SANTA CRUZ BIOTECHNOLOGY, INC.

GCS-α-2 (H-190): sc-20954

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. 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 moeity 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.
5. Ibarra, C., et al. 2001. Regional and age-dependent expression of the nitric oxide receptor, soluble guanylyl cyclase, in the human brain. Brain Res. 907: 54-60.
6. Koblin, M., et al. 2001. Nitric oxide activates the β-2 subunit of soluble guanylyl cyclase in the absence of a second subunit. J. Biol. Chem. 276: 30737-30743.

CHROMOSOMAL LOCATION

Genetic locus: GUCY1A2 (human) mapping to 11q21-q22; Gucy1a2 (mouse) mapping to 9 A1.

SOURCE

GCS-α-2 (H-190) is a rabbit polyclonal antibody raised against amino acids 1-190 of GCS-α-2 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.

APPLICATIONS

GCS-α-2 (H-190) 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 µg per 100–500 µg of total protein (1 ml of cell lysate)], immunofluorescence and immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

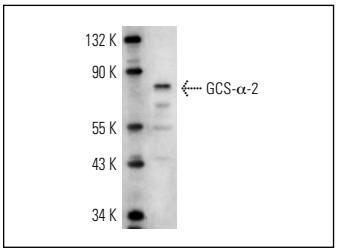
GCS-α-2 (H-190) is also recommended for detection of GCS-α-2 in additional species, including bovine.

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.

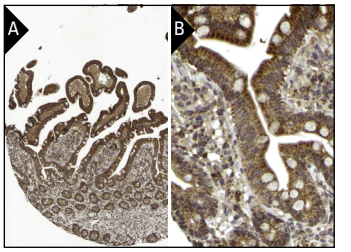
Molecular Weight of GCS-α-2: 82 kDa.

Positive Controls: HL-60 whole cell lysate: sc-2209, Hep G2 cell lysate: sc-2227 or human small intestine.

DATA



GCS-α-2 (H-190): sc-20954. Western blot analysis of GCS-α-2 expression in HL-60 whole cell lysate.



GCS-α-2 (H-190): sc-20954. Immunoperoxidase staining of formalin fixed, paraffin-embedded human small intestine tissue showing cytoplasmic staining of glandular cells (low and high magnification). Kindly provided by The Swedish Human Protein Atlas (HPA) program.

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.