TOLL FREE PHONE 1 800 667 0322 • PHONE +1 604 877 0713
INFO@STEMCELL.COM • TECHSUPPORT@STEMCELL.COM
FOR GLOBAL CONTACT DETAILS VISIT WWW.STEMCELL.COM

Human Recombinant GDF-15, ACF

Growth differentiation factor 15

Catalog #100-2076 100 µg

Product Description

Growth differentiation factor-15 (GDF-15), also known as macrophage inhibitory cytokine-1 (MIC-1), is a member of the transforming growth factor β (TGF-β) superfamily. In human somatic tissues, physiological GDF-15 expression is low or absent, but elevated GDF-15 levels have been associated with cellular stress, inflammation, metabolic conditions, cancer, and other diseases (Emmerson et al.; Wischhusen et al.). GDF-15 signals through GFRAL (GDNF family receptor alpha like) and the co-receptor RET, resulting in phosphorylation of RET and activation of signaling via ERK and AKT pathways (Emmerson et al.). Human recombinant GDF-15 has been used in mouse studies (Kim et al.). This product was tested negative for TGF-β activity, a common contaminant of commercial sources of GDF-15 (Olsen et al.). This product is animal component-free (ACF).

Product Information

Alternative Names: Macrophage inhibitory cytokine 1 (MIC-1), NSAID-activated gene 1 protein (NAG-1), NSAID-regulated gene 1 protein (NRG-1)

Accession Number: Q99988

Predicted Molecular Mass: 25 kDa (dimer)

Species: Human

Product Formulation: Lyophilized from a solution containing acetonitrile and trifluoroacetic acid.

Source: E. coli

Purity: ≥ 98% by SDS-PAGE

Specifications

Activity: Bioactivity assay shows no detectable levels of contaminating TGF-β1 activity, as determined by SMAD2/3 activity using HEK293 cells.

Endotoxin Level: Measured by kinetic Limulus amebocyte lysate (LAL) analysis and is ≤ 0.1 EU/µg protein.

Preparation and Storage

Stability and Storage: Store at -20 to -80°C. Stable as supplied for 12 months from date of receipt.

Preparation: Centrifuge vial before opening. Reconstitute the product in 10 mM hydrochloric acid to at least 0.1 mg/mL by pipetting the solution down the sides of the vial. Do not vortex.

OPTIONAL: After reconstitution, if product will not be used immediately, dilute with concentrated bovine serum albumin (BSA) to a final BSA concentration of 0.1 - 1%. The effect of storage of stock solution on product performance should be tested for each application. As a general guide, do not store at -20 to -80°C for more than 12 months. Avoid repeated freeze-thaw cycles.

Data

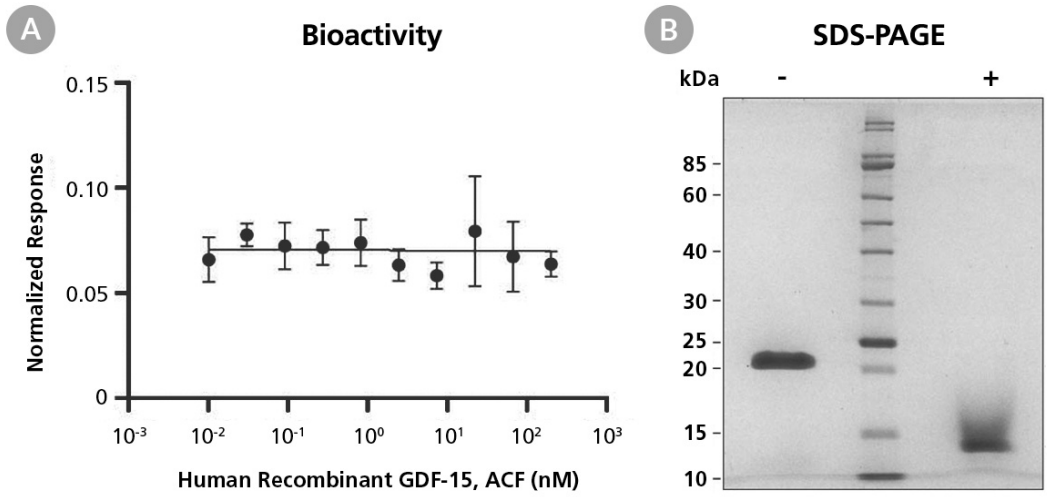

Figure 1. Biological Activity and Molecular Mass of Human Recombinant GDF-15, ACF
(A) Human Recombinant GDF-15, ACF was tested by its ability to activate SMAD2/3 in HEK293T cells using a luciferase reporter assay. Firefly luciferase activity was normalized to the control Renilla luciferase activity. Increasing concentration of Human Recombinant GDF-15 did not result in increasing SMAD2/3 activity, indicating it is free of contamination with TGF-β or related growth factors. (B) 7 µg of Human Recombinant GDF-15, ACF was resolved with SDS-PAGE under reducing (+) and non-reducing (-) conditions and visualized by Coomassie Blue staining. Human Recombinant GDF-15, ACF has a predicted molecular mass of 25 kDa (dimer).

Related Products

For a complete list of cytokines or peptide pools, as well as related products available from STEMCELL Technologies, visit www.stemcell.com/cytokines or contact us at techsupport@stemcell.com.

References

Emmerson PJ et al. (2018) GDF15 and Growth Control. Front Physiol 9(1712): 1–7.

Kim DH et al. (2015) GDF-15 secreted from human umbilical cord blood mesenchymal stem cells delivered through the cerebrospinal fluid promotes hippocampal neurogenesis and synaptic activity in an Alzheimer's disease model. Stem Cells Dev 24(20): 2378–90.

Olsen, Oddrun Elise, et al. (2017) TGF-β contamination of purified recombinant GDF15. PloS one 12(1) e0187349.
Wischhusen J et al. (2020) Growth/Differentiation Factor-15 (GDF-15): From Biomarker to Novel Targetable Immune Checkpoint. Front Immunol 11(951): 1–21.