**DESCRIPTION**

**Source**
E. coli-derived

<table>
<thead>
<tr>
<th>Human BMP-2 (Ala284 - Arg396), with an N-terminal Met</th>
<th>Accession # P12643</th>
</tr>
</thead>
<tbody>
<tr>
<td>Human BMP-6 (Gln382 - His513), with an N-terminal Met</td>
<td>Accession # P22004</td>
</tr>
</tbody>
</table>

N-terminal C-terminus

| N-terminal Sequence Analysis                  | Ala284 (BMP-2) & Met (BMP-6) |
| Structure / Form                             | Disulfide-linked heterodimer |
| Predicted Molecular Mass                     | 12.8 kDa (BMP-2) & 15 kDa (BMP-6) |

**SPECIFICATIONS**

| SDS-PAGE                  | 11 kDa & 14 kDa, reducing conditions |
| 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 with polar packs. 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 6 (BMP-6), also known as Vgr-1, and BMP-2 are members of the BMP family of structurally and functionally related proteins and represent a subfamily of the transforming growth factor β (TGF-β) superfamily. BMPs are involved in a wide range of processes including embryogenesis, tissue morphogenesis, cell differentiation and migration, and tumorigenesis. Cellular responses to BMPs are mediated by hetero-oligomeric complexes of type I and type II serine/threonine kinase receptors (1 - 4).

Human BMP-2 is synthesized as a 396 amino acid (aa) preproprotein that contains a 23 aa signal sequence, a 259 aa prosegment, and a 114 aa mature region (5). Human BMP-6 is synthesized as a 513 aa precursor protein that contains a 20 aa signal sequence, a 354 aa prosegment, and a 139 aa mature region (6). BMP prosegments are removed by proteolysis, enabling the glycosylated 18 kDa mature BMPs to form active disulfide-linked homodimers or heterodimers (1, 2). Mature human BMP-2 shares 100% aa sequence identity with mouse and rat BMP-2, and mature human BMP-6 shares 96% and 98% aa sequence identity with mouse and rat BMP-6, respectively. They share 48% aa sequence identity with each other. Both BMP-2 and BMP-6 induce osteogenic and chondrogenic differentiation in mesenchymal stem cells (4). 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 (7, 8).

**References:**