

GCAP1 (h3): 293T Lysate: sc-171956

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 3 identically conserved calcium-binding sites. A related protein, GCAP2, is detectable only in the retina and results from a gene duplication event.

REFERENCES

- 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.
- 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.
- 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.
- Otto-Bruc, A., Fariss, R.N., Haeseleer, F., Huang, J., Buczylo, J., Surgucheva, I., Baehr, W., Milam, A.H. and Palczewski, K. 1997. Localization of guanylate cyclase-activating protein 2 in mammalian retinas. *Proc. Natl. Acad. Sci. USA* 94: 4727-4732.
- Rudnicka-Nawrot, M., Surgucheva, I., Hulmes, J.D., Haeseleer, F., Sokal, I., Crabb, J.W., Baehr, W. and Palczewski, K. 1998. Changes in biological activity and folding of guanylate cyclase-activating protein 1 as a function of calcium. *Biochemistry* 37: 248-257.
- Sokal, I., Otto-Bruc, A.E., Surgucheva, I., Verlinde, C.L., Wang, C.K., Baehr, W. and Palczewski, K. 1999. Conformational changes in guanylyl cyclase-activating protein 1 (GCAP1) and its tryptophan mutants as a function of calcium concentration. *J. Biol. Chem.* 274: 19829-19837.
- LocusLink Report (LocusID: 600364). <http://www.ncbi.nlm.nih.gov/LocusLink>

STORAGE

Store at -20° C. Repeated freezing and thawing should be minimized. Sample vial should be boiled once prior to use. Non-hazardous. No MSDS required.

PROTOCOLS

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

CHROMOSOMAL LOCATION

Genetic locus: GUCA1A (human) mapping to 6p21.1.

PRODUCT

GCAP1 (h3): 293T Lysate represents a lysate of human GCAP1 transfected 293T cells and is provided as 100 µg protein in 200 µl SDS-PAGE buffer.

APPLICATIONS

GCAP1 (h3): 293T Lysate is suitable as a Western Blotting positive control for human reactive GCAP1 antibodies. Recommended use: 10-20 µl per lane.

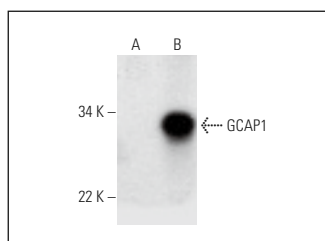
Control 293T Lysate: sc-117752 is available as a Western Blotting negative control lysate derived from non-transfected 293T cells.

GCAP1 (F-6): sc-390678 is recommended as a positive control antibody for Western Blot analysis of enhanced human GCAP1 expression in GCAP1 transfected 293T cells (starting dilution 1:100, dilution range 1:100-1:1,000).

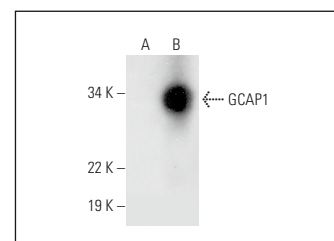
RECOMMENDED SUPPORT REAGENTS

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.

DATA



GCAP1 (F-6): sc-390678. Western blot analysis of GCAP1 expression in non-transfected: sc-117752 (A) and human GCAP1 transfected: sc-171956 (B) 293T whole cell lysates.



GCAP1 (E-5): sc-390695. Western blot analysis of GCAP1 expression in non-transfected: sc-117752 (A) and human GCAP1 transfected: sc-171956 (B) 293T whole cell lysates.

RESEARCH USE

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