**BACKGROUND**

Guanulate cyclases belong to the adenyl cyclase class-4/guananyl cyclase family. There are two forms of guanulate cyclase. The soluble forms, known as GCS or sGC, act as receptors for nitric oxide. The membrane-bound receptor forms, known as GC, are peptide hormone receptors. GCS, a cGMP-synthesizing enzyme, 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, designated GCS-α-1, and one Β 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 the 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.

**REFERENCES**


**CHROMOSOMAL LOCATION**

Genetic locus: GUCY1A3 (human) mapping to 4q32.1; Gucy1a3 (mouse) mapping to 3 E3.

**SOURCE**

GCS-α-1 (D-9) is a mouse monoclonal antibody raised against amino acids 1-155 of GCS-α-1 of human origin.

**PRODUCT**

Each vial contains 200 µg IgG κ light chain in 1.0 ml of PBS with <0.1% sodium azide and 0.1% gelatin.

GCS-α-1 (D-9) is available conjugated to agarose (sc-376502 AC), 500 µg/0.25 ml agarose in 1 ml for IP; to HRP (sc-376502 HRP), 200 µg/ml for WB, IHC(PO) and ELISA; to either phycoerythrin (sc-376502 PE), fluorescent (sc-376502 FITC), Alexa Fluor® 488 (sc-376502 AF488), Alexa Fluor® 546 (sc-376502 AF546), Alexa Fluor® 594 (sc-376502 AF594) or Alexa Fluor® 647 (sc-376502 AF647), 200 µg/ml, for WB, FITC, IF, IHCPO and FCM; and to either Alexa Fluor® 680 (sc-376502 AF680) or Alexa Fluor® 790 (sc-376502 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF, and FCM.

**APPLICATIONS**

GCS-α-1 (D-9) is recommended for detection of GCS-α-1 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, 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).

Suitable for use as control antibody for GCS-α-1 siRNA (h): sc-41010, GCS-α-1 siRNA (m): sc-41011, GCS-α-1 siRNA (r): sc-60101, GCS-α-1 shRNA Plasmid (h): sc-41010 SH, GCS-α-1 shRNA Plasmid (m): sc-41011 SH, GCS-α-1 shRNA Plasmid (r): sc-80101 SH, GCS-α-1 shRNA (h) Lentiviral Particles: sc-41010 V, GCS-α-1 shRNA (m) Lentiviral Particles: sc-41011 V and GCS-α-1 shRNA (r) Lentiviral Particles: sc-60101 V.

Molecular Weight of GCS-α-1: 72 kDa.

Positive Controls: human kidney extract: sc-363764, human liver extract: sc-363766 or MOLT-4 cell lysate: sc-2233.

**RECOMMENDED SUPPORT REAGENTS**

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgG BP-HRP: sc-516102 or m-IgG 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). 3) Immunofluorescence: use m-IgG BP-FITC: sc-516140 or m-IgG BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

**DATA**

**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.