SANTA CRUZ BIOTECHNOLOGY, INC.

SCCA2 siRNA (h): sc-40951

BACKGROUND

Metastasis of a primary tumor to a distant site is determined through signaling cascades that break down interactions between the cell and extracellular matrix proteins. Among the proteins mediating metastasis are serine proteases, such as neutrophil elastase. In 1985, Dr. Jim Travis and Dr. R.W. Carrell designated an emerging family of serine protease inhibitors as the serpin family, which share homology in both primary amino acid sequence and tertiary structure. Serpins contain a stretch of peptide that mimics a true substrate for a corresponding serine protease. Serine proteases bind to this substrate mimic in a 1:1 stoichiometric fashion and become catalytically inactive. Aberrant expression of serpin family members can contribute to a number of conditions, including emphysema (α-1 antitrypsin deficiency), fatal bleeding (elastase to Thrombin specificity) and thrombosis (antithrombin deficiency), and are indicators of cancer stage phenotypes (circulating levels of squamous cell carcinoma antigen, known as SCCA1, increase in advancing stages of some cervical, lung, esophageal, and head and neck cancers). Human chromosome position 18q21.33 contains a cluster of serpins, including a tandem duplication of the SCCA gene, plasminogen activator inhibitor type 2 and maspin. SCCA is transcribed by two nearly identical genes (SCCA1 and SCCA2), and is mainly produced as SCCA1. The human SCCA1 gene encodes a 390 amino acid protein that was originally isolated from a metastatic cervical squamous cell carcinoma.

REFERENCES

1. Kato, H. and Torigoe, T. 1977. Radioimmunoassay for tumor antigen of human cervical squamous cell carcinoma. Cancer 40: 1621-1628.
2. Online Mendelian Inheritance in Man, OMIM™. 1998. Johns Hopkins University, Baltimore, MD. MIM Number: 600517. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
3. Hefler, L., et al. 1999. Serum concentrations of squamous cell carcinoma antigen in patients with vulvar intraepithelial neoplasia and vulvar cancer. Int. J. Cancer 84: 299-303.
4. Kishimoto, H., et al. 2000. Isolation and characterization of adenoid squamous carcinoma cells highly producing SCC antigen and CEA from carcinoma of the maxillary sinus. Oral Oncol. 36: 70-75.

CHROMOSOMAL LOCATION

Genetic locus: SERPINB4 (human) mapping to 18q21.33.

PRODUCT

SCCA2 siRNA (h) is a pool of 2 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 SCCA2 shRNA Plasmid (h): sc-40951-SH and SCCA2 shRNA (h) Lentiviral Particles: sc-40951-V as alternate gene silencing products.

For independent verification of SCCA2 (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-40951A and sc-40951B.

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

SCCA2 siRNA (h) is recommended for the inhibition of SCCA2 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

SCCA2 (10C12): sc-21793 is recommended as a control antibody for monitoring of SCCA2 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 SCCA2 gene expression knockdown using RT-PCR Primer: SCCA2 (h)-PR: sc-40951-PR (20 µl, 470 bp). 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.