SANTA CRUZ BIOTECHNOLOGY, INC.

SPEC2 siRNA (h): sc-91912

BACKGROUND

SPEC2 (small effector of Cdc42 protein 2), also known as CDC42SE2 (CDC42 small effector 2) or FLJ21967, is an 84 amino acid protein that belongs to the Cdc42SE/SPEC family and is thought to be involved in the organization of the actin cytoskeleton by acting downstream of Cdc42, which induces actin filament assembly. Additionally, SPEC2 is believed to be involved in phagocytosis. SPEC2 interacts with the GTP-bound form of Cdc42 using its CRIB domain and also interacts weakly with Rac 1. Although widely expressed, SPEC2 is expressed at higher levels in T lymphocytes. SPEC2 localizes to the phagocytic cup of macrophages, cytoplasm, cytoskeleton and cell membrane. The gene encoding SPEC2 maps to chromosome 5q31.1, exists as 15 alternatively spliced variants and is mapped in the genomic region associated with schizophrenia. With 181 million base pairs encoding around 1,000 genes, chromosome 5 makes about 6% of human genomic DNA. Deletion of the p arm of chromosome 5 leads to Cri du chat syndrome and deletion of 5q or chromosome 5 altogether is common in therapy-related acute myelogenous leukemias and myelodysplastic syndrome.

REFERENCES

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2. Strausberg, R.L., et al. 2002. Generation and initial analysis of more than 15,000 full-length human and mouse cDNA sequences. Proc. Natl. Acad. Sci. USA 99: 16899-16903.
3. Ching, K.H., et al. 2005. The role of SPECs, small Cdc42-binding proteins, in F-actin accumulation at the immunological synapse. J. Biol. Chem. 280: 23660-23667.
4. South, S.T., et al. 2006. A new genomic mechanism leading to cri-du-chat syndrome. Am. J. Med. Genet. A 140: 2714-2720.
5. Chen, X., et al. 2006. Haplotypes spanning SPEC2, PDZ-GEF2 and ACSL6 genes are associated with schizophrenia. Hum. Mol. Genet. 15: 3329-3342.
6. Herry, A., et al. 2007. Redefining monosomy 5 by molecular cytogenetics in 23 patients with MDS/AML. Eur. J. Haematol. 78: 457-467.
7. Ching, K.H., et al. 2007. Biochemical characterization of distinct regions of SPEC molecules and their role in phagocytosis. Exp. Cell Res. 313: 10-21.

CHROMOSOMAL LOCATION

Genetic locus: CDC42SE2 (human) mapping to 5q23.3.

PRODUCT

SPEC2 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 SPEC2 shRNA Plasmid (h): sc-91912-SH and SPEC2 shRNA (h) Lentiviral Particles: sc-91912-V as alternate gene silencing products.

For independent verification of SPEC2 (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-91912A, sc-91912B and sc-91912C.

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

SPEC2 siRNA (h) is recommended for the inhibition of SPEC2 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor SPEC2 gene expression knockdown using RT-PCR Primer: SPEC2 (h)-PR: sc-91912-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.