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Anti-Ffar4 (RABBIT) Antibody
Ffar4 Antibody
Catalog # ASR5585

Specification

Anti-Ffar4 (RABBIT) Antibody - Product Information

Host	**Rabbit**
Conjugate	**Unconjugated**
Target Species	**Mouse**
Reactivity	**Rat, Mouse**
Clonality	**Polyclonal**
Application	**WB, E, I, LCI**
Application Note	**Anti-Ffar4 Antibody has been tested for use in ELISA and western blot. Specific conditions for reactivity should be optimized by the end user. Expect a band ~40-48 kDa in size corresponding to Ffar4 by western blotting in the appropriate cell lysate or extract. Tested using positive controls Raw 264.7 WCL p/n W10-001-369 and NIH/3T3 WCL p/n W10-000-358.**
Physical State	**Liquid (sterile filtered)**
Buffer	**0.02 M Potassium Phosphate, 0.15 M Sodium Chloride, pH 7.2**
Immunogen	**Affinity purified Anti-Ffar4 antibody was prepared from whole rabbit serum produced by repeated immunizations with a synthetic peptide near the N-terminus portion of mouse Ffar4 protein.**
Preservative	**0.01% (w/v) Sodium Azide**

Anti-Ffar4 (RABBIT) Antibody - Additional Information

Gene ID 107221

Other Names
107221

Purity
Anti-Ffar4 is directed against mouse Ffar4 at a n-terminal position. This product is an affinity purified antibody produced by immunoaffinity chromatography using peptide coupled to agarose beads. A BLAST analysis was used to suggest reactivity with this protein in rat based on 100% homology match for the immunogen sequence.

Storage Condition
Store vial at -20° C prior to opening. Aliquot contents and freeze at -20° C or below for extended storage. Avoid cycles of freezing and thawing. Centrifuge product if not completely clear after standing at room temperature. This product is stable for several weeks at 4° C as an undiluted liquid. Dilute only prior to immediate use.

Precautions Note
This product is for research use only and is not intended for therapeutic or diagnostic applications.

Anti-Ffar4 (RABBIT) Antibody - Protein Information

Name Ffar4

Synonyms Gpr120, O3far1

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 (PubMed:26873857, PubMed:27852822). 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) (PubMed:26873857, PubMed:27852822). 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 (PubMed:26873857, PubMed:27852822). In response to dietary fats, plays an important role in the regulation of adipocyte proliferation and differentiation (PubMed:17250804, PubMed:22343897, PubMed:27853148, PubMed:29343498, PubMed:31761534). 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 (PubMed:31761534). Induces differentiation of brown and beige adipocytes probably via autocrine and endocrine functions of FGF21 hormone (PubMed:27853148, PubMed:29343498). Contributes to the thermogenic activation of brown adipose tissue and the browning of white adipose tissue (PubMed:27853148, PubMed:29343498). Activates brown adipocytes by initiating intracellular calcium signaling leading to mitochondrial depolarization and fission, and overall increased mitochondrial respiration (PubMed:29343498). Consequently stimulates fatty acid uptake and oxidation in mitochondria together with UCP1-mediated thermogenic respiration, eventually reducing fat mass (PubMed:29343498). Regulates bi-potential differentiation of bone marrow mesenchymal stem cells toward osteoblasts or adipocytes likely by up-regulating distinct integrins (PubMed:26365922). In response to dietary fats regulates hormone secretion and appetite (PubMed:15619630, PubMed:24222669, PubMed:24663807, PubMed:<a

href="http://www.uniprot.org/citations/24742677" target="_blank">24742677, PubMed:25535828). 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 (PubMed:15619630, PubMed:24742677, PubMed:25535828). Negatively regulates glucose-induced SST secretion in pancreatic delta cells (PubMed:24663807). Mediates LCFAs inhibition of GHRL secretion, an appetite-controlling hormone (PubMed:24222669). In taste buds, contributes to sensing of dietary fatty acids by the gustatory system (PubMed:20573884). During the inflammatory response, promotes anti-inflammatory M2 macrophage differentiation in adipose tissue (PubMed:20813258). 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 (PubMed:20813258). 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 (PubMed:15774482).

Cellular Location
Cell membrane; Multi-pass membrane protein. Endosome membrane {ECO:0000250|UniProtKB:Q5NUL3}; Multi-pass membrane protein. Lysosome membrane {ECO:0000250|UniProtKB:Q5NUL3}; 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 (PubMed:31761534). {ECO:0000250|UniProtKB:Q5NUL3, ECO:0000269|PubMed:31761534}

Tissue Location
Highly expressed in brown and white adipose tissue (PubMed:17250804, PubMed:24222669, PubMed:27853148). Expressed in perivascular ciliated preadipocytes (at protein level) (PubMed:31761534). Expressed in the taste buds of the circumvallate and fungiform papillae, mainly in type II cells (at protein level) (PubMed:19071193, PubMed:20573884). Abundant expression is detected in the gastrointestinal tract (PubMed:15619630, PubMed:17250804, PubMed:24222669, PubMed:27853148). Highly expressed in lung and pituitary gland (PubMed:15619630, PubMed:17250804). Expressed in enteroendocrine K cells of the upper small intestine (PubMed:25535828) Expressed in alpha and delta cells of pancreatic islets (PubMed:24663807, PubMed:24742677). Expressed in pro-inflammatory CD11C-positive macrophages (PubMed:20813258). Also expressed in spleen (PubMed:17250804).

Anti-Ffar4 (RABBIT) Antibody - Protocols

Provided below are standard protocols that you may find useful for product applications.

- Western Blot
- Blocking Peptides
- Dot Blot
- Immunohistochemistry
- Immunofluorescence

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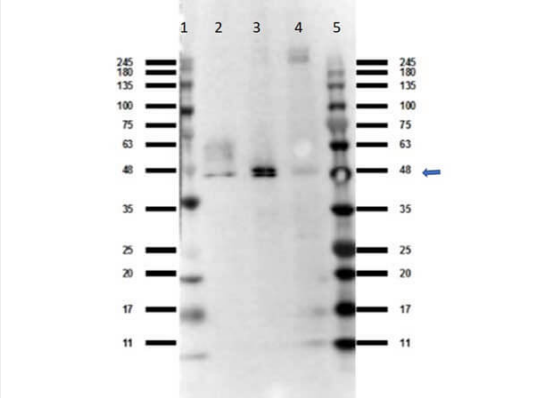
- Immunoprecipitation
- Flow Cytomety
- Cell Culture

Anti-Ffar4 (RABBIT) Antibody - Images



Western Blot of Rabbit Anti-Ffar4 antibody. Lane 1: Ladder Opal Prestained (p/n MB-210-0500). Lane 2: Raw 264.7 WCL (p/n W10-001-369). Lane 3: NIH/3T3 WCL (p/n W10-000-358). Lane 4: PC-12 WCL (p/n W12-001-GL9). Lane 5: Ladder Opal Prestained (p/n MB-210-0500). Load: 35 µg per lane. Primary antibody: Ffar4 antibody at 1:1000 for overnight at 4°C. Secondary antibody: Gt-a-Rb HRP secondary antibody (p/n 611-103-122) at 1:70,000 for 30 min at RT. Block: (p/n MB-073) BlockOut Universal Blocking Buffer for 30 min at RT. Predicted/Observed size: 40.8 kDa, observed ~48 kDa band due to glycosylation of Ffar4 protein.

Anti-Ffar4 (RABBIT) Antibody - Background

Anti-Ffar4 Antibody was designed, produced, and validated as part of the Joy Cappel Young Investigator Award (JCYIA). Free Fatty Acid 4 receptor (Ffa4 receptor or GPR120), a rhodopsin-like G protein coupled receptor (GPCR) subfamily member, is a receptor that senses specific fatty acids such as omega-3 fatty acid in fish oil or the endogenous signaling lipid, PHASA. Ffa4 receptor is enriched in lung, colon and adipose tissue but is also detected in many other tissues and cells. The activation of Ffar4 has multiple effects, including but not limited to inhibition of inflammation, improving insulin sensitivity and adipogenesis, and regulating hormone secretion from the gastro-intestinal system and pancreatic islets. Therefore, approaches that regulate FFA4 receptor activity could be developed as promising anti-diabetic and anti-inflammation drugs. GPR120 is the only fatty acid receptor that can sense lipids in adipose tissue, mature adipocytes, CD11c+ macrophages, and RAW264.7 cells making this receptor of potential importance in the prevention and treatment of metabolic and inflammatory diseases.