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FFAR3 Antibody (C-term)

Affinity Purified Rabbit Polyclonal Antibody (Pab)
Catalog # AP5222b

Product Information

Application	WB, FC, E
Primary Accession	O14843
Other Accession	O15529
Reactivity	Human
Host	Rabbit
Clonality	Polyclonal
Isotype	Rabbit IgG
Calculated MW	38649
Antigen Region	293-322

Additional Information

Gene ID	2865
Other Names	Free fatty acid receptor 3, G-protein coupled receptor 41, FFAR3, GPR41
Target/Specificity	This FFAR3 antibody is generated from rabbits immunized with a KLH conjugated synthetic peptide between 293-322 amino acids from the C-terminal region of human FFAR3.
Dilution	WB~~1:1000 FC~~1:10~50 E~~Use at an assay dependent concentration.
Format	Purified polyclonal antibody supplied in PBS with 0.09% (W/V) sodium azide. This antibody is purified through a protein A column, followed by peptide affinity purification.
Storage	Maintain refrigerated at 2-8°C for up to 2 weeks. For long term storage store at -20°C in small aliquots to prevent freeze-thaw cycles.
Precautions	FFAR3 Antibody (C-term) is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	FFAR3
Synonyms	GPR41
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 (PubMed:12711604). 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. 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. 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. Among SCFAs, the fatty acids containing less than 6 carbons, the most potent activators are probably propionate, butyrate and pentanoate while acetate is a poor activator (PubMed:12496283, PubMed:12711604).
Cellular Location	Cell membrane; Multi-pass membrane protein
Tissue Location	Highest level in adipose tissue, and lower expression across all tissues tested. Expressed in sympathetic ganglia

Background

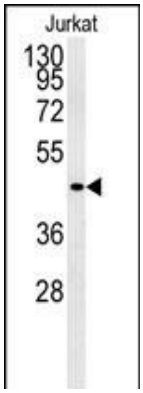
FFAR3 is receptor for short chain fatty acids. The activity of this receptor is coupled to the formation of inositol 1,4,5-trisphosphate, intracellular Ca2+ mobilization, the activation of ERK 1/2 and inhibition of intracellular cAMP accumulation.

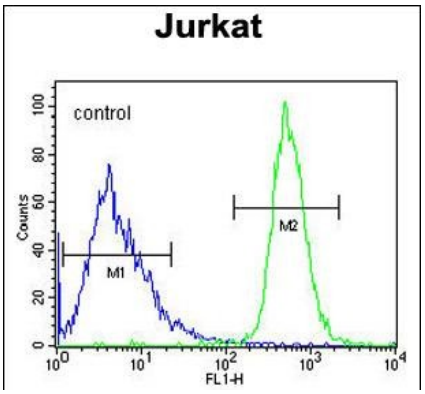
References

Liaw, C.W., et al. DNA Cell Biol. 28(11):555-560(2009)
Tazoe, H., et al. Biomed. Res. 30(3):149-156(2009)
Stoddart, L.A., et al. J. Biol. Chem. 283(47):32913-32924(2008)

Images

Western blot analysis of FFAR3 Antibody (C-term) (Cat. #AP5222b) in Jurkat cell line lysates (35ug/lane).FFAR3 (arrow) was detected using the purified Pab.





FFAR3 Antibody (C-term) (Cat. #AP5222b) flow cytometric analysis of Jurkat cells (right histogram) compared to a negative control cell (left histogram).FITC-conjugated goat-anti-rabbit secondary antibodies were used for the analysis.