**DESCRIPTION**

**Source**  
*E. coli*-derived human GDF-15 protein  
Ala197-Ile308  
Accession # Q99988

**N-terminal Sequence Analysis**  
Ala197

**Structure / Form**  
Disulfide-linked homodimer

**Predicted Molecular Mass**  
12 kDa

**SPECIFICATIONS**

**SDS-PAGE**  
12 kDa, reducing conditions

**Activity**  
Measured by its ability to activate SRE-SEAP reporter in HEK293 human embryonic kidney cells transfected with human c-Ret and human GFRAL.  
The ED$_{50}$ for this effect is 0.2-2 ng/mL.

**Endotoxin Level**  
<0.10 EU per 1 μg of the protein by the LAL method.

**Purity**  
>95%, by SDS-PAGE visualized with Silver Staining and quantitative densitometry by Coomassie® Blue Staining.

**Formulation**  
Lyophilized from a 0.2 μm filtered solution in HCl. See Certificate of Analysis for details.

**PREPARATION AND STORAGE**

**Reconstitution**  
Reconstitute at 250 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**

Recombinant Human GDF-15 (Catalog # 9279-GD) activates SRE-SEAP reporter in HEK293 human embryonic kidney cells transfected with human c-Ret and human GFRAL. The ED$_{50}$ for this effect is 0.2-2 ng/mL.

**Recombinant Human GDF-15 (ng/mL)**

![Graph showing bioactivity](image)
Growth Differentiation Factor 15 (GDF-15), also called Macrophage Inhibitory Cytokine 1 (MIC-1), Placental Transforming Growth Factor β, Prostate-derived Factor, and Placental Bone Morphogenetic Protein, is a divergent member of the TGF-β superfamily (1, 2). Human GDF-15 shares 66% and 68% amino acid sequence identity with the rat and mouse proteins, respectively (3). GDF-15 is highly expressed in placenta and brain, and it is expressed at lower levels in kidney, pancreas, prostate, and colon. Similar to other TGF-β family proteins, the GDF-15 proprotein is cleaved at a dibasic cleavage site (RxxR) to release the mature protein (4). The C-terminal domain of GDF-15 contains seven characteristic conserved cysteine residues necessary for the formation of the cysteine knot and the single interchain disulfide bond (5). Biologically active GDF-15 is a disulfide-linked homodimer of the mature protein and signals through the heterodimeric receptor composed of TGF-β RI/ALK-5 and TGF-β RII (6). GDF-15 has been shown to have various functions, including inhibition of TNF-α production from lipopolysaccharide-stimulated macrophages and the induction of cartilage formation (1, 5). GDF-15 also promotes neuronal survival, and hypothalamic expression of GDF-15 causes appetite suppression via modulation of Neuropeptide Y and Pro-opiomelanocortin levels (7-9). GDF-15 is cardioprotective via inhibition of platelet activation, limiting atherosclerosis, inhibiting CXCL1-induced neutrophil adhesion, regulating angiogenesis, and inhibiting norepinephrine-induced myocardial hypertrophy (6, 10-15).

References: