

# TGR5 (K-13): sc-48687

## BACKGROUND

The G protein-coupled receptor TGR5 is a 330 amino acid protein that is almost universally expressed in human tissues including heart, skeletal muscle, spleen, kidney, liver, small intestine, placenta and leukocytes, but not in brain, colon (without mucosa), thymus or lung. TGR5 is sensitive to bile acids and responds through a significant mechanism that coordinates energy homeo-stasis. Bile acids activate mitogen-activated protein (MAP) kinase pathways, specifically induce TGR5 internalization, promote an increase of guanosine 5'-O-3-thio-triphosphate binding in membrane fractions, and cause rapid intracellular cAMP production. Bile acids also provoke TGR5 to suppress macro-phage functions. TGR5-controlled signaling pathways may be good candidates for drug targets to treat common metabolic diseases such as obesity, type II diabetes, hyperlipidemia and atherosclerosis.

## REFERENCES

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2. Online Mendelian Inheritance in Man, OMIM<sup>™</sup>. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 610147. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>
3. Kawamata, Y., Fujii, R., Hosoya, M., Harada, M., Yoshida, H., Miwa, M., Fukusumi, S., Habata, Y., Itoh, T., Shintani, Y., Hinuma, S., Fujisawa, Y. and Fujino, M. 2003. A G protein-coupled receptor responsive to bile acids. *J. Biol. Chem.* 278: 9435-9440.
4. Katsuma, S., Hirasawa, A. and Tsujimoto, G. 2005. Bile acids promote glucagon-like peptide-1 secretion through TGR5 in a murine enteroendocrine cell line STC-1. *Biochem. Biophys. Res. Commun.* 329: 386-390.
5. Houten, S.M., Watanabe, M. and Auwerx, J. 2006. Endocrine functions of bile acids. *EMBO J.* 25: 1419-1425.
6. Watanabe, M., Houten, S.M., Matak, C., Christoffolete, M.A., Kim, B.W., Sato, H., Messaddeq, N., Harney, J.W., Ezaki, O., Kodama, T., Schoonjans, K., Bianco, A.C. and Auwerx, J. 2006. Bile acids induce energy expenditure by promoting intracellular thyroid hormone activation. *Nature* 439: 484-489.

## CHROMOSOMAL LOCATION

Genetic locus: GPBAR1 (human) mapping to 2q35; Gpbar1 (mouse) mapping to 1 C3.

## SOURCE

TGR5 (K-13) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of TGR5 of mouse origin.

## 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-48687 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

## APPLICATIONS

TGR5 (K-13) is recommended for detection of TGR5 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).

Suitable for use as control antibody for TGR5 siRNA (h): sc-61678, TGR5 siRNA (m): sc-61679, TGR5 shRNA Plasmid (h): sc-61678-SH, TGR5 shRNA Plasmid (m): sc-61679-SH, TGR5 shRNA (h) Lentiviral Particles: sc-61678-V and TGR5 shRNA (m) Lentiviral Particles: sc-61679-V.

Molecular Weight of TGR5: 35.7 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<sup>™</sup> compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker<sup>™</sup> 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<sup>™</sup> Mounting Medium: sc-24941.

## SELECT PRODUCT CITATIONS

1. Masyuk, A.I., Huang, B.Q., Radtke, B.N., Gajdos, G.B., Splinter, P.L., Masyuk, T.V., Gradilone, S.A. and LaRusso, N.F. 2013. Ciliary subcellular localization of TGR5 determines the cholangiocyte functional response to bile acid signaling. *Am. J. Physiol. Gastrointest. Liver Physiol.* 304: G1013-G1024.

## STORAGE

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

## RESEARCH USE

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

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) or our catalog for detailed protocols and support products.