

GCAP2 (G-10): sc-166056

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. The genes which encode GCAP1 and GCAP2 map to human chromosome 6p21.1.

REFERENCES

- 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.
- Gorczyca, W.A., et al. 1995. Guanylyl cyclase activating protein. A calcium-sensitive regulator of phototransduction. *J. Biol. Chem.* 270: 22029-22036.
- 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.
- Otto-Bruc, A., et al. 1997. Localization of guanylate cyclase-activating protein 2 in mammalian retinas. *Proc. Natl. Acad. Sci. USA* 94: 4727-4732.

CHROMOSOMAL LOCATION

Genetic locus: GUCA1B (human) mapping to 6p21.1; Guca1b (mouse) mapping to 17 C.

SOURCE

GCAP2 (G-10) is a mouse monoclonal antibody raised against amino acids 130-201 mapping at the C-terminus of GCAP2 of mouse 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.

GCAP2 (G-10) is available conjugated to agarose (sc-166056 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-166056 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-166056 PE), fluorescein (sc-166056 FITC), Alexa Fluor[®] 488 (sc-166056 AF488), Alexa Fluor[®] 546 (sc-166056 AF546), Alexa Fluor[®] 594 (sc-166056 AF594) or Alexa Fluor[®] 647 (sc-166056 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor[®] 680 (sc-166056 AF680) or Alexa Fluor[®] 790 (sc-166056 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

APPLICATIONS

GCAP2 (G-10) is recommended for detection of GCAP2 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), immunohistochemistry (including paraffin-embedded sections) (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 GCAP2 siRNA (h): sc-40630, GCAP2 siRNA (m): sc-45534, GCAP2 shRNA Plasmid (h): sc-40630-SH, GCAP2 shRNA Plasmid (m): sc-45534-SH, GCAP2 shRNA (h) Lentiviral Particles: sc-40630-V and GCAP2 shRNA (m) Lentiviral Particles: sc-45534-V.

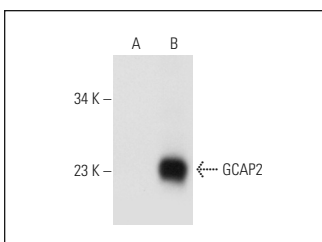
Molecular Weight of GCAP2: 23 kDa.

Positive Controls: GCAP2 (m): 293T Lysate: sc-120436.

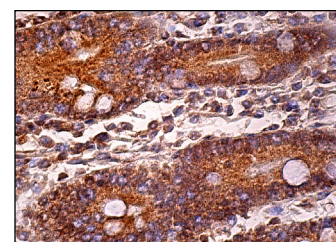
RECOMMENDED SUPPORT REAGENTS

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. 4) Immunohistochemistry: use m-IgGκ BP-HRP: sc-516102 with DAB, 50X: sc-24982 and Immunohistomount: sc-45086, or Organo/Limonene Mount: sc-45087.

DATA



GCAP2 (G-10): sc-166056. Western blot analysis of GCAP2 expression in non-transfected: sc-117752 (A) and mouse GCAP2 transfected: sc-120436 (B) 293T whole cell lysates.



GCAP2 (G-10): sc-166056. Immunoperoxidase staining of formalin fixed, paraffin-embedded human duodenum tissue showing cytoplasmic staining of glandular cells.

SELECT PRODUCT CITATIONS

- Nebet, M.J., et al. 2012. Ceramide kinase-like (CERKL) interacts with neuronal calcium sensor proteins in the retina in a cation-dependent manner. *Invest. Ophthalmol. Vis. Sci.* 53: 4565-4574.

STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

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