

Recombinant Mouse GDF15 Protein

For Research Use Only

1. Basic Product Information

Catalog No.: REP51998

Size: 10ug, 100ug

Protein Name: Growth/differentiation factor 15 (GDF-15) (Macrophage inhibitory cytokine 1) (MIC-1)

Synonym: Gdf15, Mic1, Sbf

UniProt ID: Q9Z0J7

UniProt Link: www.uniprot.org/uniprotkb/Q9Z0J7/entry

Species Source: Mouse

Expression System: HEK293T eukaryotic cell expression system Sequence

Length: 303 AA

Molecular Weight: 33 KD

Protein Tag: C-terminal His6

2. Amino Acid Sequence

MAPPALQAQPPGGSQRLRFLFLLLLLLLLSWPSQGDALAMPEQRPSGPESQLNADELGRFQDLLS
RLHANQSREDSNSESPDPAVRILSPEVRLGSHGQLLLRVNRSLSQGLPEAYRVHRALLLTPTAR
PWDITRPLKRALSLRGPRAPALRLRLTPPPDLAMLPSGGTQLELRVAAGRGRRSAHAHPRDSCP
LGPGRCCHLETVQATLEDLGWSDWVLSRQLQLSMCVGECPHLYRSANTHAQIKARLHGLQPKV
PAPCCVPSSYTPVLMHRTDSGVSLQTYDDLVARACHCA

3. Buffer Composition

Liquid format: PBS-based buffer containing 50% glycerol. Glycerol concentration can be customized upon customer request; please state special requirements when placing your order.

Lyophilized format: Buffer before lyophilization is PBS supplemented with 6% trehalose.

4. Storage Conditions



Upon receipt, store the product at -20 °C or -80 °C. Aliquot the product for on-demand use to preserve protein activity and prevent denaturation and inactivation caused by repeated freeze-thaw cycles.

5. Product Description

This product is recombinant Growth/differentiation factor 15 (GDF-15) (Macrophage inhibitory cytokine 1) (MIC-1) produced using the HEK293T eukaryotic cell expression system. It is suitable for in-vitro functional assays, protein-protein interaction studies, antibody preparation and other biomedical research applications.

Protein Function: Hormone produced in response to various stresses to confer information about those stresses to the brain, and trigger an aversive response, characterized by nausea and/or loss of appetite (PubMed:23468844, PubMed:27986797, PubMed:28572090, PubMed:28846097, PubMed:28846098, PubMed:28846099, PubMed:28953886, PubMed:29026214, PubMed:29046435, PubMed:30639358, PubMed:31875646, PubMed:31928886, PubMed:32026535, PubMed:32694673, PubMed:32723474, PubMed:33589633, PubMed:33593916, PubMed:33758420, PubMed:34187898, PubMed:36465107, PubMed:37433299, PubMed:37437602, PubMed:38056430, PubMed:38092039). The aversive response is both required to reduce continuing exposure to those stresses at the time of exposure and to promote avoidance behavior in the future (PubMed:23468844, PubMed:28572090, PubMed:28846097, PubMed:28846099, PubMed:28953886, PubMed:29046435, PubMed:30639358, PubMed:33589633, PubMed:33593916, PubMed:37437602, PubMed:38092039). Acts by binding to its receptor, GFRAL, activating GFRAL-expressing neurons localized in the area postrema and nucleus tractus solitarius of the brainstem (PubMed:28846097, PubMed:28846098, PubMed:28846099, PubMed:28953886, PubMed:31152154, PubMed:31928886, PubMed:33593916, PubMed:37380764). It then triggers the activation of neurons localized within the parabrachial nucleus and central amygdala, which constitutes part of the 'emergency circuit' that shapes responses to stressful conditions (PubMed:28846097, PubMed:28846098, PubMed:28846099, PubMed:28953886). The GDF15-GFRAL signal induces expression of genes involved in metabolism, such as lipid metabolism in adipose tissues (PubMed:27986797, PubMed:32661391). Required for avoidance behavior in response to food allergens: induced downstream of mast cell activation to promote aversion and minimize harmful effects of exposure to noxious substances (PubMed:37437602). In addition to suppress appetite, also promotes weight loss by enhancing energy expenditure in muscle: acts by increasing calcium futile cycling in muscle (PubMed:37380764). Contributes to the effect of metformin, an anti-diabetic drug, on appetite reduction and weight loss: produced in the kidney in response to metformin treatment, thereby activating the GDF15-GFRAL response, leading to reduced appetite and weight (PubMed:31875646, PubMed:32694673, PubMed:36001956). Produced in response to anticancer drugs, such as camptothecin or cisplatin, promoting nausea and contributing to malnutrition (PubMed:31928886, PubMed:33207247, PubMed:35202387). Overproduced in many cancers, promoting anorexia in cancer (cachexia) (PubMed:17982462, PubMed:32661391, PubMed:32723474). Responsible for the risk of nausea during pregnancy: high levels of GDF15 during pregnancy, mostly originating from embryos, are associated with increased nausea (PubMed:38092039). Maternal sensitivity to nausea is probably determined by pre-pregnancy exposure to GDF15, females with naturally high level of GDF15 being less susceptible to nausea than female mice with low levels of GDF15 before pregnancy (By similarity). Promotes metabolic adaptation in response to systemic inflammation caused by bacterial and viral infections in order to promote tissue tolerance and prevent tissue damage (By similarity). Required for tissue tolerance in response to myocardial infarction by acting as an inhibitor of leukocyte integrin activation, thereby protecting against cardiac rupture (PubMed:21516086). Inhibits growth hormone signaling on hepatocytes (PubMed:28572090).

Subcellular Localization: Secreted . Note=Secreted in the plasma.

6. Notes

- Avoid repeated freeze-thaw cycles to maintain protein stability and biological activity.



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- Please specify special buffer-composition requirements at the time of order placement.
- For research use only. Not intended for clinical diagnosis, therapeutic use or commercial manufacturing.