

# SA-1 siRNA (h): sc-62968

## 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. The complex is composed of a heterodimer between SMC1 and SMC3, two proteins that are linked at their heads by Rad21, and an additional protein called SA-1 (stromal antigen 1). SA-1, also known as STAG1, is a 1,258 amino acid component of the cohesion complex that interacts directly with Rad21. Localized to the nucleus, SA-1 associates with chromatin and, upon phosphorylation by Plk, dissociates from chromatin to allow proper chromosome separation during anaphase. SA-1, the human homolog of yeast Scc3p, is expressed in thymus, bone marrow and spleen and is 99% similar to its mouse counterpart.

## REFERENCES

1. Carramolino, L., et al. 1997. SA-1, a nuclear protein encoded by one member of a novel gene family: molecular cloning and detection in hemopoietic organs. *Gene* 195: 151-159.
2. Sumara, I., et al. 2000. Characterization of vertebrate cohesin complexes and their regulation in prophase. *J. Cell Biol.* 151: 749-762.
3. Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 604358. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>
4. Anazawa, Y., et al. 2004. Identification of STAG1 as a key mediator of a p53-dependent apoptotic pathway. *Oncogene* 23: 7621-7627.

## CHROMOSOMAL LOCATION

Genetic locus: STAG1 (human) mapping to 3q22.3.

## PRODUCT

SA-1 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  $\mu$ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see SA-1 shRNA Plasmid (h): sc-62968-SH and SA-1 shRNA (h) Lentiviral Particles: sc-62968-V as alternate gene silencing products.

For independent verification of SA-1 (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-62968A, sc-62968B and sc-62968C.

## 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  $\mu$ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330  $\mu$ l of RNase-free water makes a 10  $\mu$ M solution in a 10  $\mu$ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

## APPLICATIONS

SA-1 siRNA (h) is recommended for the inhibition of SA-1 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  $\mu$ M in 66  $\mu$ l. 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-1 (A-9): sc-365061 is recommended as a control antibody for monitoring of SA-1 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-IgG $\kappa$  BP-HRP: sc-516102 or m-IgG $\kappa$  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-IgG $\kappa$  BP-FITC: sc-516140 or m-IgG $\kappa$  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-1 gene expression knockdown using RT-PCR Primer: SA-1 (h)-PR: sc-62968-PR (20  $\mu$ l). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

## SELECT PRODUCT CITATIONS

1. Wali, R.K., et al. 2016. Higher order chromatin modulator cohesin SA-1 is an early biomarker for colon carcinogenesis: race-specific implications. *Cancer Prev. Res.* 9: 844-854.

## RESEARCH USE

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

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) for detailed protocols and support products.