Recombinant Mouse GDF-15

Catalog Number: 8944-GD

DESCRIPTION

Source	*E. coli*-derived Ser189-Ala303 Accession # Q9Z0J7
N-terminal Sequence Analysis	Ser189
Structure / Form	Disulfide-linked homodimer
Predicted Molecular Mass	13 kDa

SPECIFICATIONS

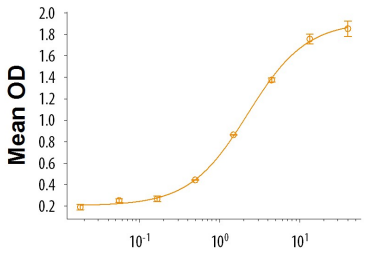
SDS-PAGE	9-13 kDa, reducing conditions
Activity	Measured by its binding ability in a functional ELISA. When Recombinant Mouse GSF-15 is immobilized at 2 µg/mL (100 µL/well), the concentration of Recombinant Mouse Activin RIB/ALK-4 Fc Chimera (Catalog # 1477-AR) that produces 50% of the optimal binding response is approximately 1-6 µg/mL.
Endotoxin Level	<0.10 EU per 1 µg of the protein by the LAL method.
Purity	>90%, 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.

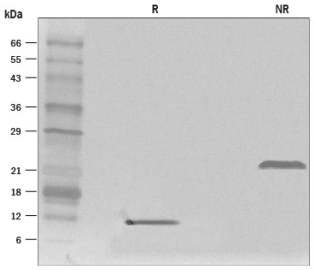
DATA

Bioactivity



When Recombinant Mouse GDF-15 (Catalog # 8944-GD) is immobilized at 2 µg/mL (100 µL/well), the concentration of Recombinant Mouse Activin RIB/ALK-4 Fc Chimera (Catalog # 1477-AR) binds with a typical ED_{50} of 1-6 µg/mL.

SDS-PAGE



1 µg/lane of Recombinant Mouse GDF-15 (Catalog # 8944-GD) was resolved with SDS-PAGE under reducing (R) and non-reducing (NR) conditions and visualized by silver staining, showing bands at 10.5 kDa and 22 kDa, respectively.

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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. Cellular responses to TGF-β proteins are mediated by hetero-oligomeric complexes of type I and type II serine/threonine kinase receptors (1-3). 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. Mature mouse GDF-15 shares 66% and 97% amino acid sequence identity with the human and rat proteins, respectively. 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 TNF-α production from lipopolysaccharide-stimulated macrophages and the induction of cartilage formation (2, 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:

1. Unsicker, K. *et al.* (2013) Cytokine Growth Factor Rev. **24**:373.
2. Bootcov, M.R. *et al.* (1997) Proc. Natl. Acad. Sci. USA **94**:11514.
3. Fairlie, W.D. *et al.* (1999) J. Leukoc. Biol. **65**:2.
4. Fairlie, W.D. *et al.* (2001) J. Biol. Chem. **276**:16911.
5. Bauskin, A.R. *et al.* (2000) EMBO J. **19**:2212.
6. Paralkar, V.M. *et al.* (1998) J. Biol. Chem. **273**:13760.
7. Johnen, H. *et al.* (2007) Nat. Med. **13**:1333.
8. Strelau, J. *et al.* (2000) J. Neurosci. **20**:8597.
9. Breit, S.N. *et al.* (2011) Growth Factors **29**:187.
10. Strelau, J. *et al.* (2009) J. Neurosci. **29**:13640.
11. Whitson, R.J. *et al.* (2013) J. Cell. Biochem. **114**:1424.
12. Rossaint, J. *et al.* (2013) J. Thromb. Haemost. **11**:335.
13. Song, H. *et al.* (2012) Mol. Biol. Rep. **39**:4017.
14. Preusch, M.R. *et al.* (2013) Eur. J. Med. Res. **18**:19.
15. Kempf, T. *et al.* (2011) Nat. Med. **17**:581.
16. Xu, J. *et al.* (2006) Circ. Res. **98**:342.

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