

GCAP1 (C-1): sc-390679



The Power to Question

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 c-GMP 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., et al. 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., et al. 1995. Guanylyl cyclase activating protein. A calcium-sensitive regulator of phototransduction. *J. Biol. Chem.* 270: 22029-22036.
3. Otto-Bruc, A., et al. 1997. Localization of guanylate cyclase-activating protein 2 in mammalian retinas. *Proc. Natl. Acad. Sci. USA* 94: 4727-4732.
4. Surguchov, A., et al. 1997. The human GCAP1 and GCAP2 genes are arranged in a tail-to-tail array on the short arm of chromosome 6 (p21.1). *Genomics* 39: 312-322.
5. Rudnicka-Nawrot, M., et al. 1998. Changes in biological activity and folding of guanylate cyclase-activating protein 1 as a function of calcium. *Biochemistry* 37: 248-257.

CHROMOSOMAL LOCATION

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

SOURCE

GCAP1 (C-1) is a mouse monoclonal antibody raised against amino acids 1-201 representing full length GCAP1 of human origin.

PRODUCT

Each vial contains 200 µg IgG_{2b} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

GCAP1 (C-1) is available conjugated to agarose (sc-390679 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-390679 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-390679 PE), fluorescein (sc-390679 FITC), Alexa Fluor® 488 (sc-390679 AF488), Alexa Fluor® 546 (sc-390679 AF546), Alexa Fluor® 594 (sc-390679 AF594) or Alexa Fluor® 647 (sc-390679 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-390679 AF680) or Alexa Fluor® 790 (sc-390679 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

GCAP1 (C-1) is recommended for detection of GCAP1 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 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.

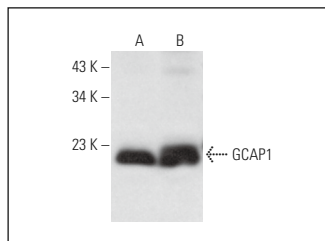
Molecular Weight of GCAP1: 20-23 kDa.

Positive Controls: GCAP1 (h3): 293T Lysate: sc-171956, mouse eye extract: sc-364241 or rat eye extract: sc-364805.

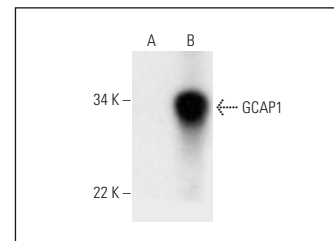
RECOMMENDED SUPPORT REAGENTS

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) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) 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 (C-1): sc-390679. Western blot analysis of GCAP1 expression in mouse eye (A) and rat eye (B) tissue extracts.



GCAP1 (C-1): sc-390679. Western blot analysis of GCAP1 expression in non-transfected: sc-117752 (A) and human GCAP1 transfected: sc-171956 (B) 293T 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.

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