Recombinant Human GDF-15

Catalog Number: 8146-GD/CF

DESCRIPTION

Source	Human embryonic kidney cell, HEK293-derived human GDF-15 protein Ala197-Ile308 Accession # Q99988
N-terminal Sequence Analysis	Ala197
Structure / Form	Disulfide-linked homodimer
Predicted Molecular Mass	12 kDa (monomer)

SPECIFICATIONS

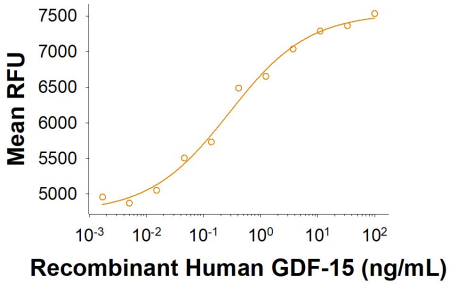
SDS-PAGE	12-14 kDa, reducing conditions
Activity	Measured by its ability to activate SRE-SEAP reporter in HEK293 human embryonic kidney cells transfected with human c-Ret and human GFRAL. The ED_{50} for this effect is 0.2-2 ng/mL.
Endotoxin Level	<0.10 EU per 1 µg of the protein by the LAL method.
Purity	>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 # 8146-GD/CF) 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.

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Global bio-techne.com info@bio-techne.com techsupport@bio-techne.com TEL +1 612 379 2956
USA TEL 800 343 7475 Canada TEL 855 668 8722 China TEL +86 (21) 52380373
Europe | Middle East | Africa TEL +44 (0)1235 529449

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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 Transforming Growth Factor β (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, GDF-15 is synthesized as a large precursor protein that is cleaved at a dibasic cleavage site (RxxR) to release the mature protein. The C-terminal domain of GDF-15 contains seven characteristic conserved cysteine residues necessary for the formation of the cysteine knot and the single inter-chain disulfide bond (4, 5). Biologically active GDF-15 is a disulfide-linked homodimer of the mature protein. GDF-15 has been shown to have various functions, including inhibition of Tumor Necrosis Factor α (TNF-α) production from lipopolysaccharide-stimulated macrophages and the induction of cartilage formation (1, 6). GDF-15 also promotes neuronal survival, and hypothalamic expression of GDF-15 causes appetite suppression via modulation of neuropeptide Y and pro-opiomelanocortin levels (7-10). GDF-15 is cardioprotective via inhibition of platelet activation, limiting atherosclerosis, promoting recovery following myocardial infarction, and regulating angiogenesis (11-15). Exposure of cardiomyocytes to GDF-15 results in Smad2 and Smad3 phosphorylation (16).

References:

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