SANTA CRUZ BIOTECHNOLOGY, INC.

GPR41 (Y-13): sc-131166

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

G protein-coupled receptors (GPRs), also known as seven transmembrane receptors, heptahelical receptors or 7TM receptors, comprise a superfamily of proteins that play a role in many different stimulus-response pathways. GPRs translate extracellular signals into intracellular signals (a process called G-protein activation) and they respond to a variety of signaling molecules, such as hormones and neurotransmitters. GPR41 (G protein-coupled receptor 41), also known as FFAR3 (free fatty acid receptor 3), is a 346 amino acid multi-pass membrane protein that belongs to the G protein-coupled receptor family. Expressed at high levels in adipose tissue and at lower levels throughout the body, GPR41 functions as a receptor for short chain fatty acids via elevation of intracellular calcium levels and inhibition of adenylyl cyclase.

REFERENCES

1. Sawzdargo, M., et al. 1997. A cluster of four novel human G protein-coupled receptor genes occurring in close proximity to CD22 gene on chromosome 19q13.1. Biochem. Biophys. Res. Commun. 239: 543-547.
2. Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 603821. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
3. Brown, A.J., et al. 2003. The orphan G protein-coupled receptors GPR41 and GPR43 are activated by propionate and other short chain carboxylic acids. J. Biol. Chem. 278: 11312-11319.
4. Le Poul, E., et al. 2003. Functional characterization of human receptors for short chain fatty acids and their role in polymorphonuclear cell activation. J. Biol. Chem. 278: 25481-25489.
5. Xiong, Y., et al. 2004. Short-chain fatty acids stimulate leptin production in adipocytes through the G protein-coupled receptor GPR41. Proc. Natl. Acad. Sci. USA 101: 1045-1050.
6. Brown, A.J., et al. 2005. A family of fatty acid binding receptors. DNA Cell Biol. 24: 54-61.
7. Covington, D.K., et al. 2006. The G protein-coupled receptor 40 family (GPR40-GPR43) and its role in nutrient sensing. Biochem. Soc. Trans. 34: 770-773.
8. Yonezawa, T., et al. 2007. Short-chain fatty acids induce acute phosphorylation of the p38 mitogen-activated protein kinase/heat shock protein 27 pathway via GPR43 in the MCF7 human breast cancer cell line. Cell. Signal. 19: 185-193.

CHROMOSOMAL LOCATION

Genetic locus: FFAR3 (human) mapping to 19q13.12; Ffar3 (mouse) mapping to 7 B1.

SOURCE

GPR41 (Y-13) is an affinity purified goat polyclonal antibody raised against a peptide mapping within a cytoplasmic domain of GPR41 of mouse origin.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-131166 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

GPR41 (Y-13) is recommended for detection of GPR41 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000); non cross-reactive with other GPR family members.

GPR41 (Y-13) is also recommended for detection of GPR41 in additional species, including equine.

Suitable for use as control antibody for GPR41 siRNA (h): sc-97148, GPR41 siRNA (m): sc-145735, GPR41 shRNA Plasmid (h): sc-97148-SH, GPR41 shRNA Plasmid (m): sc-145735-SH, GPR41 shRNA (h) Lentiviral Particles: sc-97148-V and GPR41 shRNA (m) Lentiviral Particles: sc-145735-V.

Molecular Weight of GPR41: 39 kDa.

Positive Controls: Jurkat whole cell lysate: sc-2204.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

SELECT PRODUCT CITATIONS

1. Li, Y., et al. 2013. Gustducin couples fatty acid receptors to GLP-1 release in colon. Am. J. Physiol. Endocrinol. Metab. 304: E651-E660.

STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

PROTOCOLS

See our web site at www.scbt.com or our catalog for detailed protocols and support products.