SANTA CRUZ BIOTECHNOLOGY, INC.

GPR41 (E-12): sc-131161

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.

SOURCE

GPR41 (E-12) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an extracellular domain of GPR41 of human origin.

STORAGE

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

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-131161 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

GPR41 (E-12) is recommended for detection of GPR41 of 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 .

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

Molecular Weight of GPR41: 39 kDa.

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.

RESEARCH USE

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

PROTOCOLS

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