SANTA CRUZ BIOTECHNOLOGY, INC.

hCAP-G (B-1): sc-515297

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 condense 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.

CHROMOSOMAL LOCATION

Genetic locus: NCAPG (human) mapping to 4p15.31; Ncapg (mouse) mapping to 5 B3.

SOURCE

hCAP-G (B-1) is a mouse monoclonal antibody raised against amino acids 626-915 mapping near the C-terminus of hCAP-G of human origin.

PRODUCT

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

hCAP-G (B-1) is available conjugated to agarose (sc-515297 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-515297 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-515297 PE), fluorescein (sc-515297 FITC), Alexa Fluor® 488 (sc-515297 AF488), Alexa Fluor® 546 (sc-515297 AF546), Alexa Fluor® 594 (sc-515297 AF594) or Alexa Fluor® 647 (sc-515297 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-515297 AF680) or Alexa Fluor® 790 (sc-515297 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

STORAGE

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

APPLICATIONS

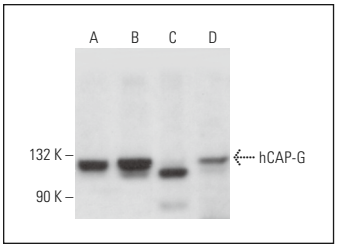
hCAP-G (B-1) is recommended for detection of hCAP-G of human origin, Ncapg of mouse origin and the corresponding rat homolog by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (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 hCAP-G siRNA (h): sc-62443, Ncapg siRNA (m): sc-149852, hCAP-G shRNA Plasmid (h): sc-62443-SH, Ncapg shRNA Plasmid (m): sc-149852-SH, hCAP-G shRNA (h) Lentiviral Particles: sc-62443-V and Ncapg shRNA (m) Lentiviral Particles: sc-149852-V.

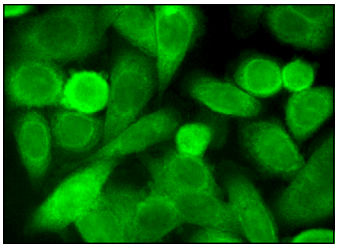
Molecular Weight of hCAP-G: 114 kDa.

Positive Controls: U-251-MG whole cell lysate: sc-364176, F9 cell lysate: sc-2245 or NCI-H1299 whole cell lysate: sc-364234.

DATA



hCAP-G (B-1): sc-515297. Western blot analysis of hCAP-G expression in U-251-MG (**A**), F9 (**B**) and NCI-H1299 (**C**) whole cell lysates and mouse testis tissue extract (**D**).



hCAP-G (B-1) Alexa Fluor® 488: sc-515297 AF488. Direct immunofluorescence staining of formalin-fixed SW480 cells showing nuclear and cytoplasmic localization. Blocked with UltraCruz® Blocking Reagent: sc-516214.

SELECT PRODUCT CITATIONS

1. Dong, Z., et al. 2018. Cdk phosphorylation licenses Kif4A chromosome localization required for early mitotic progression. J. Mol. Cell Biol. 10: 358-370.
2. Tang, F., et al. 2022. NCAPG promotes tumorigenesis of bladder cancer through NFκB signaling pathway. Biochem. Biophys. Res. Commun. 622: 101-107.
3. Fu, B., et al. 2022. NCAPG promotes pulmonary artery smooth muscle cell proliferation as a promising therapeutic target of idiopathic pulmonary hypertension: bioinformatics analysis and experiment verification. Int. J. Mol. Sci. 23: 11762.

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.