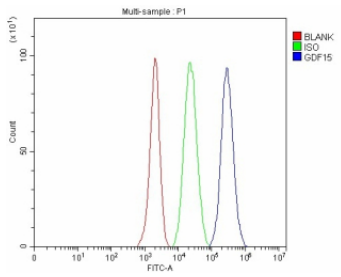
Gdf15 Antibody / Growth differentiation factor 15 (FY13353)

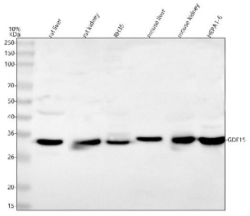
Catalog No.	Formulation	Size
FY13353	Adding 0.2 ml of distilled water will yield a concentration of 500 ug/ml	100 ug

Bulk quote request

Availability	1-2 days
Species Reactivity	Mouse, Rat
Format	Lyophilized
Host	Rabbit
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit IgG
Purity	Immunogen affinity purified
Buffer	Each vial contains 4 mg Trehalose, 0.9 mg NaCl, 0.2 mg Na2HPO4.
UniProt	Q9Z0J7
Applications	Western Blot: 0.25-0.5ug/ml ELISA: 0.1-0.5ug/ml
Limitations	This Gdf15 antibody is available for research use only.



Flow Cytometry analysis of EL-4 cells using anti-Gdf15 antibody. Overlay histogram showing EL-4 cells stained with (Blue line). The cells were fixed with 4% paraformaldehyde and blocked with 10% normal goat serum. And then incubated with rabbit anti-Gdf15 antibody (1 ug/million cells) for 30 min at 20oC. DyLight 488 conjugated goat anti-rabbit IgG (5-10 ug/million cells) was used as secondary antibody for 30 minutes at 20oC. Isotype control antibody (Green line) was rabbit IgG (1 ug/million cells) used under the same conditions. Unlabelled sample without incubation with primary antibody and secondary antibody (Red line) was used as a blank control.



Western blot analysis of Gdf15 using anti-Gdf15 antibody. Lane 1: rat liver tissue lysates, Lane 2: rat kidney tissue lysates, Lane 3: rat RH35 whole cell lysates, Lane 4: mouse liver tissue lysates, Lane 5: mouse kidney tissue lysates, Lane 6: mouse Hepa1-6 whole cell lysates. After electrophoresis, proteins were transferred to a nitrocellulose membrane at 150 mA for 50-90 minutes. Blocked the membrane with 5% non-fat milk/TBS for 1.5 hour at RT. The membrane was incubated with rabbit anti-Gdf15 antibody at 0.25 ug/ml overnight at 4oC, then washed with TBS-0.1%Tween 3 times with 5 minutes each and probed with a goat anti-rabbit IgG-HRP secondary antibody at a dilution of 1:5000 for 1.5 hour at RT. The signal was developed using enhanced chemiluminescent. A specific band was detected for Gdf15 at approximately 34 kDa.

Description

GDF15 antibody detects Growth differentiation factor 15, a secreted cytokine belonging to the transforming growth factor beta superfamily. The GDF15 gene is located on chromosome 19p13.11 and encodes a stress-responsive protein that regulates inflammation, metabolism, and cellular stress adaptation. GDF15 is highly expressed in liver, placenta, prostate, and macrophages, and its expression increases dramatically in response to cellular injury, hypoxia, or mitochondrial dysfunction. It plays a central role in energy homeostasis, appetite regulation, and tissue repair through endocrine and paracrine mechanisms.

GDF15 is synthesized as a precursor protein that undergoes proteolytic cleavage to release a mature disulfide-linked dimer. It exerts its biological effects primarily through binding to the GDNF family receptor alpha-like (GFRAL) receptor in the brainstem, which, together with RET co-receptor, mediates appetite suppression and energy expenditure. In peripheral tissues, GDF15 influences macrophage activation, anti-inflammatory responses, and tissue protection under stress. Co-localization studies show GDF15 present in secretory vesicles of hepatocytes and trophoblasts, as well as circulating in plasma as a stable cytokine dimer.

Structurally, GDF15 shares conserved cysteine residues and dimerization motifs characteristic of the transforming growth factor beta family. It forms a homodimeric structure essential for receptor binding and downstream signaling activation. GDF15 belongs to the growth differentiation factor family, which includes GDF11, GDF8 (myostatin), and GDF9, all of which regulate growth and differentiation processes. Known interacting partners include GFRAL, RET, and transforming growth factor beta receptors in certain contexts.

Functionally, GDF15 acts as a key regulator of systemic metabolism and cellular stress response. It suppresses appetite and body weight through the GFRAL-RET signaling axis in the central nervous system while also promoting tissue tolerance to metabolic stress. In macrophages and endothelial cells, GDF15 has anti-inflammatory effects, limiting excessive immune activation. In the cardiovascular system, GDF15 protects against ischemic injury by reducing apoptosis and oxidative stress. During embryonic development, it is expressed in placenta and plays roles in implantation and trophoblast differentiation.

Dysregulation of GDF15 expression is associated with numerous pathological conditions. Elevated circulating levels occur in cancer, obesity, cardiovascular disease, and mitochondrial disorders, where GDF15 serves as a biomarker of cellular stress. In oncology, high GDF15 promotes cachexia and tumor progression via immune and metabolic pathways. Conversely, GDF15 has protective effects in metabolic diseases by improving glucose tolerance and reducing inflammation. Pathway involvement includes transforming growth factor beta signaling, mitochondrial stress response, and energy metabolism regulation.

Immunohistochemical staining using GDF15 antibody shows cytoplasmic and extracellular localization in hepatocytes, macrophages, and placental trophoblasts. The GDF15 antibody from NSJ Bioreagents is ideal for studies involving stress signaling, metabolism, and cytokine biology.

Application Notes

Optimal dilution of the Gdf15 antibody should be determined by the researcher.

Immunogen

E.coli-derived mouse Gdf15 recombinant protein (Position: S189-A302) was used as the immunogen for the Gdf15 antibody.

Storage

After reconstitution, the Gdf15 antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.

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