

Recombinant Rat FFAR4 Protein

For Research Use Only

1. Basic Product Information

Catalog No.: REP52462

Size: 10ug, 100ug

Protein Name: Free fatty acid receptor 4 (G protein-coupled receptor 120) (Omega-3 fatty acid receptor 1)

Synonym: Ffar4, Gpr120, O3far1

UniProt ID: Q2AC31

UniProt Link: www.uniprot.org/uniprotkb/Q2AC31/entry

Species Source: Rat

Expression System: HEK293T eukaryotic cell expression system Sequence

Length: 361 AA

Molecular Weight: 41 KD

Protein Tag: C-terminal His6

2. Amino Acid Sequence

MSPECAQTTGPGPSRTPDQVNRTHFPFFSDVKGDHRLVLSVLETTVLGLIFVVSLLGNVCALVLVVR
RRRRGATVSLVLNLF CADLLFTSAIPLVLVVRWTEAWLLGPVVCHLLFYVMTMSGSVTILTLAAVSLE
RMVCIVRLRRGLSGPGRRTQAALLAFIWGYSALAALPLCILFRVVPQRLPGGDQEIPICTLDWPNRIG
EISWDVFFVTLNFLVPGLVIVISYSKILQITKASRKRLTSLAYSESHQIRVSQQDYRLFRTLFLLMVSFF
IMWSPIIITILLILIQNFRQDLVIWPSLFFWVVAFTFANSALNPILYNMSLFRSEWRKIFCCFFFPKGAIF
TETSIRRNDLSVIST

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 Free fatty acid receptor 4 (G protein-coupled receptor 120) (Omega-3 fatty acid receptor 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: G protein-coupled receptor for long-chain fatty acids (LCFAs) with a major role in adipogenesis, energy metabolism and inflammation. Signals via G protein and beta-arrestin pathways. LCFAs sensing initiates activation of phosphoinositidase C-linked G proteins GNAQ and GNA11 (G(q)/G(11)), inducing a variety of cellular responses via second messenger pathways such as intracellular calcium mobilization, modulation of cyclic adenosine monophosphate (cAMP) production, and mitogen-activated protein kinases (MAPKs). After LCFAs binding, associates with beta-arrestin ARRB2 that acts as an adapter protein coupling the receptor to specific downstream signaling pathways, as well as mediating receptor endocytosis (By similarity). In response to dietary fats, plays an important role in the regulation of adipocyte proliferation and differentiation. Acts as a receptor for omega-3 polyunsaturated fatty acids (PUFAs) at primary cilium of perivascular preadipocytes, initiating an adipogenic program via cAMP and CTCF-dependent chromatin remodeling that ultimately results in transcriptional activation of adipogenic genes and cell cycle entry. Induces differentiation of brown and beige adipocytes probably via autocrine and endocrine functions of FGF21 hormone. Contributes to the thermogenic activation of brown adipose tissue and the browning of white adipose tissue. Activates brown adipocytes by initiating intracellular calcium signaling leading to mitochondrial depolarization and fission, and overall increased mitochondrial respiration. Consequently stimulates fatty acid uptake and oxidation in mitochondria together with UCP1-mediated thermogenic respiration, eventually reducing fat mass. Regulates bi-potential differentiation of bone marrow mesenchymal stem cells toward osteoblasts or adipocytes likely by up-regulating distinct integrins. In response to dietary fats regulates hormone secretion and appetite. Stimulates GIP and GLP1 secretion from enteroendocrine cells as well as GCG secretion in pancreatic alpha cells, thereby playing a role in the regulation of blood glucose levels. Negatively regulates glucose-induced SST secretion in pancreatic delta cells. Mediates LCFAs inhibition of GHRL secretion, an appetite-controlling hormone. In taste buds, contributes to sensing of dietary fatty acids by the gustatory system. During the inflammatory response, promotes anti-inflammatory M2 macrophage differentiation in adipose tissue (By similarity). Mediates the anti-inflammatory effects of omega-3 PUFAs via inhibition of NLRP3 inflammasome activation (By similarity). In this pathway, interacts with adapter protein ARRB2 and inhibits the priming step triggered by Toll-like receptors (TLRs) at the level of TAK1 and TAB1 (By similarity). Further inhibits the activation step when ARRB2 directly associates with NLRP3, leading to inhibition of pro-inflammatory cytokine release (By similarity). Mediates LCFAs anti-apoptotic effects (By similarity).

Subcellular Localization: Cell membrane ; Multi-pass membrane protein . Endosome membrane ; Multi-pass membrane protein . Lysosome membrane ; Multi-pass membrane protein . Cell projection, cilium membrane ; Multi-pass membrane protein . Note=Sorted to late endosome/lysosome compartments upon internalization (By similarity). Specifically localizes to the primary cilium of undifferentiated adipocytes. Ciliary trafficking is TULP3-dependent. As the cilium is lost during adipogenesis, moves to the plasma membrane (By similarity).

6. Notes

- Avoid repeated freeze-thaw cycles to maintain protein stability and biological activity.
- Please specify special buffer-composition requirements at the time of order placement.



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- For research use only. Not intended for clinical diagnosis, therapeutic use or commercial manufacturing.