SANTA CRUZ BIOTECHNOLOGY, INC.

GC-C (537): sc-100302

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Guanylate cyclases belong to the adenylyl cyclase class-4/guanylyl cyclase family. There are two forms of guanylate cyclase, a soluble form (GCS or sGC), which act as receptors for nitric oxide, and a membrane-bound receptor form (GC), which are peptide hormone receptors. The GC-C protein is composed of an extracellular domain, a single transmembrane domain and a cytoplasmic region consisting of a kinase-like domain and a catalytic domain. It is expressed as two differentially glycosylated forms, a precursor form present in the endoplasmic reticulum and a form present on the plasma membrane. Ligand binding to the extracellular domain of GC-C promotes the accumulation of cGMP. GC-C acts as the receptor for heat-stable enterotoxins, small peptides secreted by some pathogenic strains of *E. coli* that cause severe secretory diarrhea. GC-C also binds to guanylin and uroguanylin peptides, which modulate renal function in response to oral salt load.

REFERENCES

1. Denninger, J.W. and Marletta, M.A. 1999. Guanylate cyclase and the NO/cGMP signaling pathway. Biochim. Biophys. Acta 1411: 334-350.
2. Condorelli, P. and George, S.C. 2001. *In vivo* control of soluble guanylate cyclase activation by nitric oxide: a kinetic analysis. Biophys. J. 80: 2110-2119.
3. Ghanekar, Y., Chandrashaker, A. and Visweswariah, S.S. 2003. Cellular refractoriness to the heat-stable enterotoxin peptide is associated with alterations in levels of the differentially glycosylated forms of guanylyl cyclase C. Eur. J. Biochem. 270: 3848-3857.
4. Ghanekar, Y., Chandrashaker, A., Tatu, U. and Visweswariah, S.S. 2004. Glycosylation of the receptor guanylate cyclase C: role in ligand binding and catalytic activity. Biochem. J. 379: 653-663.
5. Nakauchi, M. and Suzuki, N. 2005. Enterotoxin/guanylin receptor type guanylyl cyclases in non-mammalian vertebrates. Zoolog. Sci. 22: 501-509.
6. Kuhn, M. 2005. Cardiac and intestinal natriuretic peptides: insights from genetically modified mice. Peptides 26: 1078-1085.

CHROMOSOMAL LOCATION

Genetic locus: GUCY2C (human) mapping to 12p13.1.

SOURCE

GC-C (537) is a mouse monoclonal antibody raised against partial recombinant protein mapping at the N-terminus of GC-C of human origin.

PRODUCT

Each vial contains 100 µg IgG_{2b} 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

GC-C (537) is recommended for detection of GC-C 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).

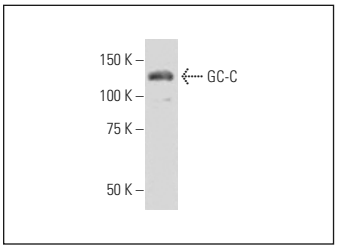
Suitable for use as control antibody for GC-C siRNA (h): sc-45492, GC-C shRNA Plasmid (h): sc-45492-SH and GC-C shRNA (h) Lentiviral Particles: sc-45492-V.

Molecular Weight of GC-C: 130/145 kDa.

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



GC-C (537): sc-100302. Western blot analysis of GC-C expression in 293 whole cell lysate.

SELECT PRODUCT CITATIONS

1. Liu, Y., Cheng, G., Qian, J., Ju, H., Zhu, Y., Stefano, M., Keilholz, U. and Li, D. 2017. Expression of guanylyl cyclase C in tissue samples and the circulation of rectal cancer patients. Oncotarget 8: 38841-38849.
2. Wolfe, R.M., Mohsen, A.W., Walsh Vockley, C., Bertrand, C.A., Nicholls, R.D., Heiman, P., Seibold, L.M., Vockley, J. and Ghaloul-Gonzalez, L. 2021. Novel GUCY2C variant causing familial diarrhea in a Mennonite kindred and a potential therapeutic approach. Am. J. Med. Genet. A 185: 2046-2055.
3. Zeng, C., Xia, T., Zheng, S., Liang, L. and Chen, Y. 2022. Synergistic effect of uroguanylin and D1 dopamine receptors on sodium excretion in hypertension. J. Am. Heart Assoc. 11: e022827.

RESEARCH USE

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

PROTOCOLS

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