SANTA CRUZ BIOTECHNOLOGY, INC.

hCAP-G siRNA (h): sc-62443

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.
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.

PRODUCT

hCAP-G siRNA (h) is a pool of 3 target-specific 19-25 nt siRNAs designed to knock down gene expression. Each vial contains 3.3 nmol of lyophilized siRNA, sufficient for a 10 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see hCAP-G shRNA Plasmid (h): sc-62443-SH and hCAP-G shRNA (h) Lentiviral Particles: sc-62443-V as alternate gene silencing products.

For independent verification of hCAP-G (h) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-62443A, sc-62443B and sc-62443C.

STORAGE AND RESUSPENSION

Store lyophilized siRNA duplex at -20° C with desiccant. Stable for at least one year from the date of shipment. Once resuspended, store at -20° C, avoid contact with RNAses and repeated freeze thaw cycles.

Resuspend lyophilized siRNA duplex in 330 µl of the RNAse-free water provided. Resuspension of the siRNA duplex in 330 µl of RNAse-free water makes a 10 µM solution in a 10 µM Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

hCAP-G siRNA (h) is recommended for the inhibition of hCAP-G expression in human cells.

SUPPORT REAGENTS

For optimal siRNA transfection efficiency, Santa Cruz Biotechnology's siRNA Transfection Reagent: sc-29528 (0.3 ml), siRNA Transfection Medium: sc-36868 (20 ml) and siRNA Dilution Buffer: sc-29527 (1.5 ml) are recommended. Control siRNAs or Fluorescein Conjugated Control siRNAs are available as 10 µM in 66 µl. Each contain a scrambled sequence that will not lead to the specific degradation of any known cellular mRNA. Fluorescein Conjugated Control siRNAs include: sc-36869, sc-44239, sc-44240 and sc-44241. Control siRNAs include: sc-37007, sc-44230, sc-44231, sc-44232, sc-44233, sc-44234, sc-44235, sc-44236, sc-44237 and sc-44238.

GENE EXPRESSION MONITORING

hCAP-G (B-1): sc-515297 is recommended as a control antibody for monitoring of hCAP-G gene expression knockdown by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) or immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

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) 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor hCAP-G gene expression knockdown using RT-PCR Primer: hCAP-G (h)-PR: sc-62443-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

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.