SANTA CRUZ BIOTECHNOLOGY, INC.

GCS-β-1 (C-13): sc-21310

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. 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 α subunit and one β subunit. The heme moeity 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 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. Funcational 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.

CHROMOSOMAL LOCATION

Genetic locus: GUCY1B3 (human) mapping to 4q32.1; Gucy1b3 (mouse) mapping to 3 E3.

SOURCE

GCS-β-1 (C-13) is an affinity purified goat polyclonal antibody raised against a peptide mapping at the C-terminus of GCS-β-1 of human 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-21310 P, (100 µg 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.

APPLICATIONS

GCS-β-1 (C-13) is recommended for detection of GCS-β-1 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 (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

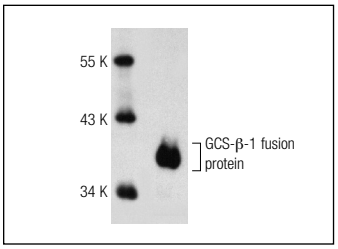
GCS-β-1 (C-13) is also recommended for detection of GCS-β-1 in additional species, including equine, canine, bovine and porcine.

Suitable for use as control antibody for GCS-β-1 siRNA (h): sc-36486, GCS-β-1 siRNA (m): sc-36487, GCS-β-1 shRNA Plasmid (h): sc-36486-SH, GCS-β-1 shRNA Plasmid (m): sc-36487-SH, GCS-β-1 shRNA (h) Lentiviral Particles: sc-36486-V and GCS-β-1 shRNA (m) Lentiviral Particles: sc-36487-V.

Molecular Weight of GCS-β-1: 65 kDa.

Positive Controls: mouse placenta extract: sc-363772 or human lung extract: 363767.

DATA



GCS-β-1 (C-13): sc-21310. Western blot analysis of human recombinant GCS-β-1 fusion protein.

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.