

GPR41 Antibody

Purified Rabbit Polyclonal Antibody (Pab)

Catalog # AP51949

Product Information

Application	WB
Primary Accession	O14843
Reactivity	Human, Mouse, Rat
Host	Rabbit
Clonality	Polyclonal
Calculated MW	38649

Additional Information

Gene ID	2865
Other Names	Free fatty acid receptor 3, G-protein coupled receptor 41, FFAR3, GPR41
Target/Specificity	KLH conjugated synthetic peptide derived from human GPR41
Dilution	WB~~ 1:1000
Format	0.01M PBS, pH 7.2, 0.09% (W/V) Sodium azide, Glycerol 50%
Storage	Store at -20 °C.Stable for 12 months from date of receipt

Protein Information

Name	FFAR3
Synonyms	GPR41
Function	<p>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</p>

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

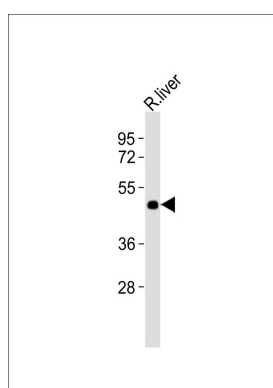
Background

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. Coupled exclusively to the pertussis toxin-sensitive G(i/o)-alpha protein. The rank order of potency for agonists of this receptor is propionate = pentanoate = butyrate > acetate > formate.

References

Sawzdargo M.,et al.Biochem. Biophys. Res. Commun. 239:543-547(1997).
 Grimwood J.,et al.Nature 428:529-535(2004).
 Brown A.J.,et al.J. Biol. Chem. 278:11312-11319(2003).
 Le Poul E.,et al.J. Biol. Chem. 278:25481-25489(2003).
 Liaw C.W.,et al.DNA Cell Biol. 28:555-560(2009).

Images



Anti-GPR41 Antibody at 1:1000 dilution + rat liver lysates
 Lysates/proteins at 20 µg per lane. Secondary Goat
 Anti-Rabbit IgG, (H+L), Peroxidase conjugated at 1/10000
 dilution Predicted band size : 39 kDa Blocking/Dilution
 buffer: 5% NFDM/TBST.

Citations

- [Pectin reduces environmental pollutant-induced obesity in mice through regulating gut microbiota: A case study of p,p'-DDE.](#)

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