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Anti-GDF15 Rabbit Monoclonal Antibody

Catalog Number: M01583-1

Overview

Product Name	Anti-GDF15 Rabbit Monoclonal Antibody
Reactive Species	Human
Description	Boster Bio Anti-GDF15 Rabbit Monoclonal Antibody catalog # M01583-1. Tested in WB application. This antibody reacts with Human.
Application	WB
Clonality	Monoclonal 20G21
Formulation	Rabbit IgG in stabilizing components, phosphate buffered saline, pH 7.4, 150mM NaCl, 0.02% sodium azide and 50% glycerol. *This antibody is supplied in a stabilized formulation. Compatibility with conjugation reactions depends on the chemistry of the conjugation method used. For conjugation methods that are not compatible with the stabilizing components present in this formulation, a carrier-free antibody format is required.
Storage Instructions	Store at -20°C for one year. For short term storage and frequent use, store at 4°C for up to one month. Avoid repeated freeze-thaw cycles.
Host	Rabbit
Uniprot ID	Q99988

Technical Details

Immunogen	A synthesized peptide derived from human GDF15
Isotype	IgG
Form	Liquid
Concentration	0.5mg/ml
Purification	Affinity-chromatography
Suggested Dilutions	WB 1:500-2000

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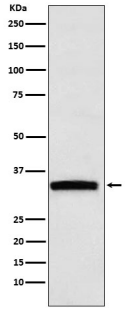
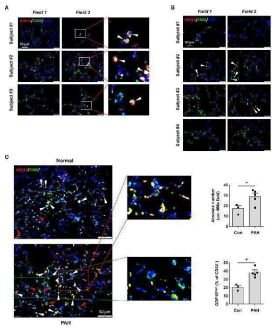
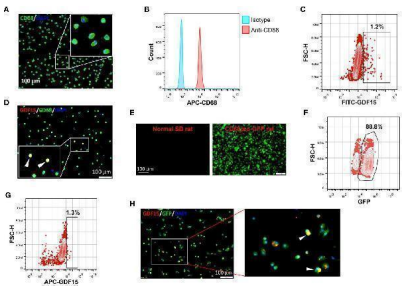
Anti-GDF15 Rabbit Monoclonal Antibody (M01583-1) Images



Western blot analysis of GDF15 expression in HepG2 cell lysate.



Immunofluorescence double labeling showing the existence of GDF15 high macrophages in lung tissues. (A) Results obtained in healthy human lung tissues from 3 independent subjects. Two representative microscopic fields were shown. Arrowheads indicated the CD68 + GDF15 high macrophages. (B) Results obtained in human lung tissues with COPD from 4 independent subjects. Arrowheads indicated the CD68 + GDF15 high macrophages. (C) Results obtained in rat lung tissues without and with experimental PAH. The nuclei were counterstained with DAPI (blue). White arrowheads indicated CD68 + GDF15 high macrophages. The red box highlighted the presence of CD68 + GDF15 high macrophages (white arrowheads); the green box highlighted the presence of CD68 + GDF15 low macrophages (red arrowheads). The bar graphs showed the absolute and relative abundances of CD68 + GDF15 high macrophages in normal and PAH lungs. Data were expressed as mean ± SEM. * P < 0.05, unpaired t -test.Index in PubMed under a CC BY license. PMID: 38655264



GDF15 high macrophages could be derived by in vitro differentiation of mononuclear cells. (A, B) Immunofluorescence staining and flow cytometry results confirming that in vitro differentiation of human peripheral blood mononuclear cells (PBMNCs) with GM-CSF for 7 days yielded CD68 + macrophages. (C, D) Flow cytometry and immunofluorescence double labeling results showing that the PBMNC-derived macrophages contained a minor population of GDF15 high cells (arrowheads in D) (example from 3 independent experiments). (E, F) Fluorescence microscopy and flow cytometry data showing that GM-CSF differentiation of rat bone marrow mononuclear cells (BMMNCs) in vitro yielded macrophages (GFP expressing) of a high purity (~90%). CD68pro-GFP rats had a GFP transgene under the control of CD68 promoter. Cells from normal rats showing no GFP fluorescence served as a negative control (left panel in E). (G, H) Flow cytometry and immunofluorescence double labeling data (from 3 independent experiments) showing that the BMMNC-derived macrophages (from CD68pro-GFP rats) contained a minor population of GDF15 high cells (arrowheads in H). The flow cytometry data in panels (C, G) were from cells gated for

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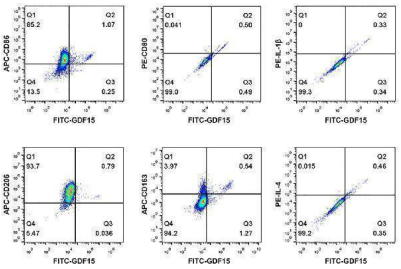
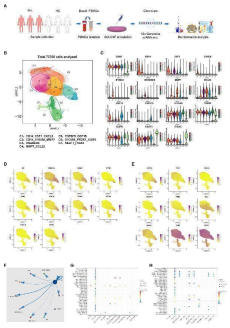
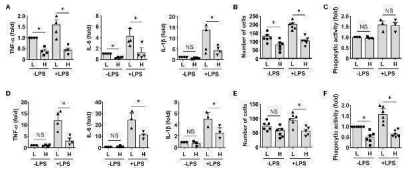
GFP + . The nuclei were counterstained with DAPI (blue).Index in PubMed under a CC BY license. PMID: 38655264



Flow cytometry results showing that GDF15 high macrophages did not exhibit a typical M1 or M2 phenotype. Experiments were performed in human PBMNC-derived macrophages, using CD86, CD80 and IL-1beta as the M1 markers, and CD206, CD163 and IL-4 as the M2 markers. Data were from a single test using pooled samples from 4 healthy volunteers.Index in PubMed under a CC BY license. PMID: 38655264



Molecular characterization of human PBMNC-derived GDF15 high macrophages with scRNA-seq. (A) Graphical outline of the experimental procedure. (B) UMAP plots showing the identified cell sub-populations (C1 to C7) based on the scRNA-seq data from total 73,768 cells pooled from samples of 3 healthy volunteers, 3 PAH patients harboring mutations in BMPR2 gene, and 3 PAH patients without BMPR2 mutations. The putative nomenclatures for C1 to C7 were given below the graph. The numbers 0 to 13 demarcated the initial cell clusters obtained with the default clustering process of Seurat. (C) Violin plots showing expression patterns of the identified marker genes for C1 to C7. The horizontal bars represented median values. (D) UMAP plots showing expression patterns of the top 10 genes that were overexpressed in GDF15 high macrophages (C5) as compared to GDF15 low cells. (E) UMAP plots showing expression patterns of the top 9 genes encoding secreted proteins which were overexpressed in GDF15 high macrophages as compared to GDF15 low cells. (F) Cell-cell communication network map created using CellChat showing the possible effector cells of the GDF15 high macrophage. (G, H) Predicted ligand-receptor pairs potentially involved in the signaling of reciprocal communications between GDF15 high macrophage and other cell types as listed in (F) .Index in PubMed under a CC BY license. PMID: 38655264



GDF15 high macrophages exerted anti-inflammatory effects via paracrine mechanisms. (A-C) RAW264.7 cells co-cultured with rat BMMNC-derived GDF15 high (H) or GDF15 low (L) macrophages were left untreated or stimulated with LPS for 4 hr. Results for the expression of pro-inflammatory cytokines (A , real-time PCR), cell migratory activity (B) , and phagocytic activity (C) were shown. (D-F) Unsorted rat BMMNC-derived macrophages co-cultured with rat GDF15 high (H) or GDF15 low (L) macrophages were left untreated or stimulated with LPS for 4 hr. Results for the expression of pro-inflammatory cytokines (D , real-time PCR), cell migratory activity (E) , and phagocytic activity (F) were shown. Data were mean ± SEM. * $P < 0.05$, one-way ANOVA. NS, no significance.Index in PubMed under a CC BY license. PMID: 38655264

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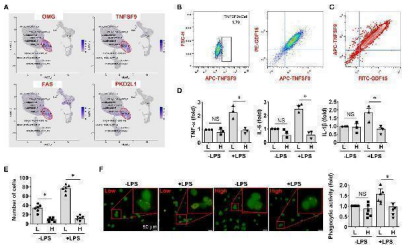
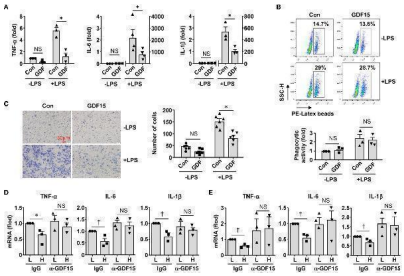


GDF15 high macrophages exhibited reduced inflammatory activation in vitro . (A) Expression patterns of potential substitute cell surface markers for GDF15 based on the scRNA-seq data. (B) Flow cytometry results showing that rat BMMNC-derived macrophages contained a minor fraction of TNFSF9 high cells, whose expression level was correlated with that of GDF15 (from 3 independent experiments). (C) Flow cytometry verification of the correlation between TNFSF9 and GDF15 expressions in human PBMNC-derived macrophages (from 2 independent experiments). (D) Real-time PCR results showing that GDF15 high macrophages (H) exhibited reduced expressions of TNF-alpha, IL-1beta and IL-6 in response to LPS stimulation (1 ug/mL for 6 hr), as compared to GDF15 low cells (L). Rat BMMNC-derived macrophages were FACS purified using TNFSF9 as a substitute marker for GDF15, and primed with IFN-gamma (10 ng/mL for 12 hr). (E) Boyden chamber cell migration assay showing that GDF15 high macrophages (H) exhibited reduced migratory activity as compared to GDF15 low cells (L) in the absence and presence of LPS stimulation. (F) Representative fluorescent microscopic images and quantitative data showing that GDF15 high macrophages exhibited reduced phagocytic activity in the presence of LPS stimulation as compared to GDF15 low cells. Phagocytosis was assessed by internalization of fluorochrome-labeled latex beads (orange color). The macrophages were from CD68pro-GFP rats. Data were mean ± SEM. * $P < 0.05$, one-way ANOVA. NS, no significance.Index in PubMed under a CC BY license. PMID: 38655264



GDF15 might be a macrophage-derived anti-inflammatory factor. (A) Real-time PCR results showing that treatment with exogenous GDF15 (20 ng/mL) inhibited LPS-induced expression of pro-inflammatory cytokines in RAW264.7 cells. (B) Flow cytometry results showing that GDF15 treatment had no effects on phagocytosis in RAW264.7 cells without or with LPS stimulation. (C) Representative images and quantitative data of Boyden chamber assay showing that exogenous GDF15 inhibited migration of LPS-challenged RAW264.7 cells. Cells on the membrane were stained with Giemsa. (D) Effects of conditioned medium from GDF15 high macrophages (H), as compared to the medium from GDF15 low cells (L), on the expression of pro-inflammatory cytokines in RAW264.7 cells. All experiments were performed in the presence of LPS stimulation. alpha-GDF15, GDF15neutralizing antibody; IgG, non-specific immunoglobulin control. (E) The same experiments as those in D carried out in rat BMMNC-derived macrophages. Data were mean ± SEM. * $P < 0.05$, one-way ANOVA; † $P < 0.05$, unpaired t -test. NS, no significance.Index in PubMed under a CC BY license. PMID: 38655264

Detection of GDF15 high macrophages in various human tissues. GDF15 high macrophages (arrowheads) were identified using immunofluorescence double labeling with anti-CD68 (green color) and anti-GDF15 (red color) antibodies in (A) colon tissues from both healthy subjects and patients with ulcerative colitis, (B) kidneys (the normal

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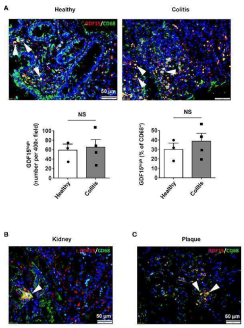

peri-tumor tissue) (tested in one sample only) and (C) atherosclerotic plaques in the carotid artery (representative data from 6 independent samples showing similar results). The nuclei were counterstained with DAPI (blue). Data were mean ± SEM. NS, no significance (unpaired t -test).Index in PubMed under a CC BY license. PMID: 38655264

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