

hCAP-G (YY-2): sc-101014

BACKGROUND

hCAP-G (condensin complex subunit 3, condensin subunit CAP-G) is a 1,015 amino acid protein that is encoded by the human gene NCAPG. hCAP-G belongs to the CND3 (condensin subunit 3) family and contains ten HEAT repeats. hCAP-G is a regulatory subunit of the condensin complex, a complex required for conversion of interphase chromatin into mitotic-like condensed chromosomes. The condensin complex probably introduces positive supercoils into relaxed DNA in the presence of type I topoisomerases and converts nicked DNA into positive knotted forms in the presence of type II topoisomerases. In interphase cells, the majority of the condensin complex is found in the cytoplasm, while a minority of the complex is associated with chromatin. A subpopulation of the complex, however, remains associated with chromosome foci in interphase cells. During mitosis, most of the condensin complex is associated with the chromatin. At the onset of prophase, the regulatory subunits of the complex are phosphorylated by Cdc2, leading to association of condensin with chromosome arms and to chromosome condensation. Dissociation from chromosomes is observed in late telophase.

REFERENCES

1. Pellieux, C., et al. 2003. CAP-G, a Gelsolin family protein modulating protective effects of unidirectional shear stress. *J. Biol. Chem.* 278: 29136-29144.
2. Dej, K.J., et al. 2004. Mutations in the *Drosophila* condensin subunit dCAP-G: defining the role of condensin for chromosome condensation in mitosis and gene expression in interphase. *Genetics* 168: 895-906.
3. Savvidou, E., et al. 2005. *Drosophila* CAP-D2 is required for condensin complex stability and resolution of sister chromatids. *J. Cell Sci.* 118: 2529-2543.
4. Jäger, H., et al. 2005. The *Drosophila melanogaster* condensin subunit CAP-G interacts with the centromere-specific Histone H3 variant CID. *Chromosoma* 113: 350-361.
5. Sjöblom, T., et al. 2006. The consensus coding sequences of human breast and colorectal cancers. *Science* 314: 268-274.
6. Nousiainen, M., et al. 2006. Phosphoproteome analysis of the human mitotic spindle. *Proc. Natl. Acad. Sci. USA* 103: 5391-5396.

CHROMOSOMAL LOCATION

Genetic locus: NCAPG (human) mapping to 4p15.31.

SOURCE

hCAP-G (YY-2) is a mouse monoclonal antibody raised against recombinant hCAP-G of human origin.

PRODUCT

Each vial contains 100 µg IgG₁ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

RESEARCH USE

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

APPLICATIONS

hCAP-G (YY-2) is recommended for detection of hCAP-G of human origin by Western Blotting (starting dilution 1:200, 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 hCAP-G siRNA (h): sc-62443, hCAP-G shRNA Plasmid (h): sc-62443-SH and hCAP-G shRNA (h) Lentiviral Particles: sc-62443-V.

Molecular Weight of hCAP-G: 114 kDa.

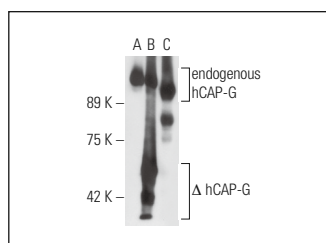
Positive Controls: hCAP-G (h): 293 Lysate: sc-110672 or HeLa whole cell lysate: sc-2200.

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



hCAP-G (YY-2): sc-101014. Western blot analysis of hCAP-G expression in non-transfected 293: sc-110760 (A), truncated human hCAP-G transfected 293: sc-110672 (B) and HeLa (C) whole cell lysates.

SELECT PRODUCT CITATIONS

1. Hu, X., et al. 2020. NCAPG dynamically coordinates the myogenesis of fetal bovine tissue by adjusting chromatin accessibility. *Int. J. Mol. Sci.* 21: 1248.

STORAGE

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