostate epithelium (11), and antagonizes epithelial-mesenchymal transition (EMT) (12-14). In pathological conditions, BMP-7 inhibits tumor growth and metastasis (13), ameliorates fibrotic damage in nephritis (12), and promotes neuroregeneration following brain ischemia (15).

References:

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