SANTA CRUZ BIOTECHNOLOGY, INC.

kleisin β siRNA (h): sc-75388

BACKGROUND

Chromosome formation and subsequent function require the activity of two condensin complexes, namely condensin I and condensin II, both of which are crucial for proper mitotic chromosome assembly and segregation. Kleisin β, also known as NCAPH2 (non-SMC condensin II complex, subunit H2) or CAPH2, is a 605 amino acid protein that localizes to the nucleus and is specifically distributed along the arms of assembled chromosomes. Existing as a component of the condensin II complex, kleisin β functions as a regulatory protein that assists in establishing mitotic chromosome architecture, possibly by providing an increased level of organization and rigidity to formed chromosomes. In response to DNA damage, kleisin β is subject to phosphorylation by ATM or ATR. Multiple isoforms of kleisin β exist due to alternative splicing events.

REFERENCES

1. Ono, T., et al. 2003. Differential contributions of condensin I and condensin II to mitotic chromosome architecture in vertebrate cells. Cell 115: 109-121.
2. Schleiffer, A., et al. 2003. Kleisins: a superfamily of bacterial and eukaryotic SMC protein partners. Mol. Cell 11: 571-575.
3. Onn, I., et al. 2007. Reconstitution and subunit geometry of human condensin complexes. EMBO J. 26: 1024-1034.
4. Gosling, K.M., et al. 2007. A mutation in a chromosome condensin II subunit, kleisin β, specifically disrupts T cell development. Proc. Natl. Acad. Sci. USA 104: 12445-12450.
5. Online Mendelian Inheritance in Man, OMIM™. 2007. Johns Hopkins University, Baltimore, MD. MIM Number: 611230. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
6. Gosling, K.M., et al. 2008. Defective T-cell function leading to reduced antibody production in a kleisin β mutant mouse. Immunology 125: 208-217.

CHROMOSOMAL LOCATION

Genetic locus: NCAPH2 (human) mapping to 22q13.33.

PRODUCT

kleisin β 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 kleisin β shRNA Plasmid (h): sc-75388-SH and kleisin β shRNA (h) Lentiviral Particles: sc-75388-V as alternate gene silencing products.

For independent verification of kleisin β (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-75388A, sc-75388B and sc-75388C.

PROTOCOLS

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

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

kleisin β siRNA (h) is recommended for the inhibition of kleisin β 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

kleisin β (B-1): sc-393333 is recommended as a control antibody for monitoring of kleisin β 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 kleisin β gene expression knockdown using RT-PCR Primer: kleisin β (h)-PR: sc-75388-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.