

GPR41 Antibody
Purified Rabbit Polyclonal Antibody (Pab)
Catalog # AP51949

Specification

GPR41 Antibody - Product Information

Application	WB
Primary Accession	O14843
Reactivity	Human, Mouse, Rat
Host	Rabbit
Clonality	Polyclonal
Calculated MW	39 KDa
Antigen Region	1 - 60

GPR41 Antibody - 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 encompassing a sequence within the N-term region of human GPR41. The exact sequence is proprietary.

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

GPR41 Antibody - 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

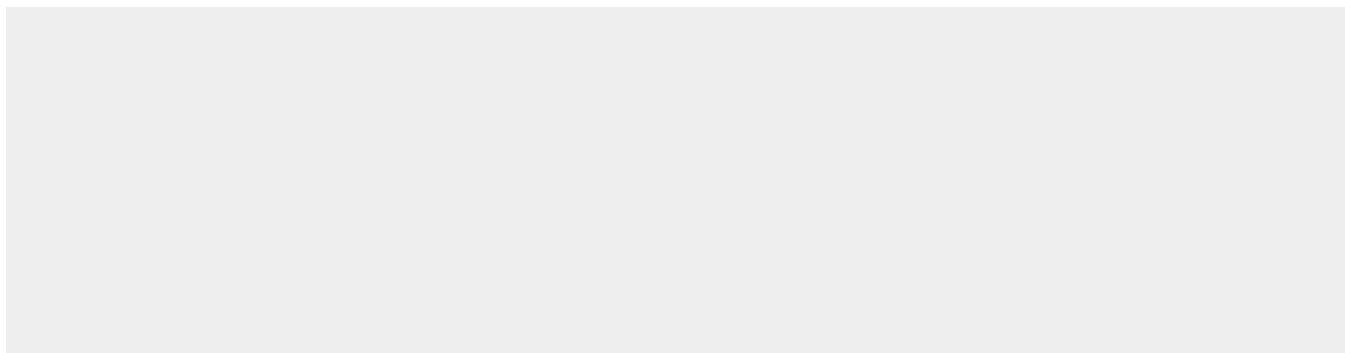
Tissue Location

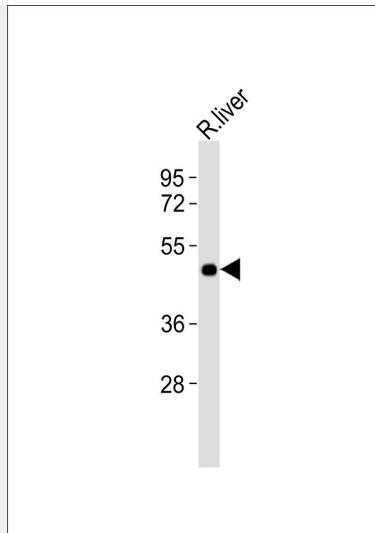
Highest level in adipose tissue, and lower expression across all tissues tested. Expressed in sympathetic ganglia

GPR41 Antibody - Protocols

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

- [Western Blot](#)
- [Blocking Peptides](#)
- [Dot Blot](#)
- [Immunohistochemistry](#)
- [Immunofluorescence](#)
- [Immunoprecipitation](#)
- [Flow Cytometry](#)
- [Cell Culture](#)

GPR41 Antibody - 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.

GPR41 Antibody - 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.

GPR41 Antibody - 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).

GPR41 Antibody - Citations

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