

GCS- α -2 (G-18): sc-34437

BACKGROUND

Guanylate cyclases belong to the adenylyl cyclase class-4/guanylyl cyclase family. There are two forms of guanylate cyclase. The soluble form, known as GCS or sGC, act as receptors for nitric oxide (NO). The membrane-bound receptor form, known as GC, are peptide hormone receptors. GCS is a cGMP-synthesizing enzyme, which is the major receptor for the neurotransmitter nitric oxide. It plays a crucial role in smooth muscle contractility, platelet reactivity and neurotransmission. GCS is a heme-containing heterodimer, consisting of one α subunit and one β subunit. The heme moiety mediates NO activation, and this heme group also binds carbon monoxide (CO), which weakly stimulates the enzyme. Both NO and CO stimulation are enhanced by the allosteric activator 3-(5'-hydroxymethyl-2'-furyl)-benzyl-indazole, YC-1. YC-1 can also stimulate GCS in a NO-independent manner. Both α and β subunits are required for cGMP generation, and at least two isoforms exist for each subunit. Heterodimers consisting of α -1/ β -1 and α -2/ β -1 have been identified, and both display similar enzymatic activity. The distribution of the β -2 subunit seems to be much more restricted than the β -1 subunit, with predominant expression in kidney and liver.

REFERENCES

1. Yuen, P., et al. 1990. A new form of guanylyl cyclase is preferentially expressed in rat kidney. *Biochemistry* 29: 10872-10878.
2. Wedel, B., et al. 1995. Functional domains of soluble guanylyl cyclase. *J. Biol. Chem.* 270: 24871-24875.
3. Bellamy, T., et al. 2000. Rapid desensitization of the nitric oxide receptor, soluble guanylyl cyclase, underlies diversity of cellular cGMP responses. *Proc. Natl. Acad. Sci. USA* 97: 2928-2933.
4. Lee, Y., et al. 2000. Human recombinant soluble guanylyl cyclase: expression, purification and regulation. *Proc. Natl. Acad. Sci. USA* 97: 10763-10768.

CHROMOSOMAL LOCATION

Genetic locus: GUCY1A2 (human) mapping to 11q22.3; Gucy1a2 (mouse) mapping to 9 A1.

SOURCE

GCS- α -2 (G-18) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of GCS- α -2 of human origin.

PRODUCT

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

Blocking peptide available for competition studies, sc-34437 P, (100 μ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

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.

APPLICATIONS

GCS- α -2 (G-18) is recommended for detection of GCS- α -2 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 μ g per 100-500 μ g of total protein (1 ml of cell lysate)], 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).

GCS- α -2 (G-18) is also recommended for detection of GCS- α -2 in additional species, including canine, bovine and porcine.

Suitable for use as control antibody for GCS- α -2 siRNA (h): sc-41012, GCS- α -2 siRNA (m): sc-41013, GCS- α -2 shRNA Plasmid (h): sc-41012-SH, GCS- α -2 shRNA Plasmid (m): sc-41013-SH, GCS- α -2 shRNA (h) Lentiviral Particles: sc-41012-V and GCS- α -2 shRNA (m) Lentiviral Particles: sc-41013-V.

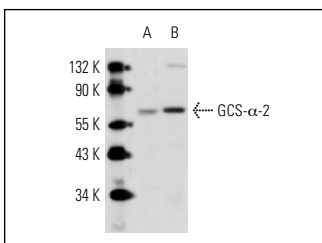
Molecular Weight of GCS- α -2: 82 kDa.

Positive Controls: Jurkat whole cell lysate: sc-2204 or RAW 264.7 whole cell lysate: sc-2211.

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) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) 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.

DATA



GCS- α -2 (G-18): sc-34437. Western blot analysis of GCS- α -2 expression in Jurkat (A) and RAW 264.7 (B) whole cell lysates.

SELECT PRODUCT CITATIONS

1. Velázquez, E., et al. 2012. Glucagon-like peptide-2 (GLP-2) modulates the cGMP signalling pathway by regulating the expression of the soluble guanylyl cyclase receptor subunits in cultured rat astrocytes. *Mol. Neurobiol.* 46: 242-250.

PROTOCOLS

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