

GCAP1 (7): sc-136313

BACKGROUND

The intracellular stimulation of guanylate cyclase (GC) by calcium, a key event in the recovery of the dark state of rod photoreceptors after exposure to light, is mediated by guanylate cyclase-activating protein (GCAP1). GCAPs are calcium-binding proteins belonging to the calmodulin superfamily. GCAP1 is a calcium-binding protein that stimulates synthesis of cGMP in photoreceptors. GCAP1 is present in rod and cone photoreceptor outer segments where phototransduction occurs. In contrast to other calcium-binding proteins from the calmodulin superfamily, the calcium-free form of GCAP1 stimulates the effector enzyme. By molecular cloning of human and mouse GCAP cDNA, the known mammalian GCAPs are found to be more than 90% similar, consisting of 201 to 205 amino acids, and containing three identically conserved calcium-binding sites. A related protein, GCAP2, is detectable only in the retina and results from a gene duplication event.

REFERENCES

1. Subbaraya, I., Ruiz, C.C., Helekar, B.S., Zhao, X., Gorczyca, W.A., Pettenati, M.J., Rao, P.N., Palczewski, K. and Baehr, W. 1994. Molecular characterization of human and mouse photoreceptor guanylate cyclase-activating protein (GCAP) and chromosomal localization of the human gene. *J. Biol. Chem.* 269: 31080-31089.
2. Gorczyca, W.A., Polans, A.S., Surgucheva, I.G., Subbaraya, I., Baehr, W. and Palczewski, K. 1995. Guanylyl cyclase activating protein. A calcium-sensitive regulator of phototransduction. *J. Biol. Chem.* 270: 22029-22036.
3. Surguchov, A., Bronson, J.D., Banerjee, P., Knowles, J.A., Ruiz, C., Subbaraya, I., Palczewski, K. and Baehr, W. 1997. The human GCAP1 and GCAP2 genes are arranged in a tail-to-tail array on the short arm of chromosome 6p21.1. *Genomics* 39: 312-322.

CHROMOSOMAL LOCATION

Genetic locus: GUCA1A (human) mapping to 6p21.1; Guca1a (mouse) mapping to 17 C.

SOURCE

GCAP1 (7) is a mouse monoclonal antibody raised against amino acids 38-56 of GCAP1 of human origin.

PRODUCT

Each vial contains 200 µg IgG₁ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

GCAP1 (7) is available conjugated to agarose (sc-136313 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-136313 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-136313 PE), fluorescein (sc-136313 FITC), Alexa Fluor® 488 (sc-136313 AF488), Alexa Fluor® 546 (sc-136313 AF546), Alexa Fluor® 594 (sc-136313 AF594) or Alexa Fluor® 647 (sc-136313 AF647), 200 µg/ml, for WB (RGB), IF and IHC(P); and to either Alexa Fluor® 680 (sc-136313 AF680) or Alexa Fluor® 790 (sc-136313 AF790), 200 µg/ml, for Near-Infrared (NIR) WB and IF.

Alexa Fluor® is a trademark of Molecular Probes, Inc., Oregon, USA

APPLICATIONS

GCAP1 (7) is recommended for detection of GCAP1 of mouse, rat, human and canine origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) and immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500); not recommended for immunoprecipitation or flow cytometry.

Suitable for use as control antibody for GCAP1 siRNA (h): sc-40628, GCAP1 siRNA (m): sc-40629, GCAP1 shRNA Plasmid (h): sc-40628-SH, GCAP1 shRNA Plasmid (m): sc-40629-SH, GCAP1 shRNA (h) Lentiviral Particles: sc-40628-V and GCAP1 shRNA (m) Lentiviral Particles: sc-40629-V.

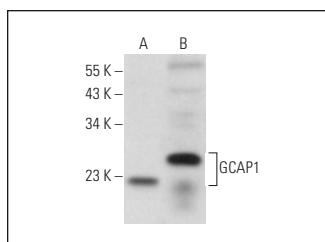
Molecular Weight of GCAP1: 20-23 kDa.

Positive Controls: Y79 cell lysate: sc-2240 or human brain hippocampus extract: sc-364375.

RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ 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) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ 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



GCAP1 (7): sc-136313. Western blot analysis of GCAP1 expression in MDCK whole cell lysate (A) and human brain tissue extract (B).

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.

PROTOCOLS

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