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1. Description

Products	Human BMP-7, research grade. Recombinant human bone morphogenetic protein 7.								
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10	130-093-818								
100	130-103-436								
10× 100	130-108-988								
Biological activity	The ED ₅₀ is ≤40 ng/mL corresponding to an activity of ≥2.5×10 ⁴ U/mg. ▲ Note: The ED ₅₀ is determined by the ability to induce alkaline phosphatase production by ATDC-5 cells.								
Primary structure	Two identical, glycosylated covalently-linked polypeptide chains including N-terminal methionine (117 amino acid residues each).								
Molecular mass	26.4 kDa (dimer).								
Source	Produced in CHO cells.								
Product format	Lyophilized from a filtered (0.2 µm) buffer solution.								
Stabilizer	None.								
Purity	>97% as determined by SDS-PAGE analysis.								
Endotoxin level	Low endotoxin (<1.0 EU/µg cytokine) as determined by Limulus Amebocyte Lysate (LAL) assay.								
Storage	Lyophilized Human BMP-7, research grade should be stored at -20 °C. The expiration date is indicated on the vial label. Upon reconstitution aliquots should be stored at -20 °C or below. Avoid repeated freeze-thaw cycles.								
Reconstitution	It is recommended to reconstitute lyophilized Human BMP-7, research grade with deionized sterile-filtered water to a final concentration of 0.1–1.0 mg/mL in a minimal volume of 100 µL. Further dilutions should be prepared with 0.1% bovine serum albumin (BSA) or human serum albumin (HSA) in phosphate-buffered saline.								

1.1 Background information

Bone morphogenetic protein 7 (BMP-7) belongs to the BMP family and to the transforming growth factor β (TGF-β) superfamily. BMPs regulate bone and cartilage development and remodeling, acting

on cell proliferation, differentiation, and apoptosis of mesenchymal cells. The mature form of BMP-7 is generated by cleavage of the signal peptide and propeptide, and homo-dimerization. BMP-7 is involved in osteoblast differentiation, but also in the regulation of tissue and organ development during embryogenesis of different species, and it is expressed in many organs. BMP-7 is extensively investigated for clinical applications, and recombinant BMP-7 is used in bone regeneration, bone graft, and dental reconstruction. Recombinant Human BMP-7 corresponds to the mature form of BMP-7.

1.2 Applications

Human BMP-7 can be used for a variety of applications, including:

- Mesenchymal cell cultures.
- *In vitro* studies of bone and cartilage development.
- Investigation of SMAD signaling.

Optimal concentration for a specific application should be determined by a dose-response experiment.

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