### DESCRIPTION

**Source**
Chinese Hamster Ovary cell line, CHO-derived
Ser293-His431
Accession # P18075

**N-terminal Sequence Analysis**
Ser293

**Structure / Form**
Disulfide-linked homodimer; Biotinylated protein via sugars

**Predicted Molecular Mass**
16 kDa (unlabeled)

### SPECIFICATIONS

<table>
<thead>
<tr>
<th>Activity</th>
<th>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 typically 100-600 ng/mL.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Endotoxin Level</td>
<td>&lt;0.01 EU per 1 μg of the protein by the LAL method.</td>
</tr>
<tr>
<td>Purity</td>
<td>&gt;95%, by SDS-PAGE visualized with Silver Staining and quantitative densitometry by Coomassie® Blue Staining.</td>
</tr>
<tr>
<td>Formulation</td>
<td>Lyophilized from a 0.2 μm filtered solution in HCl with BSA as a carrier protein. See Certificate of Analysis for details.</td>
</tr>
</tbody>
</table>

### 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.

### DATA

**Bioactivity**
Both Biotinylated Recombinant Human BMP-7 (Catalog # BT354) and unlabeled Recombinant Human BMP-7 (Catalog # 354- BP) induces alkaline phosphatase production in the ATDC5 mouse chondrogenic cell line. The ED50 for this effect is typically 100-600 ng/mL. The similarity in activity highlights that the biotinylated protein is fully functional.
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). Human BMP-7 is synthesized with a 29 amino acid (aa) signal sequence, a 263 aa propeptide, and a 139 aa growth factor domain (3, 4). The growth factor domain of human BMP-7 shares 98% aa sequence identity with mouse and rat BMP-7. 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 (5, 6). 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 (7-9). The presence of the propeptides in the BMP-7 tetramer does not diminish the bioactivity of the growth factor domains (6). Secreted BMP-7 is immobilized in the extracellular matrix as a result of interactions between the propeptide and matrix Fibrillin (5). BMP-7 exerts its biological effects through the type 2 receptors Activin RIIA, Activin RIIß, and BMPR-II and the type 1 receptors Activin RIA, BMPR-IA, and BMPR-IB (2, 6).

BMP-7 plays a role in a variety of organ systems. It promotes new bone formation and nephron development (10, 11), inhibits the branching of prostate epithelium (12), and antagonizes epithelial-mesenchymal transition (EMT) (13-15). In pathological conditions, BMP-7 inhibits tumor growth and metastasis (14), ameliorates fibrotic damage in nephritis (13), and promotes neuroregeneration following brain ischemia (16).

References: