

# GCS- $\beta$ -2 (L-14): sc-34435

## 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. 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 (NO). It plays a crucial role in smooth muscle contractility, platelet reactivity and neurotransmission. GCS is a heme containing heterodimer, consisting of one  $\alpha$  subunit and one  $\beta$  subunit. The heme moiety mediates NO activation, and this heme group also binds carbon monoxide, 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  $\alpha$  and  $\beta$  subunits are required for cGMP generation, and at least two isoforms exist for each subunit. Heterodimers consisting of  $\alpha$ -1/ $\beta$ -1 and  $\alpha$ -2/ $\beta$ -1 have been identified, and both display similar enzymatic activity. The distribution of the  $\beta$ -2 subunit seems to be much more restricted than the  $\beta$ -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. Nat. 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  $\beta$  2 subunit of soluble guanylyl cyclase in the absence of a second subunit. *J. Biol. Chem.* 276: 30737-30743.

## CHROMOSOMAL LOCATION

Genetic locus: GUCY1B2 (human) mapping to 13q14.2; Gucy1b2 (mouse) mapping to 14 D1.

## SOURCE

GCS- $\beta$ -2 (L-14) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of GCS- $\beta$ -2 of human origin.

## PRODUCT

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

Blocking peptide available for competition studies, sc-34435 P, (100  $\mu$ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

## APPLICATIONS

GCS- $\beta$ -2 (L-14) is recommended for detection of GCS- $\beta$ -2 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2  $\mu$ g per 100-500  $\mu$ 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- $\beta$ -2 (L-14) is also recommended for detection of GCS- $\beta$ -2 in additional species, including equine, canine, bovine and porcine.

Suitable for use as control antibody for GCS- $\beta$ -2 siRNA (h): sc-41014, GCS- $\beta$ -2 siRNA (m): sc-41015, GCS- $\beta$ -2 shRNA Plasmid (h): sc-41014-SH, GCS- $\beta$ -2 shRNA Plasmid (m): sc-41015-SH, GCS- $\beta$ -2 shRNA (h) Lentiviral Particles: sc-41014-V and GCS- $\beta$ -2 shRNA (m) Lentiviral Particles: sc-41015-V.

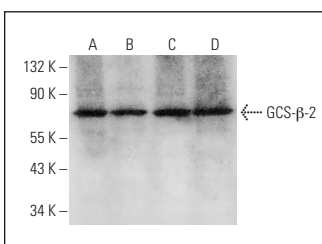
Molecular Weight of GCS- $\beta$ -2: 76 kDa.

Positive Controls: HL-60 whole cell lysate: sc-2209, NCI-H460 whole cell lysate: sc-364235 or Jurkat whole cell lysate: sc-2204.

## 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- $\beta$ -2 (L-14): sc-34435. Western blot analysis of GCS- $\beta$ -2 expression in HL-60 (A), NCI-H460 (B), Jurkat (C) and K-562 (D) whole cell lysates.

## 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.