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Products	Human GDF-11, research grade. Recombinant human growth differentiation factor 11.						
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Content in µg	Order no.						
5	130-105-776						
20	130-105-775						
Biological activity	The ED ₅₀ is ≤100 ng/mL corresponding to an activity of ≥1×10 ⁴ U/mg. Note: The ED ₅₀ is determined by inhibition of production of alkaline phosphatase by ATDC-5 chondrogenic cells or differentiating MC3T3/E1 cells.						
Primary structure	Two identical non-glycosylated disulfide-linked polypeptide chains without N-terminal methionine (109 amino acid residues each)..						
Molecular mass	24.9 kDa (dimer).						
Source	Produced in <i>E. coli</i> .						
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 GDF-11, 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 GDF-11, research grade with deionized sterile-filtered water to a final concentration of 0.1–1.0 mg/mL in a minimal volume of 50 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

Growth differentiation factor 11 (GDF-11), also known as bone morphogenetic protein 11 (BMP-11), belongs to the GDF family and BMP family, which are part of the TGF-beta superfamily. As many

other family members, GDF-11 is a homodimer released as inactive precursor and cleaved by extracellular proteases to an active mature form. GDF-11 is involved in the embryonic development of several types of tissues, including neural development of olfactory and retinal tissues, and mesodermal formation, such as the control of skeletal muscle stem cell function and cardiomyocyte proliferation. GDF-11 shares sequence homology and functionality with myostatin, another GDF protein involved in the control of neural and muscular growth. Human GDF-11 shares 100% sequence homology with rodent GDF-11, and fully cross-reacts with mouse and rat cells.

1.2 Applications

Human GDF-11 can be used for a variety of applications, including:

- Investigation of cardiomyocytes and skeletal muscle cell development in human, mouse, and rat cell culture.
- *In vivo* studies of muscle aging, neurogenesis, and vascular remodeling in mouse models.

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

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