

DESCRIPTION

Source *E. coli*-derived human GDF-15 protein
Accession # Q99988.3

Predicted Molecular Mass 25 kDa (dimer)

SPECIFICATIONS

SDS-PAGE Dimeric GDF-15 protein only

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

Mass Spectrometry Single species with expected mass

Formulation Lyophilized from acetonitrile/TFA See Certificate of Analysis for details.

PREPARATION AND STORAGE

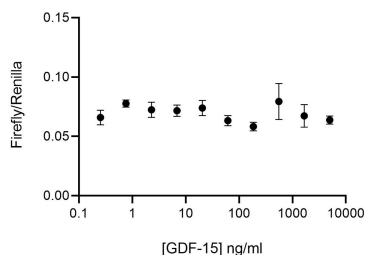
Reconstitution Resuspend in 10 mM HCl at >100 µg/ml, prepare single use aliquots, add carrier protein if desired

Shipping The product is shipped lyophilized at ambient temperature, on ice blocks or dry ice. Shipping at ambient temperature does not affect the bioactivity or stability of the protein. Upon receipt, store immediately at the conditions stated below.

Stability & Storage BulkLotPrefix assignment required for Storage Info

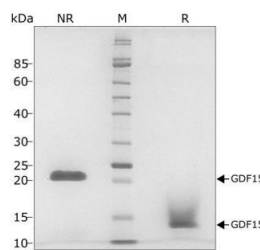
DATA

Bioactivity



Recombinant Human GDF-15, Animal-Free Protein Bioactivity
GDF15 signals through GRAL and co-receptor RET leading to RET phosphorylation and signaling through the ERK and AKT pathway (reviewed in Emmerson et al., 2018). Bioactivity is determined using a luciferase reporter assay in HEK293T cells. Cells are treated (in triplicate) with a serial dilution of GDF15 or Qk010 TGFβ1 for 6 hours. Firefly luciferase activity is measured and normalized to the control Renilla luciferase activity.

SDS-PAGE



Recombinant Human GDF-15, Animal-Free Protein SDS-PAGE
GDF 15 migrates as a single band at 24 kDa in non-reducing (NR) and 13 kDa as a single monomeric species upon reduction (R). No contaminating protein bands are visible. Purified recombinant protein (7 µg) was resolved using 15% w/v SDS-PAGE in reduced (+β-mercaptoethanol, R) and non-reduced conditions (NR) and stained with Coomassie Brilliant Blue R250.

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 myocardial hypertrophy (6, 10-15).

References:

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PRODUCT SPECIFIC NOTICES

The above product was manufactured, tested and released by R&D System's contract manufacturer, Qkine Ltd, at 1 Murdoch House, Cambridge, UK, CB5 8HW. The product is for research use only and not for the diagnostic or therapeutic use.