SANTA CRUZ BIOTECHNOLOGY, INC.

GPR43 (3B3): sc-293202

BACKGROUND

G protein-coupled receptors provide attractive targets for drug therapy due to the sheer size and diversity of ligands within this receptor family. G protein-coupled receptor (GPR) GPR41 and GPR43 are related members of a homologous family of orphan G protein-coupled receptors that are tandemly encoded at a single chromosomal locus in both humans and mice. GPR43 functions as a ligand for short chain fatty acids (SCFAs), notably acetate and propionate. Bacteria in the gut produce high concentrations of SCFAs, which are subsequently released in the bloodstream, where they exert cellular effects on blood leukocytes, including calcium release, ERK1/2 activation, and inhibition of cAMP accumulation. These effects indicate a role for GPR43 in the recruitment of leukocytes, particularly polymorphonuclear cells, to sites of bacterial infection.

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. Lee, D.K., et al. 2003. Continued discovery of ligands for G protein-coupled receptors. Life Sci. 74: 293-297.
3. Nilsson, N.E., et al. 2003. Identification of a free fatty acid receptor, FFA2R, expressed on leukocytes and activated by short-chain fatty acids. Biochem. Biophys. Res. Commun. 303: 1047-1052.
4. Senga, T., et al. 2003. LSSIG is a novel murine leukocyte-specific GPCR that is induced by the activation of Stat3. Blood 101: 1185-1187.
5. Briscoe, C.P., et al. 2003. The orphan G protein-coupled receptor GPR40 is activated by medium and long chain fatty acids. J. Biol. Chem. 278: 11303-11311.
6. 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.
7. 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.

CHROMOSOMAL LOCATION

Genetic locus: FFAR2 (human) mapping to 19q13.12.

SOURCE

GPR43 (3B3) is a mouse monoclonal antibody raised against amino acids 231-330 of GPR43 of human origin.

PRODUCT

Each vial contains 100 µg IgG_{2a} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

STORAGE

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

APPLICATIONS

GPR43 (3B3) is recommended for detection of GPR43 of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)] and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for GPR43 siRNA (h): sc-77339, GPR43 shRNA Plasmid (h): sc-77339-SH and GPR43 shRNA (h) Lentiviral Particles: sc-77339-V.

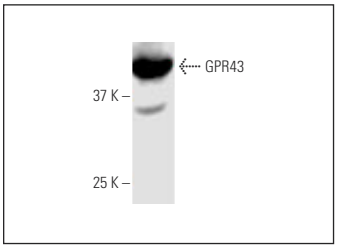
Molecular Weight of GPR43: 43 kDa.

Positive Control: HeLa whole cell lysate: sc-2200.

RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml).

DATA



GPR43 (3B3): sc-293202. Western blot analysis of GPR43 expression in HeLa whole cell lysate.

SELECT PRODUCT CITATIONS

1. Weber, G.J., et al. 2018. Altered microRNA regulation of short chain fatty acid receptors in the hypertensive kidney is normalized with hydrogen sulfide supplementation. Pharmacol. Res. 134: 157-165.
2. Cheng, D., et al. 2018. Butyrate ameliorated-NLRC3 protects the intestinal barrier in a GPR43-dependent manner. Exp. Cell Res. 368: 101-110.
3. Bódis, K., et al. 2018. Reduced expression of stearoyl-CoA desaturase-1, but not free fatty acid receptor 2 or 4 in subcutaneous adipose tissue of patients with newly diagnosed type 2 diabetes mellitus. Nutr. Diabetes 8: 49.
4. Chang, G., et al. 2019. Sodium butyrate modulates mucosal inflammation injury mediated by GPR41/43 in the cecum of goats fed a high concentration diet. Front. Physiol. 10: 1130.

RESEARCH USE

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