Recombinant Human GDF-15

Catalog Number: 9279-GD

DESCRIPTION

Source	*E. coli*-derived Ala197-Ile308 Accession # Q99988
N-terminal Sequence Analysis	Ala197
Structure / Form	Disulfide-linked homodimer
Predicted Molecular Mass	12 kDa

SPECIFICATIONS

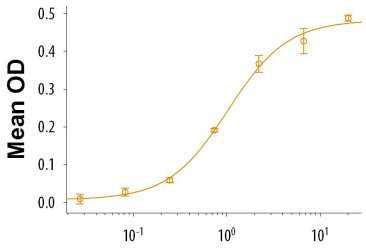
SDS-PAGE	12 kDa, reducing conditions
Activity	Measured by its binding ability in a functional ELISA. When Recombinant Human GDF-15 is used at 0.5 µg/mL, the concentration of Recombinant Human Activin RIB/ALK-4 Fc Chimera (Catalog # 808-AR) that produces 50% of the optimal binding response is approximately 0.5-3 µg/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 500 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



When Recombinant Human GDF-15 (Catalog # 9279-GD) is used at 0.5 µg/mL, Recombinant Human Activin RIB/ALK-4 Fc Chimera (Catalog # 808-AR) binds with an ED_{50} of 0.5-3 µg/mL.

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BACKGROUND

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 mycardial hypertrophy (6, 10-15).

References:

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