

Recombinant Rat FFAR3 Protein

For Research Use Only

1. Basic Product Information

Catalog No.: REP52180

Size: 10ug, 100ug

Protein Name: Free fatty acid receptor 3 (G protein-coupled receptor 41)

Synonym: Ffar3, Gpr41

UniProt ID: B2GV46

UniProt Link: www.uniprot.org/uniprotkb/B2GV46/entry

Species Source: Rat

Expression System: HEK293T eukaryotic cell expression system Sequence

Length: 319 AA

Molecular Weight: 36 KD

Protein Tag: C-terminal His6

2. Amino Acid Sequence

MDTSFFPGNHWLFFSVDLLVFLVGLPLNVMALVVFVNKLRRRPVAVDLLLNLTISDLLLFLPFRIVE
AACGMKWILPFIFCPLSGFLFFTTIYLTSLFLMTVSIERFLSVAYPLWYKTRPRLAQAGLVSGICWFLA
SAHCSVIYVTEYWGNATYSQGTNGTCYLEFREDQLAILLPVRLEMAVVLFMVPLCITSYCYSRLVWIL
SQGASRRRRKRVMGLLVATLLIFFVCFGPYNMASHVVGYYVRGESPTWRSYVLLLSTLNSCIDPLVFYF
SSSKFQADFHQLLSRLIRACVPWTQEVSLKLVKNGEEPSKECPS

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 3 (G protein-coupled receptor 41) 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 that is activated by a major product of dietary fiber digestion, the short chain fatty acids (SCFAs), and that plays a role in the regulation of whole-body energy homeostasis and in intestinal immunity. In omnivorous mammals, the short chain fatty acids acetate, propionate and butyrate are produced primarily by the gut microbiome that metabolizes dietary fibers. SCFAs serve as a source of energy but also act as signaling molecules. That G protein-coupled receptor is probably coupled to the pertussis toxin-sensitive, G(i/o)-alpha family of G proteins. Its activation results in the formation of inositol 1,4,5-trisphosphate, the mobilization of intracellular calcium, the phosphorylation of the MAPK3/ERK1 and MAPK1/ERK2 kinases and the inhibition of intracellular cAMP accumulation. Activated by SCFAs and by beta-hydroxybutyrate, a ketone body produced by the liver upon starvation, it inhibits N-type calcium channels and modulates the activity of sympathetic neurons through a signaling cascade involving the beta and gamma subunits of its coupled G protein, phospholipase C and MAP kinases (PubMed:24305827). Thereby, it may regulate energy expenditure through the control of the sympathetic nervous system that controls for instance heart rate. Upon activation by SCFAs accumulating in the intestine, it may also signal to the brain via neural circuits which in turn would regulate intestinal gluconeogenesis (PubMed:24412651). May also control the production of hormones involved in whole-body energy homeostasis. May for instance, regulate blood pressure through renin secretion. May also regulate secretion of the PYY peptide by enteroendocrine cells and control gut motility, intestinal transit rate, and the harvesting of energy from SCFAs produced by gut microbiota. May also indirectly regulate the production of LEP/Leptin, a hormone acting on the CNS to inhibit food intake, in response to the presence of short-chain fatty acids in the intestine. Finally, may also play a role in glucose homeostasis. Besides its role in energy homeostasis, may play a role in intestinal immunity. May mediate the activation of the inflammatory and immune response by SCFAs in the gut, regulating the rapid production of chemokines and cytokines by intestinal epithelial cells.

Subcellular Localization: Cell membrane ; Multi-pass membrane protein .

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