SANTA CRUZ BIOTECHNOLOGY, INC.

SA-2 siRNA (h): sc-62970

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The Power to Question

BACKGROUND

The cohesion complex is a multi-protein structure that is required for cohesion of sister chromatids after DNA replication and may be involved in mitotic spindle pole assembly. There are several versions of the cohesion complex, all of which are composed of a heterodimer between SMC1 (SMC1A or SMC1B) and SMC3, as well as a linker protein called Rad21 and an additional binding protein. Depending on the complex, the additional protein can be SA-1 (stromal antigen 1), SA-2 (stromal antigen 2) or SA-3 (stromal antigen 3). SA-2, also known as STAG2, is a 1,231 amino acid component of the cohesion complex that interacts directly with Rad21. Localized to the nucleus, SA-2 associates with chromatin and, upon phosphorylation by Plk, dissociates from chromatin to allow proper chromosome separation during anaphase. SA-2 is able to enhance the activity of tumor necrosis factor α (TNFα) and may be a putative transcriptional regulator.

REFERENCES

1. Sumara, I., et al. 2000. Characterization of vertebrate cohesin complexes and their regulation in prophase. J. Cell Biol. 151: 749-762.
2. Prieto, I., et al. 2002. STAG2 and Rad21 mammalian mitotic cohesins are implicated in meiosis. EMBO Rep. 3: 543-550.
3. Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 604359. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
4. Lara-Pezzi, E., et al. 2004. Evidence of a transcriptional co-activator function of cohesin STAG/SA/Scc3. J. Biol. Chem. 279: 6553-6559.
5. Hauf, S., et al. 2005. Dissociation of cohesin from chromosome arms and loss of arm cohesion during early mitosis depends on phosphorylation of SA2. PLoS Biol. 3: e69.
6. McGuinness, B.E., et al. 2005. Shugoshin prevents dissociation of cohesin from centromeres during mitosis in vertebrate cells. PLoS Biol. 3: e86.
7. Krasikova, A., et al. 2005. Cohesion proteins are present in centromere protein bodies associated with avian lampbrush chromosomes. Chromosome Res. 13: 675-685.

CHROMOSOMAL LOCATION

Genetic locus: STAG2 (human) mapping to Xq25.

PRODUCT

SA-2 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 SA-2 shRNA Plasmid (h): sc-62970-SH and SA-2 shRNA (h) Lentiviral Particles: sc-62970-V as alternate gene silencing products.

For independent verification of SA-2 (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-62970A, sc-62970B and sc-62970C.

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

SA-2 siRNA (h) is recommended for the inhibition of SA-2 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

SA-2 (G-12): sc-398229 is recommended as a control antibody for monitoring of SA-2 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 SA-2 gene expression knockdown using RT-PCR Primer: SA-2 (h)-PR: sc-62970-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.